



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

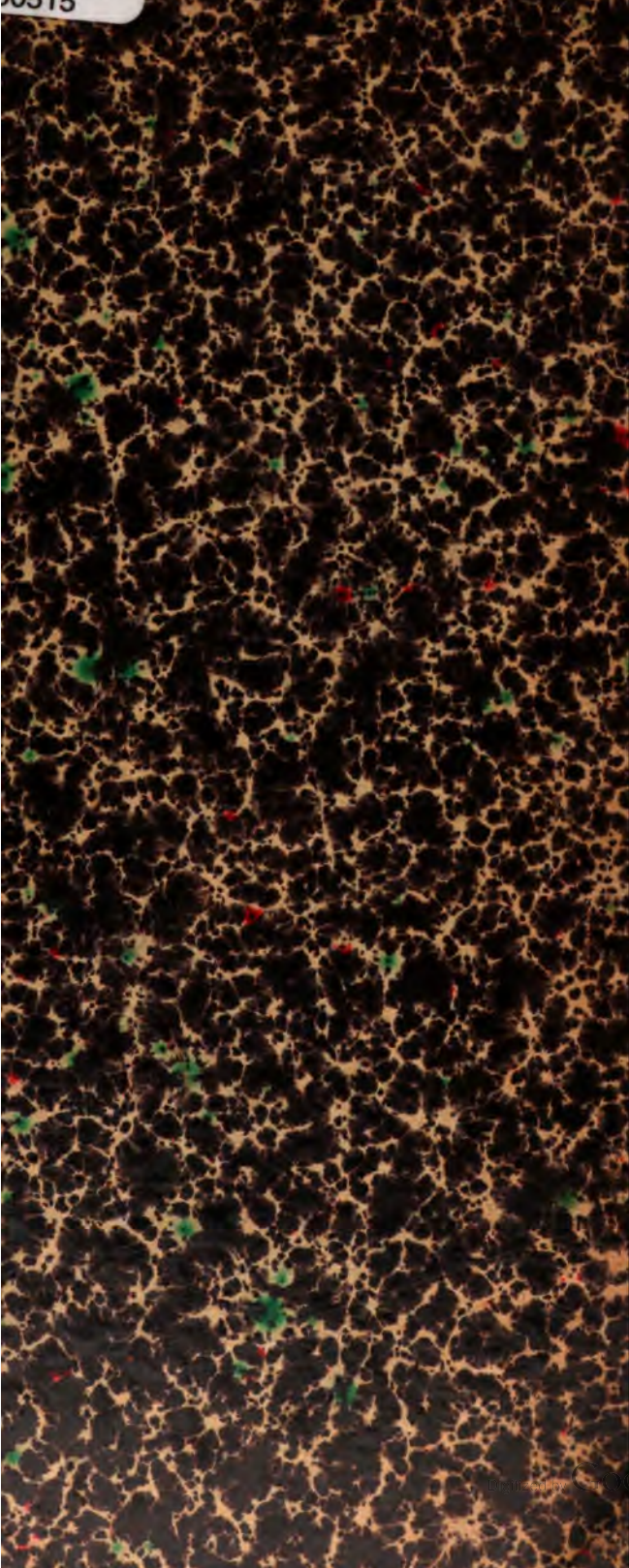
We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

00313



6620

.234

.92

Library of



Princeton University.

Presented by

Univ. of California
Press.

THE
UNIVERSITY OF CALIFORNIA CHRONICLE
AN OFFICIAL RECORD

VOLUME XVIII

1916

UNIVERSITY OF CALIFORNIA
LIBRARY
BERKELEY

Qms

UNIVERSITY OF CALIFORNIA PRESS
BERKELEY

YI2AEV0U
YIABEU
L.N. NOTIONA

CONTENTS

	PAGE
An Account of the Methods of Work of the Agricultural Institutions of California. Thomas Forsyth Hunt	25
Addresses at Memorial Services in Honor of Dr. E. W. Hilgard, University of California, January 30, 1916:	
E. J. Wickson	159
R. H. Loughridge	177
Eugene A. Smith	187
The Autobiography of a Spanish Adventurer. S. Griswold Morley	40
Berkeley Golden Jubilee Address. Ira Woods Howerth	505
George Borrow: An English Humorist in Spain. Rudolph Schevill	1
Ceremonies at the Laying of the Cornerstone of Benjamin Ide	
Wheeler Hall	299
John A. Britton	299
Oscar Sutro	301
Armin O. Leuschner	304
Benjamin Ide Wheeler	308
The Contribution of Medical Science to Medical Art as Shown in a Study of Typhoid Fever. Frederick P. Gay	223
John Morton Eshleman—A Tribute. Guy C. Earl	217
Experiences with the Ford Peace Expedition. Paul L. Fussell	192
A Fable. Leon J. Richardson	191
The Freeholder (Emily Chamberlain Cook Prize Poem, 1916). Thomas Gordon Luke	463
The Influence of the Missions on Present-day California. Mary Pius Carroll	471
Literature and History. John S. P. Tatlock	309
Manu and the Fish. Arthur W. Ryder	329
Mithridatium and Theriac, the Most Famous Remedies of Old Medicine. George W. Corner	92
The Monkey and the Crocodile. Arthur W. Ryder	199
Mysticism and Idealism. J. Loewenberg	72
On the Universality of the Law of Gravitation. Armin O. Leuschner	205
Philosophy and Literature. George Boas	394
The Purpose of University Study. Richard C. Tolman	485
The Rural Credit System Needed in Western Development. Elwood Mead	107
The Saga of Finn. Leonard Bacon	489
The Sense of the State. George E. Vincent	287

620
11

	PAGE
Shakespeare. Leonard Bacon	198
Shakespeare the Writer. Walter Morris Hart	363
Some Phases of Finance During the Great War. Carl C. Plehn	333
The Spirit of Hegel's Philosophy. J. Loewenberg	373
Tacitus and Some Roman Ideals. Jefferson Elmore	58
University Record. Victor H. Henderson	123, 251, 399, 519
The Western Pacific. Warren Olney, Jr.	445
Bacon, Leonard. Shakespeare	198
The Saga of Finn	499
Boas, George. Philosophy and Literature	394
Britton, John A. Address at Ceremonies at the Laying of the Cornerstone of Benjamin Ide Wheeler Hall	299
Carroll, Mary Pius. The Influence of the Missions on Present- Day California	471
Corner, George W. Mithridatum and Theriac, the Most Famous Remedies of Old Medicine	92
Earl, Guy C. John Morton Eshleman—A Tribute	217
Elmore, Jefferson. Tacitus and Some Roman Ideals	58
Fussell, Paul L. Experiences with the Ford Peace Expedition ...	192
Gay, Frederick P. The Contribution of Medical Science to Medi- cal Art as Shown in a Study of Typhoid Fever	223
Hart, Walter Morris. Shakespeare the Writer	363
Henderson, Victor H. University Record	123, 251, 399, 519
Howarth, Ira Woods. Berkeley Golden Jubilee Address	505
Hunt, Thomas Forsyth. An Account of the Method of Work of the Agricultural Institutions of California	25
Leuschner, Armin O. On the Universality of the Law of Gravi- tation	205
Address at Ceremonies at the Laying of the Cornerstone of Benjamin Ide Wheeler Hall	304
Loughridge, R. H. Address at Memorial Services in Honor of Dr. E. W. Hilgard, University of California, January 30, 1916	177
Loewenberg, J. Mysticism and Idealism	72
The Spirit of Hegel's Philosophy	373
Luke, Thomas Gordon. The Freeholder (Emily Chamberlain Cook Prize Poem, 1916)	463
Mead, Elwood. The Rural Credit System Needed in Western Development	107
Morley, S. Griswold. The Autobiography of a Spanish Adventurer	40
Olney, Warren, Jr. The Western Pacific	445
Plehn, Carl C. Some Phases of Finance During the Great War	333
Richardson, Leon J. A Fable	191
Ryder, Arthur W. The Monkey and the Crocodile	199
Manu and the Fish	329

	PAGE
Schevill, Rudolph. George Borrow: An English Humorist in Spain	1
Smith, Eugene A. Address at Memorial Services in Honor of Dr. E. W. Hilgard, University of California, January 30, 1916	187
Sutro, Oscar. Address at Ceremonies at the Laying of the Cornerstone of Benjamin Ide Wheeler Hall	301
Tatlock, John S. P. Literature and History	309
Tolman, Richard C. The Purpose of University Study	485
Vincent, George E. The Sense of the State	287
Wheeler, Benjamin Ide. Remarks at Ceremonies at the Laying of the Cornerstone of Benjamin Ide Wheeler Hall	308
Wickson, E. J. Address at Memorial Services in Honor of Dr. E. W. Hilgard, University of California, January 30, 1916	159

INDEX

- Adams, Professor Frank, gift, 416.
- Addison, Dr. Thomas, lecture, 281.
- Advisors, freshman, 128; University Farm, 264.
- Afterthought Mining Company, gift, 416.
- Agriculture, College of, 264; Dean's annual report, 123, 125; need for rural credit system, 126; boy farmers' eastern journey, 127, 405; livestock prizes, 126; correspondence instruction, 128; conference of farm advisors, 264; improvements at Riverside, 263; Forestry, 405, 524; University Farm items, 406; state dairy cow competition, 524.
- Aitken, Dr. R. G., lectures, 436, 437.
- Alder, F. R., lecture, 281.
- Alexander, Annie M., gifts, 139, 265, 416.
- Alexander, Wallace M., gift, 417.
- Allard, L., lectures, 538, 539, 540.
- Allen, A. H., Boy Scouts talk, 285.
- Allen, J. T., readings from Greek plays, 155, 283, 441.
- Alpha Nu, initiation, 274.
- Alpha Zeta, initiation, 149, 274.
- Alumni Association, 138; football banquet, 138; Harvey Roney '15 elected secretary, and editor of *Alumni Weekly*, 139; club of Chinese alumni, 139; *Alumni Fortnightly*, 271; commencement luncheon, 529; annual meeting at Kearney Park, 529.
- American Book Company, gift, 417.
- American Institute of Architects, gift, 532.
- American Law Book Company, gift of prize, 532.
- Anaconda Copper Company, gift, 417.
- Anderson, F. M., gift of fellowship, 532.
- Appointments, 150, 278, 431, 535.
- Argentine Republic, gifts, 533.
- Ashburner, Mrs. E. F., gift, 533.
- Athletic matters, 147, 258, 278, 428-430; relations with Stanford resumed, 276.
- Australian Commission for P. I. E., gifts, 417.
- Baccalaureate sermon, 439.
- Babeock, C. B., lecture, 282.
- Babeock & Wilcox Company, gift, 139.
- Barrows, A. L., lectures, 283, 440.
- Barrows, D. P., lecture, 154.
- Bates, F. J., lecture, 436.
- Baugh, Mrs. George, gift, 139.
- Bear Gulch Water Company, 264.
- Beasley, Dr. S. O., lecture, 437.
- Beaton, K. C., lecture, 154.
- Belcher, '00, Robert, death, 522.
- Bell, G. L. lectures, 541.
- Berkeley, City of, gift, 265.
- Beta Gamma Sigma, initiation, 150.
- Beta Kappa Alpha, initiation, 427.
- Billings, Dr., lectures, 439, 440.
- Biochemistry, establishment of department of, 402.
- Bloodgood, Dr. J. C., lectures, 437.
- Bolivian Commission for the P. I. E., gift, 417.
- Bonnheim, Albert, gift of prizes, 265, 417.
- Bowles, P. E., gift, 265.
- Boy farmers, eastern journey, 127, 405.
- Boy Scouts lectures, 285, 441.
- Bradley, '86, F. W., gifts, 140, 417, 533.
- Brandt, A. U., lecture, 281.

Broadus, E. K., lecture, 153.
 Bryant, H. C., lectures, 283, 437, 438, 439.
 Buckham, J. W., lecture, 153.
 Buildings and grounds, 130, 262, 263, 409, 526.
 Bunker Hill and Sullivan Mining Company, gift, 417.
 Burke, '08, James M., gift, 417.
 Buwalda, J. P., lecture, 436; Boy Scouts talk, 442.
 Cady, B. J., lecture, 281.
California Book of Undergraduate Verse, 148.
 California School of Design, change of name, 527.
 California State Commission for P. P. I. E., gift, 417.
 California State Dental Association, gift, 533.
 California State Historical Survey, 134.
 Carnegie retiring allowances, 528.
 Carnot debate, 428.
 Carpenter, F. A., lectures, 539.
 Carrell, H. T., lecture, 154.
 Cebrian, J. C., gifts, 417, 533.
 Charter Day, 1916, 413.
 Cherrington, B. M., Boy Scouts talk, 285.
 Chi Omega, initiation, 274.
 Chicago Pneumatic Tool Company, gift, 418.
 Children's Hospital, arrangement with the Medical School, 526.
 Chinese Commission for P. P. I. E., gift, 418.
 Chinese students, careers of, 412.
 Class of '96, gift, 265.
 Class of 1915 Fund, 140; insurance plan committee, 149.
 Class of 1916, gift, 265.
 Edith Claypole Memorial Research Fund, 141, 533.
 Clemens, '15, Mildred L., lecture, 436, 538.
 Coleman, Charles, lecture, 154.
 Coleman, S. W., lectures, 436.
 Commencement week, 415.
 Concordia Safety Lamp Company, gift, 418.
 Crane Company, gift, 533.
 Crawford, B. T., Boy Scouts talks, 442.
 Crocker, W. H., gift, 266, 418.
 Curtis, H. D., lectures, 436.
 Daniels, '05, Mark, lecture, 438.
 Danton, G. H., lecture, 437.
 Davis, Horace, death, 521.
 Davis, '74, W. R., gift of scholarship, 534.
 Day, Clinton, death, 263.
 Degree, new, Graduate in Education, 258.
 Degrees conferred, 415; to be voted by Faculties, 401.
 Dentistry, College of, addition to building, 261, 526; Dental Institute, 261; four-year course, 406.
 Dohrmann, F. W., gift, 418.
 Dymont, C. V. lecture, 540.
 Ebina, D., lecture, 153.
 Ebright, G. E., lecture, 540.
 Eddy, A. J., lecture, 155.
 Education, School of, 403; new higher degree in, 258, 403.
 Elson, J. C., lecture, 538.
 English Club, initiation, 274; plays, 408.
 Enrollment figures, 253.
 Eshleman, John M., death, 251.
 Eta Kappa Nu, initiation, 427.
 Evermann, B. W., lecture, 441.
 Exchange professors, 522.
 Faculty matters, 136, 269, 421, 527.
 Faculty research lecturer for 1916, 269, 413, 437.
 Falconer, F. H., lecture, 282.
 Faye, P. L., lecture, 541.
 Fishback, G. W., lecture, 281.
 Fisk, Mrs. E. C., gift, 140.
 Fleishhacker, Mortimer, appointed treasurer of the Regents, 412.
 Flint, L. N., lecture, 539.
 Force, J. N., Boy Scouts talks, 441.
 Ford peace expedition representative, 148; lecture by, 282.
 Forest utilization, new course, 524.
 Forke, Alfred, lectures, 154.
 Formilli, Chevalier C., lecture, 539.

- Francke, Kuno, lectures, 539, 540.
 Fraternities, scholarship, 272, 400, 530.
 Freeborn, S. B., lecture, 282.
 French Commission for P. P. I. E., gift, 418.
 French Republic, gift, 140.
 Freshman advisors, 128.
 Fussell, '16, Paul, University representative on Ford peace expedition, 148.
 Gay, F. P., lectures, 153, 438; Faculty research lecturer, 269, 413, 437.
 General Electric Company, gift, 418.
 General Gas Light Company of San Francisco, gift, 266.
 Gifford, E. W., lectures, 156, 283, 440, 541.
 Gifts to the University, 139, 265, 416, 532.
 Gillihan, A. F., lecture, 541.
 Glee Club annual concert, 285.
 Golden Anderson Valve Speciality Company, gift, 266.
 Golden Bear, initiation, 274, 426.
 Grinnell, J., lectures, 437, 440.
 Grounds and buildings, 130, 262, 263, 409, 526; sale of bonds, 130.
 Guggenhime, D. J., gift, 418.
 Hahnemann Medical College, gift, 141.
 Half-Hour of Music, 156, 285, 442, 542.
 Hall, H. M., Boy Scouts talk, 442.
 Hannah, I. C., lectures, 540.
 Hart, W. M., appointed dean of Summer Session, 256.
 Hearst, Mrs. P. A., gifts, 141, 266, 418, 534.
 Hellman, I. W., Jr., resignation as treasurer of the Regents, 412.
 Hercules Powder Company, gift, 534.
 Hicks, H. H., lecture, 436.
 High school certificate, requirements for, 129.
 Hilgard, Professor E. W., memorial services, 269; elected life member of American Association for the Advancement of Science, 269.
 Hilgard, The Misses, gift, 418.
 Hilgard Hall, 411.
 Hitchcock lectures of 1915, published in book form, 270.
 Hoag, E. B., lectures, 541.
 Hockensmith Wheel and Car Company, gift, 419.
 Honors, candidacy for, 400, 529; awarded to, 272.
 Hopkins, E. M., lecture, 439.
 Hotchkiss, W. E., Weinstock lecture, 438.
 Howison, G. H., lecture, 155.
 Howison Foundation, 519.
 Hurst, G. L., gift, 534.
 Hurwitz, H., lecture, 540.
 Idaho State Commission for P. P. I. E., gift, 419.
 Ingels, B. D., lecture, 437, 438.
 International Peace Congress, 153.
Iphigenia in Aulis, 157.
 Irving Prize for Wit and Humor, winner, 275.
 Ishi, death of, 408.
 Istyc Club, 149; initiation, 275.
 Jablons, B., lecture, 438.
 Jackling, D. C., gift, 419.
 Jacobus fellowship of Princeton University, winner, 413.
 Jáen, Ramón, lectures, 538, 539, 540.
 Jamme, Miss A. C., lectures, 541.
 Japanese Commission to P. P. I. E., gifts, 266, 419.
 Jastrow, Morris, Jr., lectures, 539.
 John Rutledge Chapter, G. A. R., scholarship, 266.
 Johns-Manville Company, gift, 534.
 Jones, F. C., lecture, 439.
 Jones, H. D., lecture, 281.
 Jones, L. T., 281, 437.
 Juilliard, '01, F. A., gift of marble chair in Greek Theatre in memory of Professor Paget, 534.
 Junior farce, 157.
 Kallem, H. M., 153.
 Kearney vineyard, 134.

Keeping it Dark, 157.
 Keith, J. M., gift, 133.
 Kiang Kangu Hu, S. C., gift, 534.
 Kleeberger, F. L., Boy Scouts talk, 285.
 Knights of St. Patrick, gift, 141.
 Kroeber, A. L., lecture, 540.
 Lemaire, Emanuel B., death, 522.
 Laney, F. P., lecture, 154.
 "Lawson Adit," 524.
 Leaves of Absence, 151, 280, 434, 537.
 LeConte, Mrs. Caroline Nisbet, death, 135.
 Lectures, 152, 281, 436, 538.
 Lectures: Thomas Addison, 281; R. G. Aitken, 436, 437; F. R. Alder, 281; Louis Alard, 538, 539, 540; A. H. Allen, 285; C. B. Babcock, 282; A. L. Barrows, 283, 441; D. P. Barrows, 154; F. J. Bates, 436; S. O. Beasley, 437; K. C. Beaton, 154; G. L. Bell, 541; Dr. Billings, 439, 440; J. C. Bloodgood, 437; A. U. Brandt, 281; E. K. Broadus, 153; H. C. Bryant, 283, 437, 438, 439; J. W. Buckham, 153; J. P. Bualda, 436; B. J. Cady, 281; F. A. Carpenter, 539; H. T. Carrell, 154; B. M. Cherrington, 285; Mildred L. Clemens, 436, 538; Charles Coleman, 154; S. W. Coleman, 436; H. D. Curtis, 436; Mark Daniels '05, 436, 439; G. H. Danton, 437; C. V. Dyment, 540; D. Ebina, 153; G. E. Ebright, 540; A. J. Eddy, 155; J. C. Elson, 538, 540; B. W. Evermann, 441; F. H. Falconer, 282; P. L. Faye, 541; G. W. Fishback, 281; L. N. Flint, 539; Alfred Forke, 154; Chevalier C. Formilli, 539; A. Foucher, 153; Kuno Francke, 539, 540; S. B. Freeborn, 282; Paul Fussell, 282; F. P. Gay, 269, 413, 437, 438; E. W.

Gifford, 156, 283, 440, 541; A. F. Gillihan, 541; Joseph Grinnell, 437, 440; I. C. Hannah, 540; H. H. Hicks, 436; E. B. Hoag, 541; A. Holman, 153; E. J. Hopkins, 439; W. T. Hornaday, 153; W. Z. Hotchkiss, 438; G. H. Howison, 155; H. Hurwitz, 540; B. D. Ingels, 437, 438; B. Jablons, 438; Ramón Jáen, 538, 539, 540; Miss A. C. Jamme, 541; Morris Jastrow, Jr., 539; F. C. Jones, 439; H. D. Jones, 281; L. T. Jones, 281, 437; H. M. Kalllem, 153; F. L. Kleeberger, 285; A. L. Kroeber, 540; F. P. Laney, 154; C. I. Lewis, 154; E. P. Lewis, 281, 436, 439; Hans Lisser, 281; J. Loewenberg, 281; Jack London, 153; J. A. Long, 282, 437, 441; W. P. Lucas, 282; F. W. Lynch, 436; John McNaught, 282; A. M. Meads, 285; J. C. Merriam, 283; C. W. Merrill, 441; Kuno Meyer, 281; K. F. Meyer, 281, 284, 440; Dr. Meyer-Riefstahl, 540; John Metz, 153; R. S. Minor, 154, 282; H. C. Moffitt, 284; F. Monsen, 438; Carlos Morbio, 154; Rev. W. H. Moreland, 439; T. H. Morgan, 438, 439; Howard Morrow, 440; L. Morrow, 541; W. W. Morrow, 154, 155; P. W. Nahl, 539; Ng Poon Chew, 154; H. F. Nichols, 439; G. H. Palmer, 437; C. J. Pierson, 281; W. H. Pillsbury, 438; S. T. Pope, 154; F. H. Probert, 285; Paul Radin, 155; W. J. Raymond, 438, 439; Aurelia H. Reinhardt, 539; T. A. Rickard, 284, 437; W. P. Roop, 154, 436; C. H. Rowell, 539; I. M. Rubinow, 541; A. W. Ryder, 538, 539; J. M. Scammell, 155, 283; N. B. Scofield, 438; F. E. Scotford, 281; C. L. Seeger, Jr., 540; A. H. Singleton, 285;

- L. F. Smith, 439; W. B. Spalding, 539, 540; T. I. Storer, 438, 540; I. B. Stoughton-Holborn, 539, 540; G. M. Stratton, 282; J. W. Swaren, 154, 439; W. L. Sweet, 436; W. H. Taft, 152, 153; E. L. M. Tate, 541; J. S. P. Tatlock, 439; Paul Thelen, 438, 439; Richard Thörnwald, 283; H. B. Torrey, 153; E. L. Walker, 284, 440; W. D. Wallis, 155; T. T. Waterman, 155, 156, 541; G. H. Whipple, 539; H. R. Wilson, 285; S. S. Wise, 155; W. S. Wollner, 285; C. W. Woodworth, 281; L. E. Young, 284.
- Agricultural Club, 436; Department of Anthropology, 155, 283, 440, 541; Beta Kappa Alpha, 153; *The City Man in Agriculture*, 282; Commerce Club, 436; Cosmopolitan Club, 153; Earl Foundation, 152; Entomology Club, 436, 438, 439; Faculty research lecture, 269, 413, 437; Forestry Club, 438; Hitchcock lectures, 438, 439; International Peace Congress, 153; College of Mining, 284, 441; Phi Beta Kappa, 439; Philosophical Union, 154, 155, 281, 282, 437; Sigma Xi, 282, 436, 438; *Tropical Medicine*, 284, 439; Weinstock Foundation, 438.
- Levy, Mr. and Mrs. Max, gift of scholarship, 267.
- Lewis, C. I., lecture, 154.
- Lewis, E. P., lectures, 281, 436, 439.
- Lisser, Hans, lecture, 281.
- Loewenberg, J., lecture, 281.
- Long, J. A., lectures, 282, 437, 441.
- Lucas, W. P., lecture, 282.
- Lynch, F. W., lecture, 436.
- McNaught, J., lectures, 282.
- Mascot Copper Company, gift, 419.
- Maslin, '17, E. M., winner of Irving Prize, 275.
- Massachusetts Commission for P. P. I. E., gift, 267.
- Meads, A. M., Boy Scout talks, 285.
- Meagher, '17, Maude, winner of Parthenonia, 149.
- Medical School, gift of alumni, 532.
- Merriam, J. C., lecture, 283.
- Merrill, '91, C. W., gifts, 419, 535; lectures, 441.
- Meyer, Kuno, lecture, 281.
- Meyer, K. F., lectures, 281, 284, 440.
- Meyer-Riefstahl, R., lectures, 540.
- Military Department, U. S. Official report on, 525.
- Military summer camps, 130.
- Miller, H. E., gifts, 141, 535.
- Mills, Ogden, gift, 419.
- Mining Student Loan Fund, 140.
- Minor, B. S., lecture, 154, 282.
- Missouri Commission for P. P. I. E., gift, 419.
- Moffitt, H. C., lecture, 284.
- Moffitt, J. K., gifts, 419, 535.
- Monsen, F., lecture, 438.
- Morbio, Carlos, lecture, 154.
- Moreland, Rev. W. H., baccalaureate sermon, 439.
- Morgan, T. H., Hitchcock lecture, 438, 439.
- Morrison, Alexander, gift, 419.
- Morrow, H., lecture, 440.
- Morrow, L., lectures, 541.
- Morrow, W. W., lectures, 154, 155.
- Motion pictures in University extension work, 129.
- Mu of Eta Kappa Nu, initiation, 274.
- Musical and dramatic events, 157, 285, 443, 542.
- Nahl, P. W., lectures, 539.
- Nathan, B., gifts, 141, 535.
- New York Commission for P. P. I. E., gift, 419.
- Ng Poon Chew, lecture, 154.
- Nichols, H. F., lecture, 439.
- Noble Electric Steel Company, gift, 420.
- Norwegian Commission for P. P. I. E., gift, 420.

Nu Sigma Psi, initiation, 275.
 Ohlandt, N., gift, 420.
 Oriental Institute, gift, 267.
 Pacific Gas and Electric Com-
 pany, gift, 420.
 Pacific Coast Gas Association,
 gift, 267.
 Palache, W., gift, 142.
 Palmer, G. H., lecture, 437.
 Partheneia, 1916, won by
 Maude Meagher, '17, 149,
 407.
 Partsch, H., gift, 267.
 Peixotto, E., Boy Scouts talk,
 441.
 Peixotto, S., Boy Scouts talk,
 442.
 Pelton Water Wheel Company,
 gift, 420.
 Pennsylvania Railroad Com-
 pany, gift, 267.
 Pettingell, W. J., gift, 267.
 Phi Beta Kappa, initiation,
 426.
 Philippine Commission for P.
 P. I. E., gift, 267.
 Pierson, C. J., lecture, 281.
 Pillsbury, W. H. lecture, 438.
 Pope, S. T., lecture, 154.
President's Report, 252.
 Press Club, initiation, 150.
 Prizes awarded at 1916 Com-
 mencement, 427.
 Probert, F. H., lecture, 285;
 gift, 420.
 Promotions and changes in
 title, 279, 433, 537.
Prunella, 157.
 Prytanean Society, gifts, 535.
 Radin, Paul, lectures, 155.
 Raymond, W. J., lectures, 438,
 439.
 Regents, discretion as to con-
 tractors, 133.
 Registration figures, 127, 255.
 Reinhardt, Aurelia H., lecture,
 539.
 Resignations, 152, 280, 435, 537.
 Rickard, T. A., lectures, 284,
 437.
 Rieber, Dean C. H., resignation,
 256.
 Robinson, Miss M. C., gift, 142.
 Rockefeller Institute for Medi-
 cal Research, gift, 142.
 Roop, W. P., lectures, 154, 436.
 Rose, G. S., Boy Scouts talk,
 441.
 Rowell, C. H., lecture, 539.
 Rubinow, I. M., lectures, 541.
 Rugh, C. E., Boy Scouts Talk,
 441.
 Rural credit system, 126.
 Ryder, A. W., lectures, 538, 539.
 San Francisco Architectural
 Club, gift, 535.
 San Francisco Girls' Union,
 gift of scholarship, 267.
 San Joaquin Valley Counties'
 Association, gift, 420.
 San José High School scholar-
 ship, 142.
 Sangomo Electric Company,
 gift, 142.
 Sather chimes, 410.
 Scammell, J. M., lectures, 155,
 283.
 School of Education, 403.
 Scofield, N. B., lecture, 438.
 Scotford, F. E., lecture, 281.
 Scott, '08, P. M., gift, 268.
 Scout Masters' Training Class,
 285.
 Scripps Institution, summer
 assembly, 257; building im-
 provements, 409; dedicatory
 exercises, 527.
 Seeger, C. L., Jr., lectures, 540.
 Shakespeare Tercentenary, 407,
 439.
 Sigma Iota Phi, initiation, 275.
 Sigma Kappa Alpha, initiation,
 427.
 Sigma Xi, initiation, 426.
 Singleton, A. H., Boy Scouts
 talks, 285, 441.
 Skull and Keys, running, 144;
 initiation, 150.
 Smith, L. F., lecture, 439.
 Smith, Vern, vindication of,
 143.
 Spalding, W. R., lectures, 539,
 540.
 Steinhart, I., gift, 268.
 Storer, T. I., lectures, 438, 540.
 Stoughton Holborn, I. B., lec-
 tures, 539, 540.
 Stratton, G. M., lecture, 282.
 Students' English, 399.
 Subject A, 403.

- Subject B, 147, 403.
 Summer Session, 1916, 523;
 resignation of Dean Rieber,
 256; appointment of Dean
 Hart, 256; southern branch
 requested, 256; summer as-
 sembly at Scripps Institu-
 tion, 257; lectures, 540.
 Swaren, J. W., lectures, 154,
 439.
 Swedish-American Patriotic
 League of California, gift of
 scholarship, 535.
 Swedish Commission for the P.
 P. I. E., gift, 268, 420.
 Sweet, W. L., lecture, 436.
 Tate, E. L. M., lectures, 541.
 Tatlock, J. S. P., lecture, 439.
 Tau Beta Pi, initiation, 150.
 Taussig, R. J., gift of Bryce
 Historical Essay prize, 535.
 Thane, Mrs. J. E., gift, 142.
 Thelen, Paul, lecture, 438.
 Theta Tau, initiation, 150, 427.
 Thordarson Electric and Manu-
 facturing Company, gift, 268.
Thumbs Down, 157.
 Thörnwald, R., lectures, 283.
 Torch and Shield no longer a
 secret society, 148.
 Tourmaline King Mine, gift,
 420.
 Towne, A. G., gift, 535.
 Trade Commission of New
 South Wales, gift, 420.
 Transvaal Chamber of Mines,
 gift, 420.
 Treble Clef opera, 157.
 Undergraduate matters, 148-
 150, 255, 271, 272-278, 423,
 532.
 Union Oil Company, gift, 420.
 U. S. Bureau of Fisheries, gift,
 268.
 U. S. Bureau of Mines, branch
 established at University,
 131; gift, 420.
 U. S. Department of the In-
 terior, gift, 268.
 U. S. Geological Survey, gift,
 268, 421.
 U. S. Government Exhibit
 Board at P. P. I. E., gift,
 268.
 University extension, corre-
 spondence courses, 128; mo-
 tion pictures, 129.
 University Hospital, gift to, of
 J. M. Keith, 133; rules for
 administration of, 260; lay-
 ing of cornerstone, 409.
 University Infirmary, 132, 403.
 University of California Club
 of Hawaii, scholarship, 421.
 University of California Medi-
 cal School, 259, 406; estab-
 lishment of Department of
 Preventive Medicine and Hy-
 giene, 402; Toland amphi-
 theatre, 406.
 University meetings, 152, 280,
 414, 436, 538.
 University Printing Office, 130.
 University Publications, 131.
 Utah Coal Operators' Associa-
 tion, gift, 421.
 Vincent, G. E., Charter Day
 speaker, 413, 437.
 Vollmer, August, Boy Scouts
 talk, 442.
 von Schmidt, Rose, dramatic
 readings, 540.
 Walker, E. L., lectures, 284,
 440.
 Wallis, W. D., lecture, 155.
 Waterman, T. T., lectures, 155,
 156, 541.
 Whipple, G. H., lecture, 539.
 Whitaker's Forest, 411.
 Wickson, E. J., Hilgard Memo-
 rial address, 282.
 Wilson, H. E., Boy Scout talks,
 285.
 Winged Helmet, initiation, 274.
 Wise, S. S., lecture, 155.
 Wollner, W. S., Boy Scouts
 talk, 285.
 Woodworth, C. W., lecture, 281.
 Yosemite National Park, natu-
 ral history survey of, 135.
 Young, L. E., lectures, 284.

UNIVERSITY OF CALIFORNIA CHRONICLE

VOL. XVIII

JANUARY, 1916

No. 1

GEORGE BORROW: AN ENGLISH HUMORIST IN SPAIN

RUDOLPH SCHEVILL

Seventy-five years ago two Englishmen travelled over the length and breadth of the Spanish Peninsula on widely different missions. One was Richard Ford, who was engaged in compiling a handbook on Spain for John Murray, the well known London publisher; the other was George Borrow, who had undertaken the sale of Spanish Testaments in order to spread the Word of the Gospel on behalf of the British and Foreign Bible Society.

The results as published by both travellers seem destined to endure: Ford's *Handbook* is still the authoritative and most readable introduction to the conditions in Spain during the thirties of the last century; Borrow's *The Bible in Spain*, a most brilliant and melodramatic mixture of truth and buncombe, has continued to appear in edition after edition for reasons not far to seek. The English reading public has not only been content to see Anglo-Saxon superiority once more dramatically and irrefutably demonstrated, but it continues to welcome a book which seems to justify our traditional indifference to the subject treated, namely, poor backward Spain and the benighted Spanish people.

The characters of Ford and Borrow could not have been more diametrically opposed.

Ford was a most modest gentleman, a thorough scholar, an ideal traveller because he was a respecter of other

people's opinions; of a retiring disposition he was especially given to observe, and record his impressions. He jotted down, among other things, an infinite number of homely, terse Spanish sayings which he quite invariably translated for the benefit of his British public, and he illustrated the great age of many a custom by striking references to the Greek and Latin classics. The latter, however, he does not render in English, for he could assume in his day and generation that none of his readers needed a translation, while in this iron age there are only a few of us left who can almost decipher their meaning. Ford, too, had a delightful sense of humor, not unlike that of the Spaniards, which makes all racial barriers less formidable to any stranger dwelling among them. Moreover, seeing things as they were he was not inclined to take windmills for giants, nor every repellent exterior as the indication of a bloodthirsty heart. He says at the beginning of his guide-book: "Of the many misrepresentations regarding Spain, few have been more systematically circulated than the dangers and difficulties which are there supposed to beset the traveller." We shall see how the agent of the Bible Society was one of those who indulged in many misrepresentations.

Borrow, on the other hand, had received only an un-systematic, home-made education; by temperament fearless and impulsive, he could undertake nothing gently, nor did he comprehend why the Lord who would naturally support the efforts of the British Bible Society did not furnish him with the necessary clap of thunder whenever he himself entered on the scene. He took to noisy advertising at first, then to remonstrance, then, as his schemes met with opposition, to scolding and vituperation. He was like a character out of an opera bouffe, inclined to pose and fond of being conspicuous. He never made one of a friendly group. A "perambulating polyglot," who boasted that he could speak and write some thirty tongues, he was always ready to show his skill. Although he is one of the most brilliant letter-writers in the English language when summarizing his

experiences, he lapses into verbiage or evangelical cant when he philosophizes or reflects. He had come into Spain with one object, that of scattering Testaments, and one pre-conceived notion, that Spain was the most heathenish place in Christendom. He did manage to scatter several thousands of Testaments, but he performed an even greater miracle, that of leaving Spain after a sojourn of several years with precisely the same prejudices and unfounded opinions which he had entertained before setting foot on Spanish soil. Being a solitary individual he suffered from quickly changing moods, and his observations are therefore frequently so highly colored as to be wholly untrustworthy. Nothing is more amusing in his career than his impatience with the ungrateful authorities who did not appreciate his mission of light, but took him for an impertinent intruder and thrust him into vile Spanish dungeons without any reason whatever. For was he not justified in interrupting the Spaniard's traditional siesta to sell him a Testament and a tract on British religious enlightenment?

One of the fine and really attractive qualities of the average Spaniard is his conservatism: he finds certain features of his life as enduring and proper as they were two thousand years ago, perhaps because they were enduring and proper that long ago. Much that is implied in the unpoetic word innovation has remained a sealed book to him. Speed has been contrary to his native dignity, and he has never appreciated the advantage of travelling faster to places to which he does not care to go. Just so his provincial customs, his altar and his hearth have been dear to him. He has developed a homely and sound philosophy in the midst of humble conditions; he has accumulated an inexhaustible fund of humor with which to illustrate this most imperfect scheme of life; he has become convinced that the universal hardships of all existence, intensified by the hot Spanish sun, justify protracted repose and deliberate procedure in daily routine. He has also realized that the less we move about the less we see of foolish people.

All of this is what Borrow never grasped. Moreover, the Spaniard is an inveterate smoker, and Borrow hated tobacco. The idiomatic flavor of the Spanish language had no interest for him apart from its linguistic traits. Indeed, at times the reader is inclined to believe that Borrow was either ignorant of the English equivalents of certain Spanish words or that he wrote nonsense on purpose. Thus he invariably translates *caballero*, 'cavalier,' or 'sir cavalier,' when he must have known after years of experience that it either means 'man' or that it is the ordinary way of accosting any man, as for example, "*Dispense usted, caballero*" which simply means, "I beg your pardon, sir." 'Usted' he translates 'your worship' when it would never occur to anyone to say to a waiter, for example, "Will your worship bring me another glass?" Here, for example, is a piece of *bonne blague* which Borrow sets down as the usual Spanish manner of speech. He is addressing a simple soldier: "I dismounted, and taking off my hat, made a low bow to the constitutional soldier, saying, 'Señor Nacional, you must know that I am an English gentleman travelling in this country for my pleasure. I bear a passport, which on inspecting you will find to be perfectly regular. It was given to me by the great Lord Palmerston, Minister of England, whom you of course have heard of here. At the bottom you will see his own handwriting. Look at it and rejoice; perhaps you will never have another opportunity. As I put unbounded confidence in the honor of every gentleman, I leave the passport in your hands whilst I repair to the *posada* to refresh myself. When you have inspected it, you will perhaps oblige me so far as to bring it to me. Cavalier, I kiss your hands.'"

The intricate characteristics of the Spanish people, their immemorial traditions, their vast literature, their art, the moulding facts of their history are never referred to by Borrow, and unquestionably never interested him. Above all his idea of humor was certainly not that of the Spanish people, nor of the genial Ford. He has, to be sure, presented

the most ridiculous situations in a striking way, but you do not feel sure that he is laughing over them. Men like Borrow seldom find a congenial companion, and he therefore had no one either to laugh with him, or to prevent him from making himself ridiculous. The most unusual events strike him as extraordinary rather than amusing. He had come to Spain with a single object, and it aroused his resentment to find himself hampered by an ignorant people in carrying out his ostentatiously philanthropic plans. Borrow was thus the last man in England to understand the Peninsular character on which the sun, Oriental traditions and the Roman Catholic Church—among other un-English influences—had placed a unique stamp.

The recent issue of Borrow's letters to the Bible Society, which had been thought lost, suggests an entirely new point of view of the man and allows us to add a few traits to the portrait of this brilliant vagrant, whose book, *The Bible in Spain*, has for decades so delightfully entertained and fooled an infinite number of readers. Only a relatively small portion of that book is taken directly from these communications sent to the Society; and they assuredly have more value than his book because they gave his impressions before he had time to doctor them. Wherever the original has been furbished up, the revised version is apt to be top-heavy with the ego of the author, consequently his additions present far more of Borrow than they do of Spain. But let us accompany him through his wanderings and note his own first comments. Where it is possible we shall let him speak for himself.

Borrow's orders on leaving England appear to have been very simple: Whosoever will take away the New Testament let him have the Old also, and add thereto a few tracts. His entrance into the Peninsula was bound to be melodramatic. He wrote to the Secretary of the Society that before beginning his campaign in Portugal where he landed, he made inquiries as to "which was the province of that country the population of which was considered the

most ignorant and benighted." Having learned that it was the Alemtejo he at once determined on going thither with a small cargo of Testaments and Bibles. "My reasons I need not state, as they must be manifest to every Christian; but I cannot help thinking that it was the Lord who inspired me with the idea of going thither, as by so doing I have introduced the Scriptures into the worst part of the Peninsula, and have acquired lights and formed connections (some of the latter most singular ones, I admit) which if turned to proper account will wonderfully assist us in our object of making the heathen of Portugal and Spain acquainted with God's Holy Word." He now hired a wild-looking lad to ferry him across the Tagus, but unfortunately the lad did not speak any of Borrow's thirty tongues, for "he gabbled in a most incoherent manner" with a "harsh and rapid articulation" like the "scream of a hyena blended with the bark of a terrier." This circumstance coupled with the fact that a storm arose and that the lad did not know much about sailing made it apparent that it was only "the will of the Almighty that permitted them to gain shelter on the other side." The guide with whom Borrow now proceeds on his way at once regaled him with the "truly horrible" tales of the atrocities which robbers "were in the habit of practicing" in those very spots; and while the mules stopped to drink at a shallow pool, Borrow reflects that the gang "were in the habit of watering their horses at the pool and *perhaps* of washing their hands stained with the blood of their victims." But his courage went further; he climbed up to the place where once stood the home of the banditti, now in ruins, and found there vestiges of a fire and a broken bottle. "The sons of plunder had been there very lately," so he took the opportunity to leave a "New Testament and some tracts among the ruins, and hastened away." We may take for granted the speedy repentance of these blood-thirsty villains. Continuing his course he meets some wild-looking men who, if they were not banditti, could easily have been mistaken for such.

Nevertheless, he reached Evora safely, the center of the darkness he had come to dispel, and at once determined to lay the axe to the root of all superstition and tyranny by finding some respectable merchant who would take charge of the necessary sale of his cargo. He also made it a point to speak to as many "bigoted Romanists" as possible on matters connected with their eternal welfare, "telling them repeatedly that the Pope whom they revered was a deceiver and the prime minister of Satan here on earth." No doubt the words which he uttered sank deep into the hearts of his hearers, for we are told they departed "musing and pensive." Borrow may have been a trifle optimistic. There are many things which can make us depart musing and pensive. His guide, for example, when asked whether his master could understand the language of the people replied in the affirmative, but added that he probably spoke some other language better. Again, when we hear our most revered institutions decried we may depart musing and pensive in search of a half-brick. Having learned too of some of the superstitions of the peasantry, notably their peculiar beliefs in witchcraft, some of which are as old as the race, he characterizes them as "relics of the monkish system," the aim of which had been merely "to besot the minds of the people." It was therefore evident that more tracts were needed here. So he rode about the neighborhood, "dropping a great many in the favorite walks of the people," thinking that if they found them on the ground, "curiosity might induce them to pick them up and examine them." Thus we find the most benighted people in Portugal, who had presumably never seen a printed word in their lives, alert and curious enough to devour the tracts of the British Bible Society, conveniently dropped in their favorite walks. Of the sale of the Testaments we hear nothing further, for the letter concluding his sojourn in Portugal was evidently never received, and we next find Borrow in Madrid.

Spanish critics have asserted that the British Bible Society took advantage of the turbulent conditions in Spain and

Portugal at this time to sell Testaments because its agents could escape the vigilance of the authorities occupied as they were in quelling the rebellion against the central government at Madrid. There seems to be some justice in this accusation. Nevertheless, whatever side of the argument we choose to take, a period of civil war was not the time to introduce the Gospel to the people of Spain. Such wars have always assumed with them a unique aspect; politics and religion are inseparably linked in the questions at issue. A man with a gun is apt to consider himself a military unit, and while he is waiting behind a harmless-looking hedge-row with a blunderbuss in order to impress his opinions on the passer-by, it might seem inadvisable to attempt to sell him a New Testament. In the face of these conditions, Borrow wrote to the Secretary of the Society: "A little patience and a little prudence is all that is required to win the game." His first object was necessarily to obtain permission to print a Spanish translation of the New Testament, but without any notes or comments. Versions in this bare form had been prohibited in Spain ever since the beginning of the sixteenth century, and only unusual conditions or extraordinary pressure could squeeze the coveted licence out of the authorities. Borrow first visited the Prime Minister, at that time Mendizábal; but the atmosphere around that gentleman reminded him of the temperature at the North Pole, and he found himself obliged to withdraw with the vague promise that when matters in the Peninsula had settled down a little the Bible Society "would be allowed to commence operations." His request had other obstacles to contend with. Cabinets were shortlived in those days, lasting a few weeks, or at the most, a few months; to lay a plea before the Prime Minister was therefore like negotiating a loan with a man through the car-window when his train is already moving out of the station. Nor would the promises made by one minister necessarily seem binding to his successor.

In the meantime an article had appeared in a Spanish paper, explaining to the whole nation "the philosophic and civilizing mission" of the agent of the Bible Society, which, not content with making Great Britain the *sole* beneficiary of this salutary institution was willing "to extend it to all countries." Such generosity must have appealed to all Spaniards—if any ever read the article. But Borrow had more matter to communicate which would afford the reverend committee at headquarters "subject for some congratulation." He had been in Madrid less than three months, but had discovered that the authority of the Pope in Spain was "in so very feeble and precarious a situation" that "little more than a breath is required to destroy it." Borrow was evidently about to supply the necessary breath, for he adds "that he was doing whatever he could in Madrid to prepare the way for an event so desirable." Moreover, if the Man of Rome continued in his subversive course he would lose Spain and then "Ireland will alone remain to him—much good may it do him!" If Borrow showed himself now and then a trifle gullible, his Society must have been equally naïve, for there is in all the replies of its Secretary but little evidence that the members ever laughed in committee over his epistles. But as he took himself seriously at all times it is little wonder that the philanthropic gentlemen at the London end of things should merely express themselves as deeply interested in his proceedings. The Reverend Secretary Brandram, however, admonishes Borrow "with a rap on the knuckles" that it is wiser for an agent of the Society not "in vulgus spargere voces: verbum sat . . . Information of what is passing we are glad to receive, but do not mix yourself up in such matters." In his next letter Borrow therefore contented himself with referring to the Pope merely as "a certain personage," but reiterated his opinion that "the last skirts of the cloud of papal superstition are vanishing below the horizon of Spain."

Evidently all this was dictated by an increase in Borrow's optimism. The new Ministers seemed favorable to his scheme of printing the Testaments; it was merely a question of getting their approval as long as the Cabinet remained in existence. This Borrow managed to do with the aid of the British Ambassador; but "since many of the friends of the Spanish Ministers were bigoted Papists" the latter stipulated that the printing should be done in a private manner. The books were to be issued secretly, the matter was not "to be noised abroad," and Borrow expressed his "perfect readiness to comply with so reasonable a request." Much time, however, was destined to elapse before further progress in printing could be made. The government went through various changes, a riot had overthrown the Constitution, and Borrow himself made a flying trip to England to lay his plans of campaign before the Committee of his Society. The report of his proceedings in Spain is one of the most characteristic things he ever penned and betrays the exaggerated rhetorical qualities of his mind and style. In his attempts at formal writing of an evangelical character he was apt to launch himself upon such figures as the following: "No time ought to be lost in supplying those with the Word who are capable of receiving it; . . . Though the days of the general orange-gathering are not arrived when the tree requires but a slight shaking to scatter its ripe and glorious treasures on the head of the gardener, still goodly and golden fruit is to be gathered on the most favored and sunny branches; the quantity is small in comparison with what remains green and acid, but there is enough to repay the labor of him who is willing to ascend to cull it; the time of the grand and general harvesting is approaching, perhaps it will please the Almighty to hasten it."

On his return to Spain he wrote from Seville: "Know then, that the way to Madrid is beset with more perils than harrassed Christian in his route to the Eternal Kingdom. Almost all communication is at an end . . . and the reason

is that the rural portion of Spain, especially this part, is in a state of complete disorganization and blackest horror. The three fiends, famine, plunder and murder, are playing their ghastly revels unchecked; bands of miscreants . . . are prowling about in every direction and woe to those whom they meet. A few days since they intercepted an unfortunate courier, and after scooping out his eyes put him to death with most painful tortures . . . Moreover the peasantry . . . seize in rage and desperation on every booty which comes within their reach." After receiving this highly-colored picture, the Committee in London were fully prepared to hear that their fearless agent had met with the fate of Marsyas, and his next letter must therefore have seemed like an anticlimax. It begins: "I am just arrived at Madrid in safety. It has pleased the Lord to protect me through the perils of a most dismal journey." After the above preliminary it was hardly fair to have had no adventure whatever. Indeed, all we learn of interest, is that he reached Aranjuez half-frozen, and got into the home of an Englishman "where he swallowed nearly two bottles of brandy." But realizing the shock that would run through the Committee after such a confession of potential capacity, Borrow adds to assuage matters: "it affected me no more than warm water; . . . if my letter be somewhat incoherent, mind it not—the *cold* has still the mastery of me."

Having now begun printing the Testaments, he mused on a plan to dispose of the volumes: "As soon as the work is printed and bound, I will ride forth from Madrid into the wildest parts of Spain, where the Word is most wanted and where it seems *next to an impossibility* to introduce it . . . I will take with me twelve hundred copies which I will engage to dispose of for little or much to the wild people of the wild regions which I intend to visit." Thus the melodramatic entrance into Portugal was to be repeated, and Testaments were to be gently dropped in the favorite walks of the wild people of the Asturias and Galicia. Not

a ripple of laughter stirred the Committee on hearing of this plan, the Secretary merely replying: "On hearing your plans a general and simultaneous question was asked. Can the people in these wilds read? . . . Is there no middle sort of course? Can you not establish a depôt in some principal place, and thence make excursions of two or three days at a time, instead of devoting yourself wholly to the wild people?" To this Borrow replied, softening the terrors of his project with a pastoral note: "I did not intend to devote myself entirely to the wild people, but to visit the villages and towns as well as the remote and secluded glens." As a matter of fact, Borrow was again drawing completely on his imagination. The experiences of Richard Ford, who is always an excellent corrective lens for Borrow's distorted point of view, show that the Asturias and Galicia at that time were what the present writer has found them today—peaceful abodes inhabited by a backward, close-mouthed, mild, thrifty, overworked race. The skull of the Galician is perhaps a little thick, and the worst that can or could then be said of him is that his thriftiness is so akin to miserliness as to have become proverbial in Spain, that his backwardness has kept him bound too closely to the soil; hence his wildest occupation has been the cultivation of the potato, of corn, of barley and the vine. His brain is somewhat affected by the atmosphere of his smoke-filled hut which quite generally has no chimney, and a wild Galician who can read is as rare as one inclined to spend a copper of what he has earned by the sweat of his brow. To sell him Testaments would therefore be, according to a Spanish saying, as futile an undertaking as looking for five legs on a cat. But the scheme seemed magnificent to Borrow and he accordingly made his preparations for the operative venture. His first step was to purchase "a *black* Andalusian stallion of great size and strength" worthy of 'the passion which he had always had for the equine race,' and well-suited to the regions of his prospective campaign, for he was "unbroke, savage, and furious." Yet he, like the

wild people to whom he was bound, was about to see a great light, for "a cargo of Bibles which I hope shortly to put on his back will, I have no doubt, thoroughly tame him, especially when laboring up the flinty hills of the north of Spain." Having procured his Rocinante, our evangelical Don Quixote had to have a squire, and one worthy of the cause. This is the first one: "I have a servant, a person who has been a soldier for fifteen years, who will go with me for the purpose of attending to the horses and otherwise assisting me in my labors. His conduct on the journey is the only thing to which I look forward with uneasiness; for though he has some good points, yet in many respects a more atrocious fellow never existed. He is inordinately given to drink, and of so quarrelsome a disposition that he is almost constantly involved in some broil. Like most of his countrymen, he carries an exceedingly long knife which he frequently unsheathes and brandishes in the face of those who are unfortunate enough to awaken his choler. It is only a few days since that I rescued the maid-servant of the house from his grasp, whom otherwise he would undoubtedly have killed, and all because she too much burnt a red herring which he had given her to cook . . . He is very honest, a virtue which is rarely to be found in a Spanish servant, and I have no fear of his running away with the horses during the journey, after having perhaps knocked me on the head in some lone *posada*." This servant's tenure of office was very short; presumably, his inordinate love of drink did not have merely the effect of warm water, and another servant had to be found, this time a Greek who spoke French. But before knight and squire could ride forth, the master was taken ill and had to resort to the "desperate experiment of calling in a native barber." We now have the picture of the Society's agent relieved of sixteen ounces of Protestant blood by a horrible Papist who was naturally skilled in blood-letting. Nevertheless, the start could at last be made, Borrow setting out with only his servant and their animals, traversing for four

days regions reported to swarm with banditti, cut-throats, wild beasts and other natives who, as usual, neglected to put in an appearance. In the large cities through which Borrow passed he prepared an advertisement of the work which was the sole guide to salvation, explaining incidentally the pecuniary sacrifices made by the Society in its efforts to dispel darkness. A small candle was lighted, for Borrow had the pleasure "of seeing three New Testaments despatched in less than a quarter of an hour that he remained in the shop." To follow him in his entire journey before his return to Madrid would lead us too far afield; much of it may be found in *The Bible in Spain*, wherefore the gist of his letters must be summed up briefly.

He now passed in his Odyssey through regions "where literature of every description was at its lowest ebb," and after leaving inhospitable Valladolid on the right he continued through desolate plains covered with scantily-sown but smiling barley, the sustenance of an "ignorant and brutal" people, through fever-stricken Leon, filled with "blinded followers of the old Papal Church," and thence to rock-bound Astorga where he took up his abode with the pigs and vermin. But he returned God thanks and glory, and would not have exchanged that situation for a throne. At Corunna he made a depôt of five hundred Testaments, and then proceeded to hope for the dawning of better and more enlightened times.

Because of his histrionic temperament, his highly coloristic style, his attitude toward Nature, Borrow may be considered an important figure of English Romanticism. This is particularly evident in this portion of his letters. In many of his traits he is wholly Byronic; he too could have repeated, "I have not loved the world, nor the world me." In his correspondence as in *The Bible in Spain* he stands isolated, and his brilliant personality dwarfs everything else. His sympathies are far greater for Nature than for his fellowmen. His feeling for the peculiar charms of the landscape dictated some of the finest pages which he ever

penned and which are worthy to live with the best of the early Victorian age. The following passage, describing a picturesque landscape in northwestern Spain, may serve as an example. "Perhaps the whole world might be searched in vain for a spot whose natural charms could rival those of this plain or valley of Bembibre, with its walls of mighty mountains, its spreading chestnut-trees, and its groves of oaks and willows which clothe the banks of its stream, a tributary to the Minho. True it is that when I passed through it the candle of Heaven was shining in full splendor, and everything lighted by its rays looked gay, glad and blessed. Whether it would have filled me with the same feelings of admiration if viewed beneath another sky I will not pretend to determine, but it certainly possesses advantages which at no time could fail to delight; for it exhibited all the peaceful beauties of an English landscape blended with something wild and grand, and I thought within myself that he must be a restless, dissatisfied man who, born amongst these scenes, could wish to quit them. At the time I would have desired no better fate than that of a shepherd on the prairies or a hunter on the hills of Bembibre." Contrast now the following sudden change: "The aspect of Heaven had blackened; clouds were rolling rapidly from the west over the mountains, and a cold wind was moaning dismally. 'There is a storm travelling through the air,' said a peasant whom we overtook mounted on a wretched mule . . . He had scarce spoken when a light so vivid and dazzling that it seemed the whole lustre of the fiery element was concentrated therein broke around us, filling the whole atmosphere, and covering rock, tree and mountain with a glare indescribable . . . The lightning was followed by a peal almost as terrible, but distant, for it sounded hollow and deep; the hills, however, caught up its voice, seemingly pitching it along their summits, till it was lost in interminable space . . . 'A hundred families are weeping where that bolt fell,' said the peasant. . . . 'were the friars still in their nest above there, I should say

that this was their doing, for they are the cause of all the miseries of the land.' ”

Borrow returned through the far north of Spain and finally reached Oviedo safely after an exceedingly arduous journey, chiefly on foot. He sat down to begin an account to the Society, and had hardly begun a stirring report on the feverish anxiety of the people about him, when he experienced a typical “strange adventure.” “But I am interrupted and I lay down my pen.” Having properly mystified the reader he continues: “I am in a very large, scantily-furnished and remote room of an ancient *posada*, formerly a palace of the Counts of Santa Cruz. It is past ten at night and the rain is descending in torrents. I ceased writing on hearing numerous footsteps ascending the creaking stairs which lead to my apartment—the door was flung open, and in walked nine men of tall stature, marshalled by a little hunch-backed personage. They were all muffled in the long cloaks of Spain, but I instantly knew by their demeanor that they were *caballeros*, or gentlemen. They placed themselves in a rank before the table where I was sitting; suddenly and simultaneously they all flung back their cloaks, and I perceived that everyone bore a book in his hand, a book which I knew full well. After a pause, which I was unable to break, for I sat lost in astonishment and almost conceived myself to be visited by apparitions, the hunch-back advancing somewhat before the rest said in soft, silvery tones: ‘Señor Cavalier, was it you who brought this book to the Asturias?’ I now supposed that they were the civil authorities of the place come to take me into custody, and rising from my seat I exclaimed: ‘It certainly was I, and it is my glory to have done so. The book is the New Testament of God; I wish it was in my power to bring a million.’ ‘I heartily wish so too,’ said the little person with a sigh . . . After about half-an-hour’s conversation, he suddenly said in the English language, ‘Good-night, sir,’ wrapped his cloak around him, and walked out as he had come. His companions, who had hitherto not uttered a

word, all repeated, 'Good-night, sir,' and adjusting their cloaks, followed him." There were evidently some wags in Oviedo in those days.

Borrow had now no more Testaments to despatch, and so set out again for Madrid, where he arrived safely after hairbreadth escapes from incredible imaginary dangers. At the Capital he found a state of affairs anything but prosperous for the sale of Testaments. There were many reasons why people did not care to buy, one of them perhaps being that they had no money. Our agent thus felt obliged to enter the arena personally and opened a shop. At the same time "a violent and furious letter against the Bible Society" demanded a reply, and brought forth a "warm and fiery" epistle because "tameness and gentleness are of little avail when surrounded by the vassal slaves of bloody Rome." Advertisements blue, yellow and crimson were also printed and posted along the streets "causing a great sensation." Yet it never occurred to Borrow that all this noisy publicity was contrary to the promise of reserve and secrecy he gave the Spanish Minister when he received permission to print the Testaments. Nor can there be any doubt but that quiet selling would have continued long and uninterrupted. But the operative method was the only one compatible with Borrow's temperament.

His next report stated "the priests and bigots are teeming with malice and fury" and "there is no attempt however atrocious which may not be expected from such people, and were it right and seemly for *me*, the most insignificant of worms, to make such a comparison, I would say that, like Paul at Ephesus, I am fighting with wild beasts." At last the expected happened, and the priests "swooped" upon the Bible shop, warnings being sent to him to erase from his window the words "Despatch of the British and Foreign Bible Society." This he refused to do since it was his "grand object" to attract attention by them. In defense of his cause he now memorialized the Prime Minister, "a weak, timid, priest-ridden man." The letter which

he claims to have written to that Statesman he forwarded in "translation" to the Society, a translation which is plainly only a version of what Borrow imagined he had written. It has all the ear-marks of an idiomatic English piece of prose in an exaggerated Borrowian style, impossible of being rendered in Spanish. For example, if we were to trust the exact wording given, Borrow wrote to the Prime Minister of Spain the following extraordinary paragraph which would have landed him in a jiffy on the other side of the frontier. "It is unnecessary for me to dilate on the intentions of the Society with respect to Spain, a country which perhaps most of any in the world is in need of the assistance of the Christian philanthropist, as it is overspread with the thickest gloom of heathenish ignorance, beneath which the fiends and the demons of the abyss seem to be holding their ghastly revels; a country in which all sense of right and wrong is forgotten, and where every man's hand is turned against his fellow to destroy or injure him, where the name of Jesus is scarcely ever mentioned but in blasphemy, and his precepts are almost utterly unknown. In this unhappy country the few who are enlightened are too much occupied in the pursuit of lucre, ambition or ungodly revenge to entertain a desire or thought of bettering the moral state of their countrymen. But it has pleased the Lord to raise up in foreign lands individuals differently situated and disposed, whose hearts bleed for their brethren in Spain. It is their belief that ignorance of God's word is the sole cause of these horrors, and to dispel that ignorance they have printed the Gospel in Spain which they dispose of at a price within the power of the poorest to command. Vain men would fain persuade themselves and others that the Society entertains other motives, by which uncharitableness they prove that they themselves are neither Christians, nor acquainted with the spirit of Christianity. But let the most fearful and dubious reassure themselves with the thought, that should the Bible Society foster the very worst intentions, it would baffle their power,

if even assisted by Satanic agency, to render Spain worse than it at present is."

It is an ill wind which blows no one any good, and being particularly bad in Madrid after all these activities, it at last carried Borrow into jail. Yet considering the cause for which he was laboring he felt that he had now conferred upon him the highest of mortal honors. Besides, it was pleasant to be under lock and key long enough to become an international question; henceforth he would be classed with the world's greatest martyrs. But his imprisonment was not only made very comfortable, it was also of short duration through the kind intervention of the Lord, and the British Ambassador, and Borrow was again able to make plans for further disseminating the Word among some neighboring wild people. He therefore rode around in various directions through the hottest part of Spain with the thermometer at 115° F., while the atmosphere resembled "the flickering glow about the mouth of an oven." Others were enlisted in the cause, and took the field provided with Testaments, among them the host of the inn in which Borrow was staying. Of the character of this man we know nothing, but Borrow states: "I had scarcely written the above lines when I heard the voice of the donkey in the courtyard, and going out I found my host returned." This is hardly fair to mine host, but throws some light on the twists of Borrow's mind. Some success is recorded on this journey. For instance, eight poor harvestmen, who appeared to have come to refresh themselves at the door of a wine-shop were instead induced to partake of the water of life at a much smaller price. We are further assured that the arrival of the New Testament "spread like wildfire through the villages" of benighted New Castile. Even Borrow's daily ablutions could not be carried on without interruption. "Last night," he says, "as I was bathing myself and my horse in the Tagus, a knot of people gathered on the bank, crying: 'Come out of the water, Englishman, and give us books; we have got our

money in our hands.' ” It was a foregone conclusion that being in puribus, Borrow should find himself without Testaments on his person. But his servant, at a short distance, was presumably not in the habit of going into the water, for he held up an every-ready copy over which a scuffle ensued, and it was torn from his hands—at a price adapted to the humble means of the purchaser.

Having now sold about nine hundred copies to the “sun-blackened peasantry of Castile,” he returned to Madrid “trusting in the Lord and defying Satan.” There he learned that some factious priests “publicly cursed him in the church more than once,” but as no ill seemed to come from it, we may well believe that the event gave him little concern. He was proud of the success attained, and reported that any failure to spread the Word was due to the fact that “the inhabitants were too much occupied with dancing and other amusements to entertain any serious thoughts.”

Borrow now entered on the last phase of his efforts in behalf of the Bible Society. He made all preparations at Madrid, securing another servant and the “largest and most useful horse” to be obtained. He then wrote to London “I have been very passionate in prayer during the last two or three days; and I entertain some hope that the Lord has condescended to answer me, as I appear to see my way with considerable clearness.” His style was evidently becoming more and more “unusual,” and the London Secretary felt at last obliged to urge Mr. Borrow “to keep to plain language for plain people.” For his last campaign he tried a new system. He disguised himself in the costume of the peasants of Old Castile, and thereafter followed what was perhaps his most striking conquest. “On nearing the village I met a genteel-looking young woman leading a little boy by the hand. As I was about to pass her with the customary salutation she stopped, and after looking at me for a moment she said: ‘Uncle, what is that you have on your *borrico*? Is it soap?’ I replied, ‘Yes, it is soap to

wash souls clean.'” Naturally, not understanding the language of the Bible Society, she welcomed his explanation that he carried “cheap and godly books for sale.” There being little or no money in those parts, the poor woman at first declined to buy; but when Borrow had passed on, the lad came running behind shouting out of breath, “Stop, uncle, the book, the book,” and after handing over three reals in copper he (that is, this little boy who was being led by the hand) seized the Testament and “flourished the book over his head with great glee.”

As was to be surmised, the disguise of the agent did not meet with the unqualified approval of the gentlemen at home; his peasant’s costume seemed to ruffle the dignity of the committee. Having first smiled, they began to “grow grave,” and the first levity was promptly succeeded by sober second thoughts. The Committee might “cheerfully employ a peasant, but they were doubtful whether it became them to have the likeness of one going about in their name. A word to the wise, they say, is enough.” In the meantime Borrow sold a number of Testaments at the Capital, in some instances to “every individual in the house, man and child, manservant and maidservant.” His optimism consequently rose again and he wrote to the Committee: “There was a time, as you are well aware, I was in the habit of saying, ‘Dark Madrid,’ an expression which I thank God I may now drop; for can that city justly be called dark in which thirteen hundred Testaments, at least, are in circulation and in daily use?” Borrow therefore felt that his task was well-nigh done and he himself a “useless vessel.” Indeed, he had sold “as many Testaments as Madrid would bear for a time,” and he was afraid of “bringing the book into contempt by making it too common.” He therefore determined to campaign once more in Andalusia, but being “exceedingly superstitious,” and having dreamed that he was “being hacked with long, ugly knives by robbers in a desolate road,” discretion seemed the better part of valor, and the beaten highway

was chosen instead of his favorite wild places. The good men to whom Borrow's letters were addressed were once more displeased with their tone. No doubt it was the indiscriminate mixture of pious and ungodly sentiments which shocked them. Borrow's confession of superstitiousness "when read aloud in a large committee" sounded very odd, don't you know, while the tone of his letter "savoured a little of the praise of a personage called number one." Moreover, Borrow had said that during his perilous journey (in which nothing happened), "his usual wonderful good fortune" had accompanied him. "This," says the Bible Secretary, "is a mode of speaking to which we are not well accustomed—it savours, some of our friends would say, a little of the profane." In reply Borrow humbly expressed regret that he had thus erred and promised to mend, saying that he had already prayed for assistance to do so. No more expressions "savouring of pagan times" would be used; but it is hard for the leopard to change his spots and he relapsed into his epistolary sins of omission and commission to the end.

The small store of Testaments which remained was now seized and the malicious act reported thus: "It was Sunday when the seizure was made, and I happened to be reading the Liturgy." Indeed, one of the constables, being of an observant turn of mind, remarked on the "different manner in which the Protestants and Catholics keep the Sabbath, the former being in their homes reading good books (one of them being a personage called number one) and the latter abroad in the bullring, seeing the wild bulls tearing out the gory bowels of the poor horses." After giving vent to these pious sentiments, we may imagine the constable hurrying away so as to be in time for his favorite spectacle.

Although Borrow's usefulness in Spain had now come to an end, he was anxious to get in a few last blows for the cause. By means of the utmost secrecy he was still able to give "the blessed books considerable circulation."

But the ruffians who beset him everywhere now laid hand upon him for the last time, and "he was led or rather dragged to jail." His sojourn in the prison of Seville was not prolonged, more is the pity, as he might well have used his leisure time in making a careful and complete record of the extensive rogue's vocabulary for which that jail has always been famous, thus carrying out an undertaking for which he was qualified by his tastes and gifts. After his release he hurried to Madrid to demand redress of the Spanish Government for the various outrages he had been subjected to during his final efforts.

The door being now closed in Spain to any further activities of the British and Foreign Bible Society, its agent was definitely recalled. We would like to believe Borrow's own statement in spite of his many misrepresentations of the truth, that the years of his sojourn in the Spanish Peninsula were among the happiest of his life. Indeed, it would but seem reasonable to expect that after so many years of wandering through Spain he should have carried away some faithful mental images as well as a few trustworthy opinions to the effect that, although the Spanish Government has been very generally bad, the people have something in them that is commendable or good; or that the Church with all her shortcomings is not wholly bloody, bigoted, satanic and the rest, since it was at least suited to the temper of the Spanish people. No such objective attitude could have been expected from Borrow's peculiar temperament. On his return to England, filled with bitter feelings against Spain, he stated that "the Spaniard has no conception that other springs of action exist than interest or villainy"; that among the people of the Peninsula he had met "only three who were not scoundrels, thieves or assassins." And a few years later he was asked to review Richard Ford's *Handbook on Spain*, a duty he ought to have undertaken cheerfully inasmuch as Ford had in his usual kindly spirit reviewed *The Bible in Spain*, stinting neither praise of the book nor

admiration of its author. Borrow, on the other hand, sat down in a temper and without mentioning the work of Ford at all penned a strangely unreasonable arraignment of the Spanish Peninsula and of every inhabitant, all of which could certainly not have been calculated to make popular a book purporting to be a guide through that country. Was he filled with jealousy of Ford's splendid work? At all events, his attitude showed a fanatical and small spirit. The article was submitted to Lockhardt, the editor of the *Quarterly Review*, who expressed a wish to add a few extracts from the *Handbook* so as to give some idea of what the review pretended to be reviewing. This Borrow curtly refused to allow, as it was tampering with his paper, and it was therefore rejected. If he had had any sense of proportion or sweet reasonableness in his nature he would have appreciated a certain old Spanish legend. This tells us that once upon a time in the good old days a certain King of Spain was walking in his gardens and behold,—Santiago, Patron Saint of Spain, suddenly stood before him. Now the countenance of the King seemed troubled, and the Saint, knowing that he had at heart the good of the Spanish people, asked him to express the wishes dearest to him, and that, if possible, they would be granted. "Bestow on my country," said the King, "an admirable climate." "Granted," said the Saint, "what next?" "May there ever be abundant harvests of the earth's best products." "So be it," replied Santiago. "May my country ever boast valiant sons and winsome daughters." "That, too, I grant," was the answer. "Let Spain always be favored with an excellent government." "Never," cried Santiago, "that is impossible; for if I were to grant you a regime worthy of this blessed land, even the angels would abandon heaven to make their abode in Spain."

AN ACCOUNT OF THE METHODS OF WORK OF
THE AGRICULTURAL INSTITUTIONS
IN CALIFORNIA*

THOMAS FORSYTH HUNT

Last spring a letter was received from President Thompson which read in part as follows:

“The Executive Committee last week unanimously decided to request you to go on the general programme on the following theme, or such statement of it as you might prefer, namely, The Plan of Agricultural Operations in California. The committee seemed to think it would be very desirable to have some account of the work at Fresno, Riverside and elsewhere and to set out in a paper the method of procedure,” etc.

To this invitation the following reply was sent:

“Your letter of May 3—has been received. I do not feel at liberty to decline your invitation although I have much hesitation in accepting it for the obvious reason that it puts me in the position of discussing and even defending our own work before our guests. However, if you are willing to accept the responsibility for the invitation and for the wording of the title, I will comply with the request.”

* An address delivered before the Association of American Agricultural Colleges and Experiment Stations, held at Berkeley, California, August 11-13, 1915.

The more I have analyzed the situation the more I must confess I am puzzled concerning the reason for this request. Even if it were possible to demonstrate that the method of procedure is a successful one, it does not follow that such procedure would succeed elsewhere or if it could be made to succeed would be desirable. We believe it is a good method or we would not follow it, but it may as well be confessed that I have applied all those yard-sticks by the means of which success ordinarily is measured and find that each projects beyond the size of the cloth, whether measured lengthwise or sidewise, except possibly in the case of the stick of popular appreciation. However, the California spirit of appreciation and helpfulness, known to Easterners as the habit of "boasting and boosting" makes this stick a variable one.

California has an area equal to the nine North Atlantic States—the six New England States, plus New York, Pennsylvania and New Jersey. These nine North Atlantic States have ten agricultural experiment stations, ten separate organizations and twenty-five millions of people. California has one organization and two and one-half millions of people. It has all the agricultural problems of the North Atlantic States and in addition has problems of which the man who always has lived in a humid climate never has dreamed. Further, most of the agricultural investigators of the world have lived and continue to live in humid climates and have studied the problems of humid climates. The best that can be said for the California organization is, that it has made, or more correctly is endeavoring to make, a virtue out of a necessity. Instead of saying the problem is hopeless because of its size and complexity, the organization has said, we will make a better college of agriculture because of the size and complexity of the problems involved.

The physical aspect of the situation may be illustrated by referring to the fact that we have a farm adviser in Humboldt County and a substation in Imperial Valley.

It is only within the last year that one can go by rail from Eureka, Humboldt County to El Centro, Imperial County, in three days, and this only by spending two nights on a sleeper. The average rainfall at Eureka is 46 inches. There are parts of Humboldt County where, in some seasons one hundred inches of rain falls. Four inches of rain never have been known to fall in Imperial Valley in twelve months. A member of the staff of this college has travelled, within the state, 16,000 miles in sixteen weeks in the necessary conduct of his work.

Doubtless the Executive Committee had in mind only research and education when it asked for this paper, but the title in the programme "Agricultural Institutions in California," offers an excuse for discussing the subject in a somewhat broader aspect. The purpose of the College of Agriculture is to discover and instruct, but not to control any person's actions. The United States Department of Agriculture differs from a college of agriculture in that it does not attempt to give resident instruction. A college of agriculture differs, or to speak more correctly, should differ, from the United States Department of Agriculture in that it does not possess police functions. The University of California is recognized by the State Constitution. Four functions of government are therefore recognized in this State, namely, the executive, the legislative, the judicial and the educational. It must be perfectly obvious that in California, as indeed elsewhere, police powers are an executive and not an educational function. The argument that certain police powers, because of the technical character of the control, can be exercised best by the experiment station is equally as specious as the argument that the executive branch of the government must conduct its own investigations in order that it may know how to act. The fact is that the two functions largely are incompatible. In many instances, it would not be far from wrong to say in most instances, a man who has a law to execute will not think his problem out to its logical conclusions where his

job depends upon not doing so. Of what value is a station's opinion concerning the use of hog serum if one-fourth of its revenues are obtained from the sale of said serum? Suppose a police department has organized an efficient staff for the prevention and control of insect enemies and fungus diseases: What would it do if its own research led to the discovery that only one-half of the staff and only one-half of the appropriations were needed for the conduct of its work? Would it publish its researches? Did it ever occur to you that nearly every federal, state and county employee is engaged in controlling somebody's action? Go into any county in any state and run your eye over the officials. Most of them wear a star, if not on their coats then on their suspenders. There is nothing, apparently, that an official cherishes so much as police powers. Has it ever occurred to you that every state should have one institution whose duty it is to discover and whose only power it is to tell the truth? Let me illustrate how it works.

A certain county in California has one paid official who does not have any police powers. He is known as a farm adviser and not as a county agent, however, because in the judgment of the writer the latter smacks of police powers. One of the supervisors in that county decided to try to have a law passed which he insisted quite vehemently the farm adviser should enforce. The farm adviser was quite disturbed, for he knew the policy of the University, and yet he was afraid this supervisor might induce the County Board to withdraw its financial support. The farm adviser was told that it was a matter of comparative indifference whether or not any particular county had a farm adviser. The University only wished to place them where they were wanted, and if this county did not want him he could be transferred readily to another county. We told the supervisor that we did not know what the farm adviser thought about his proposal and we did not care what he thought, but whatever, he did think, it was

his duty, if asked to do so, to advise the Board of Supervisors what action in his judgment they should take; but under no circumstances would he be allowed to enforce the law if they passed one. The fact was, the county had a thoroughly capable police officer with plenty of time, whose natural duty it would have been to enforce such a law if passed. The point I really am trying to make is, that all this came about because neither the supervisor nor the farm adviser had fully grasped the idea that the only functions of the University are to discover and to teach. When the idea really is comprehended, it will be found to have a far reach.

This same farm adviser came to us one day and said he was called to Mr. Blank's farm and found his cattle to be suffering from a contagious disease. After advising him to the best of his ability he asked, "Why did you not call the live stock inspector"? "Why, you know," the farmer replied, "we knew that you didn't mean us any harm and we did not know what the inspector might do to us." "What should I have done"? asked the farm adviser, "should I have informed the live stock inspector?" The farm adviser was told that it was his duty to try to persuade the farmer with all the power he possessed that it was in the interests of the community and his own interest to call in the live stock inspector and to have the place quarantined, but that action on that subject should be left entirely to the farmer himself.

We may as well be frank about it, this policy is not one that makes for popular appreciation. The majority of the people like to be knocked down with a club. When a man swings a big stick everybody takes off his hat and shouts for joy. If you are looking for immediate results, do not adopt the policy I have outlined. I cannot present you with any evidence that will work, in fact I have some evidence that it does not, but I feel as sure as I stand here that if the agricultural colleges are going to justify the vast sums of money they are spending, they must

analyze their own motives and they must make their methods of procedure conform with the legitimate functions they were created to perform, which are the creation and diffusion of knowledge.

In order that you may understand the agricultural work of the University of California it is necessary to explain the general methods of procedure in the University as a whole. The most important unit is not the college but the department. Legally, perhaps, the college is the more definitely recognized unit of the University, but in practice certainly, and especially from an administrative point of view, the University is a collection of definitely organized departments, the heads of which report directly to the President. The title of Dean or Director is largely ornamental and serves to indicate who is to preside over certain meetings or to indicate to whom students may go for counsel and advice. In my own case, for example, I get such privileges as I possess, and such responsibilities as I must assume, not because I am Dean of the College of Agriculture, nor because I am Director of the Experiment Station, but because I hold the archaic title of Professor of Agriculture. The various subdivisions of the Department of Agriculture are known as divisions, such as the division of agronomy, division of animal husbandry, etc. Each of these divisions has all the privileges, all the responsibilities and all the budget that in most other institutions is accorded to a department. They are in fact to all intents and purposes departments, made so, however, by the head of the department and not by the action of the Board of Regents.

In this institution the matter of an academic title is an important one. It was not sufficient to give Dr. Webber the title of Director of Citrus Experiment Station and Dean of the Graduate School of Tropical Agriculture, but it was essential that he be given the title of Professor of Plant Breeding. If, therefore, you notice that some of us bear an imposing array of titles, you will understand

they were given in order to comply with a certain type of organization for which the University of California is perhaps peculiar.

Neither does the academic title a man bears indicate the function or functions he performs. You cannot tell from his title whether he is a teacher, an investigator or both. We do not say a man is a Professor of Agronomy and Agronomist to the Experiment Station. We simply say he is Professor of Agronomy. As head of that division he willy-nilly has charge of all the activities of that division and largely he determines what the activities of that division shall be. Whether the emphasis shall be placed on teaching or investigation or even upon extension, it is chiefly his duty to determine and to organize his division accordingly. Naturally he will be held responsible for the results. We even give the men employed under the Smith-Lever Act an academic title. We do not know our field men officially as farm advisers. They are recommended and elected as assistants or instructors in agricultural extension. There is nothing in our plan of organization to prevent them being promoted to an assistant professorship or even a professorship of agricultural extension. They thus have such faculty privileges and responsibilities as their rank entitles them to. Please observe that it is not claimed that this is the best way or even the right way; but it is necessary for you to know that it is our way before you can understand our procedure.

Outside of our extension work which includes thirteen counties, the Department of Agriculture of the University has eight centers of activities. Three of these centers, Berkeley, Davis and Riverside, may be considered the major centers, while Fresno, Whittier, El Centro, Santa Monica and Chico may be referred to as minor. The last two are forestry tracts where we merely keep a care-taker and may be forgotten in this discussion. The six points at which members of our staff reside permanently are:

A.—Headquarters, Berkeley.

B.—University Farm, Davis.

C.—Graduate School of Tropical Agriculture and Citrus Experiment Station, Riverside.

D.—Southern California Plant Pathological Laboratory, Whittier.

E.—Imperial Valley Experiment Farm, El Centro.

F.—Experiment Tracts, Kearney Ranch, Fresno.

At least twice a year all of the members of the institutional staff bearing the title of professor or assistant professor, meet on the campus in Berkeley for the transaction of such business as ordinarily comes before a faculty and to discuss the many questions which must arise in a department of such wide and diverse interests. Among other reasons in order that committees may have an opportunity to meet and report, these meetings always occupy at least two days. Thus on Friday of this week, the staff meets from 5 to 6 P.M. and on Saturday at 2 P.M. it will meet again and presumably will remain in session until its business is completed. However, should there be occasion for another meeting on Monday, out of town members would remain here for that purpose. The next meeting of the staff probably will occur in November. In the interim each one of the three groups, Berkeley, Davis and Riverside, will hold approximately monthly meetings for the transaction of such matters as may be of local necessity or interest.

The University Farm at Davis is a tract of 779 acres in the lower Sacramento valley, where the University conducts four types of activities:

1. Some of the divisions of the department of agriculture conduct their investigations there wholly or in part.
2. Juniors and seniors who are candidates for a degree in the College of Agriculture may go there for one or two semesters.
3. A three-year's course in agriculture is maintained there for students who may have reached college age but

who do not have college requirements for admission. No person is admitted under eighteen years of age, unless a graduate of a high school of recognized standing. Last year 168 students entered as freshmen in agriculture at the University, while at the University Farm School 170 entered for the first time, 86 of whom were graduates of high schools but not necessarily able to present the requirements for entrance for the four-years' course at Berkeley. The average age of the intransit at the University Farm last year was twenty years and one month. It is, however, not a secondary school and differs from the degree courses in that the course is a three-years' course; that no foreign language is taught; that the instruction in the pure sciences is more elementary in character, or speaking more correctly, not carried as far as at Berkeley, and that as a consequence the technical instruction is modified to meet the need of students less thoroughly grounded in the sciences.

The school attempts to meet one of the phases of what I believe to be of the greatest educational need in America today, namely, the suitable training for the man or woman who has reached college age without being able to present college requirements for admission.

4. A series of six-week courses for farmers, occurring in October and November.

It is the primary aim at Riverside, located in Southern California, to develop a research department of the highest character. The chief problems are those surrounding the practice of irrigation in an arid climate. We are working out these problems perforce through the chief crops of the region, which happen at the moment to be oranges, lemons and walnuts. We are looking forward also to the day when, through our relations with Central and South America, we will be called upon to train men for the tropics. Thus we are preparing to take graduate students who may wish to be among the first to extend commercialized scientific agriculture into a region whose development must mean much to the welfare of humanity.

It has just been stated that the primary aim of the Citrus Experiment Station is research. It must be admitted, however, that the people of Southern California are so hungry for the last word in horticultural practice and the men located at Riverside and Whittier have such a reputation for the knowledge, whether they have it or not, that a great part of their time is taken up with extension work. Most of the orange orchards of Southern California are within two hours' ride of the station and practically every grower owns one or more automobiles. I spare you the obvious joke that I would be supposed to perpetrate at this point. The natural result is that visitors often take up the time practically of the whole staff which in reality should be given to that type of investigation which requires long and continued attention to details.

It is necessary to say a word about the Kearney ranch at Fresno, which no doubt fires the imagination, and rightly so, of our Eastern friends more than any other portion of the University property. Mr. M. Theo. Kearney willed a remarkably well developed ranch of 5400 acres to the University for a suggested purpose with which it has not yet complied. One important reason for the delay in developing this ranch on the lines proposed by the will is that the Regents inherited a \$200,000 mortgage along with the estate. The mortgage has now been paid off and the estate continues to be managed by the Comptroller of the University as an income bearing property. The Regents have taken out \$30,000 over and above expenses and improvements annually during the past eight years. This is quite obviously six per cent on 500,000 or three per cent on \$1,000,000 the price at which I believe it is capitalized on the books of the University. Mr. Kearney probably expended on land and improvements somewhere between one hundred and two hundred thousand dollars. While the Department of Agriculture has no control directly over this property, it rents from the University a forty acre tract upon which the division of agronomy conducts investi-

gations, while the divisions of soil technology and viticulture are conducting investigations of an important character in connection with the Kearney ranch management. To avoid possible misunderstanding it should be added quite parenthetically, that all the profits that are derived from this estate or their equivalent are turned over to the Department of Agriculture for its work. Its staff dreams dreams concerning the future of this truly great estate. Briefly, it desires to see this property divided into thirty or more units, each housing and employing fifteen to thirty students, one half of their time being given to actual manual toil while the other half is devoted to study at some central point to which all of the students will assemble from their several units. Perhaps you may say this was tried out fifty years ago and failed completely. The reply is that what we are proposing to do never has been tried anywhere at any time.

The representative of the London Economist called at my office about a year ago. He was searching for manuscripts. I told him that I was trying to think out some way of describing California so that a man who never had seen the State would get the proper mental picture. His reply was, "You cannot describe California so that a man who never has seen it can understand it; and if he has seen it, it is not necessary." So it is with the Kearney Ranch. It would be hopeless to make you understand what we wish to do there if you have not seen the place, and if you had seen it you would be as crazy about it as we are. However, we do not desire to develop a certain type of agricultural education because it is necessarily the best type of agricultural education. In fact we believe there is no best type of education, agricultural or otherwise. We believe that education must vary with the needs of the individual. Our aim is to meet as far as practicable the varying needs of the young men of California. It should be said here again, that the Kearney Ranch School is merely a day dream. How many years the dream is ahead of

the times, we will not venture to guess. However, it may be said in all frankness, that the Department of Agriculture is handicapped, and it is a very serious handicap, by that easy attitude of mind for which the Californian is noted, of believing that he already has the best there is. This is an attitude of mind that is not altogether foreign to other states, especially with regard to their agricultural colleges.

At this point I stopped and reread what I had written. I am more puzzled than ever over the invitation of the Executive Committee. I have said about all there is to say and yet do not appear to have said anything worth while. I will blunder along just a little more and then leave you to ask any questions you may have to ask.

It is the contention of the University that it is not located in Berkeley but that it is located in California. This is particularly true of its College of Agriculture. A graduate of the University may take his graduate work anywhere in California provided he is under the actual supervision of an instructor. The contact between instructor and student must be real and vital and not merely perfunctory. A student residing in Riverside cannot take graduate work with an instructor residing in Berkeley, nor can a student residing in Berkeley take work with an instructor resident in Riverside or El Centro. A student residing in Berkeley may do work with an instructor whose permanent residence is at Davis provided the instructor spends a portion of his time in Berkeley, as is the actual fact in some instances. The whole point is that graduate work may be done anywhere in California provided the instruction is real, but not otherwise. This is a general university policy which has special significance in the College of Agriculture.

The requirement for admission to the University, including the College of Agriculture, is 45 units, known in Eastern universities as 15 units. A student not only must have passed these 45 units, but each and every subject must have been recommended by the high school as satisfactory

for university entrance. If a prospective student has passed 45 suitable units but is recommended only in 42, he cannot enter the University without passing an examination in the unrecommended units. A considerable number of students graduate from high schools of California who are unable to enter the University for lack of this recommendation from the high school. A diploma from a high school and a recommendation to the University are two quite different things. Attention has been called to the fact that of the 170 entrants to the University Farm School last year, 86 were high school graduates. For the reasons just explained, it does not follow that any or all could enter the degree courses at Berkeley. The principal point to be brought out is, that on account of the University Farm School at Davis, it is not necessary to let down the bars for students entering the courses in agriculture at Berkeley. We merely say to the student or his parents, that the University Farm School is open to him if he is unable to offer our requirements for admission, provided he is eighteen years of age. On the other hand if a student fails in the degree courses in Berkeley, he is not permitted to enter at Davis. There are always a certain number of students, especially in other courses in the University, who, for lack of any earnest purpose, suddenly find that they have a deep longing for the soil and are quite sure that the University Farm School is the place that just fits their needs. These cases often sound quite pathetic, but they never get by for reasons that are well understood by administrative officers.

In the College of Agriculture the freshman and sophomore years must be taken at Berkeley. Before entering on their junior year, each student is required to have completed the following four technical subjects; agricultural chemistry, soils, plant propagation and the principles of breeding plants and animals. These courses have certain prerequisites, such as botany, chemistry, bacteriology, geology and zoology. Therefore, no student can enter the

junior year without having received a thorough foundation in the pure sciences and a comprehensive knowledge of the fundamentals of agriculture. It may be added that each of the four technical subjects below the junior year are taught by full professors. These four professors are told that it is a matter of indifference what else they may do so long as they give themselves body and soul to these beginning courses. When I observe that all four of these professors come through their semester's work each year almost physical wrecks, I feel sure that the students are getting the last ounce that is coming to them.

Between the sophomore and the junior years each student is required to take a summer practice course along the lines in which he expects to major. The methods of conducting these summer practice courses are as varied as the major subjects themselves, but all are intended to give the students some practical insight into his major subject before he enters upon its more theoretical study. It is believed to give him a better appreciation of his subjects of study and to give him an opportunity to back up and start over if he finds himself out of accord with the subject in which he intended to major. Each student is required to have a reading knowledge of some foreign language. When a student becomes a junior he is required to take a major subject. Only fourteen units out of sixty are required, however, so that theoretically a student may take any subject he wishes within certain rather wide limits during his junior and senior years. In practice, however, every junior and senior is under the supervision of his major professor. He cannot get his class card accepted until it has been approved by him. Ordinarily if a student is majoring in a certain subject he has a high regard for his major professor or he would be majoring in some other subject. Even if he did not, he knows that if he does not take subjects that are satisfactory to the major professor he cannot expect his professor to endorse him after he graduates. The character of the courses taken, therefore, depends largely upon the breadth or lack of

breadth of the major professor and upon his persuasive powers. In other words, a student entering the University must make two choices: first, he must choose the college he will enter; second, in two years he must choose the subject within that college in which he will major. For the rest his choices are made for him, and yet it may be doubted whether any two students in the College of Agriculture ever take exactly the same course. In certain majors all the work of the junior and senior years is done at Berkeley. In certain majors it is optional whether it is all taken at Berkeley, or in part at Davis. In other majors at least one semester is required at Davis; in others, two are required there. Out of 250 juniors and seniors now in the College of Agriculture, about 75 were at Davis last semester.

The requirements of the subject assigned to me, that is, "Methods of Procedure," has made it necessary to give you only the bones of the organization of the College of Agriculture. The flesh that we are trying to put on the skeleton I would not have time to develop, even had I your permission to do so.

I can never prepare a paper concerning the College of Agriculture of the University, however, without in some form or other calling attention to Dr. Carver's dictum: "That if you admit that life is worth living, then you must admit that the highest function of man is not the promotion of science or literature or art, but it is the rearing of a successful family." This statement is of peculiar significance to every college of agriculture and this College of Agriculture has swallowed it, bait, hook, line and sinker. The primary purpose of the College of Agriculture is not to enable the farmer to exchange his Ford for a Packard, although we are delighted to be of service in that direction, or to educate a man merely that he may make a worldly success, although we intend to do everything in our power to make this possible; but our chief purpose is to create successful homes in the open country.

THE AUTOBIOGRAPHY OF A SPANISH ADVENTURER

S. GRISWOLD MORLEY

Standing in the midst of a tide of collectivism such as the world has never before seen, most of us still feel a warm thrill of pleasure when we read of some foot-loose, red-blooded human animal whose energy was equalled only by his social freedom. The blond beast in our town is a wretched neighbor, but let him be transplanted to a distant century and clime, and we experience a clandestine admiration for his spirit and his works that bears no relation to our twentieth century standard of private behavior. Today only nations as a whole dare to be thoroughly mean, and they are slowly nearing the point of circumspection. So it is when we wish to stir the Adam in our blood by the contemplation of some splendid explosion of human force, we turn to Cortés, Cellini, or even Casanova. The unsought alliteration seems to suggest that the letter C may be the natural initial of an adventurous spirit crossed with an itch for publicity.

I cite as witness Alonso de Contreras, whose autobiography has been unearthed and published, after reposing nearly four centuries under the dust of a Madrid library. Contreras was a professional fighter on land and sea, who rose from nothing to be a Commander of the Knights of Malta, no slight achievement in itself. Not one of the shrewd climbers, he never thought large and never reached

high diplomatic posts. He looked but a short distance in advance; he was an insubordinate swashbuckler, a dreadnought captain, afraid neither of man nor devil, yet with a code of honor of his own, and a dash of piety that would cause wonder were it not so common in that age. He arrived too late to form one of the band of conquistadores, but their spirit ran in his blood entire. Of such men were the armies of Spain in her great days, and such a type explains many victories. His life-story, told with the utmost frankness, is to a degree a mirror of the time. More completely, it is a mirror of a soldier's life in the continual wars of the Renaissance; and that a soldier in those days missed little of experience, be you the judge.

I

Our hero was born in 1582. By pure chance his official name was Contreras, for that was his mother's name, which he adopted when he first joined the army. Afterward he wished to take back the surname of his father, but it was then too late, for his service papers were made out to Contreras. Before he left his home in Madrid he had killed a school-mate with the knife of his writing-kit and spent a year in exile for the crime. Only his youth saved him from death—the first of many narrow escapes. He was not yet fourteen, and had this past behind him, when he shook off his mother's restraining hand, his father being dead, and set out after the trumpets of the cardinal-prince Albert archduke of Austria. He was only a camp-follower, a hanger-on watching for scraps, but on the first day he gambled away his last *real* and every rag of clothes upon his body: "which clearly showed that I was to be a soldier." In fact he contrived to pry open a place as cook's boy, and was soon allowed to serve the king, though under age.

With that began vicissitudes as varied as those of Ulysses, and some were staged in the same scenes. The Grecian archipelago was the region in which the young

man first made his marks as an amphibious fighter. He was proud of his intimate knowledge of its harbours and inlets and also a little proud of the respect his name inspired in its inhabitants. Raiding the Turks was the great game of the day, with the whole Mediterranean as the field. Contreras fought now on Sicilian galleys, now on those of the Knights of Malta, and began to enjoy the quick prosperity of successful pirates. After one expedition "my share of booty was a hat full to the brim of double *reals*, with the which my spirit began to swell; but within a few days it was all gamed away and squandered."

A tavern brawl and a dead man sent him fleeing with two companions from Palermo in a stolen boat; they had not been in Naples a month when another street row drove him to Malta, hidden in a ship's storeroom. We must be just, and state that he himself shed no blood in these affrays; had he been guilty, he would not have failed to tell us, in his vivid, dialogued style that reads like Dumas. Then began his close connection with the Order of St. John of Jerusalem, also called the Knights of Malta and Hospitallers.

At the age of nineteen he was singled out by the Grand Master for his knowledge of the Archipelago and its languages to discover the objective of the great Turkish fleet that every year left Constantinople to cruise about the eastern end of the Mediterranean. In certain years it raided some unprotected spot in the southern Christian possessions. So succesful was the young captain that with his one galley he watched the course of the fifty-three hostile vessels, outraced them to Reggio whither they were bound, and gave the alarm. The General of the Sea found an alert coast awaiting him and retired for the year with heavy loss. This was only the first of a series of exploits that made the name of "Captain Alonso" known and respected in all the islands.

In one, Stampalia, where there was no Turkish governor, he was by common consent the arbiter of all disputes:

“for I never did them harm, but helped them whenever I could; when I had made a prize and could not carry it to Malta, I gave the island the vessel and sold it the wheat or rice and linen, which were the usual cargo; and such was their gratitude that whenever they had a weighty dispute, they said to each other: ‘let us wait for Captain Alonso’ (thus they called me), ‘that he may decide.’ And when I came though they were compelled to wait a year, they told me the facts and I gave sentence, which they abided by as if I had been a royal council; and then we all dined together.”

To this island the Captain restored its priest or *papas*, after he had been stolen by a piratical Christian and held for ransom. A grand ceremony was held in the church to celebrate his return. Contreras was placed in a chair alone, with a carpet beneath his feet. “The priest cast incense upon me and then kissed me upon the cheek, and then came all the people, men and women, doing the same; true it is that some of the latter were handsome, whose kisses I was not sorry to get, for with them I was compensated for the many I had taken from bewhiskered lips—and so bewhiskered!” Then the islanders wished him to stay and be their ruler, and to marry the daughter of their head man. They would even have kept him by force, but his crew learning the affair, unshipped a cannon and set it up on land to cover the town; so that in the end the Greeks were fain to let their hero depart, with many presents.

His craft and daring were limitless. Once he escaped two galleys by signaling from his masthead to a Christian fleet which did not exist; the Turks took alarm and fled. Again, being out of fresh water on the coast of Tripoli and finding the well guarded he raised a flag of truce and after parley exchanged twenty-seven shields-full of ship’s biscuit for as many casks of water. He buried on the beach some of his sailors who had been killed in the skirmish; next morning they had been uncovered and their

noses and ears cut off "as a present to Mahomet." "I in my anger told them I would do the same to two prisoners that I had. They replied they would rather have ten sequins than thirty Moors; and so in their presence I cut off the ears and noses of the captives and threw them on the ground saying: 'take these too!' and tying the two prisoners back to back I put out to sea and before their eyes threw them in, and went toward Alexandria."

In another year, when it was learned that the Grand Turk was preparing an armada and that a certain Jewish collector of Salonica was sure to know of its destination, Contreras was sent to kidnap him, "as if I were to go to a market for some pears." He did his errand. As a result of the expedition the Captain's picture was distributed by the Turks throughout the whole East and Barbary, with an awful punishment promised him if captured. He was never taken, but his pilot less lucky was seized within four months. He was flayed alive and his skin stuffed with straw, suspended over the gate of Rhodes. Such were the risks of the age.

The acquirement of riches was, as may be supposed, the last thought of Contreras. When he reached port with one of his fine prizes, he took care to set aside a portion for the church of Nuestra Señora de la Gracia; the rest went "tout aux tavernes et aux filles." Not the least of his merits as an author is the lively and intimate picture he presents of the life led by the Knights of St. John in that degenerate day, after they had become rather pirates than hospitallers, when Malta was one of the world's great slave marts, and the vows of chastity, poverty and obedience were mere sounds upon the lips.

II

One day a vessel bound for Spain touched at Malta. "Remembering my country and my mother, to whom I had never written nor sent any news of myself, I determined to ask leave of absence from the Grand Master, who

granted it unwillingly, touching his face to mine as we took leave."

In an evil hour the headstrong Captain forsook the vessel he commanded and the sea that yielded him such easy gain. On land he could no longer pillage Turks, the sworn enemies of Christendom. He was no longer his own master, as he was when once his ship put Malta below the horizon. Contreras looked in upon his mother, who had re-married, in spite of the sixteen offspring of her first experience. She was afraid of her big soldier son, lest he should disapprove of his step-father; but he recommended obedience and went his way. As no captaincy was vacant in the Spanish army, he accepted the post of ensign in a company, and was sent to drum up recruits in Andalusia. Of his adventures in this station it is better not to speak, but they were neither few nor insipid. At Hornachos, a village of moriscos in Extremadura, he discovered a large deposit of muskets and bullets in a private house. He reported them to the royal commissioner, who told him to say nothing. This affair contained the germs of serious danger, but they did not develop for five years. He wounded his captain in an inpromptu duel, *feminae causa* and was not punished for it. Soon after, the company was placed on a peace footing, and Contreras obtained service in Sicily, then and much later Spanish soil. His skill at sea was remembered, and he was sent on a privateering expedition that brought him wealth enough to keep a stable. On a previous occasion he had replied, when invited to mount a horse that "he was accustomed to ride nothing but a ship."

In 1606, according to history, the united forces of Sicily and Malta, commanded by Juan de Padilla, undertook the capture of Hammamet, a town south of Tunis. The expedition ended in a great disaster, and I wish Contreras' account of the failure were not too long to transcribe, for it might stand as a classic description of panic in war. The troops landed and stormed the walls, as per orders, and began to collect booty within, while seven hundred men

stood guard outside. Then, without command or method, no one knew why, a few began to re-embark in the small boats. The word passed from one to another, the guard broke ranks, and all the soldiers, losing their discipline completely, crowded to the shore. The Moors, who had hidden in cisterns or fled, returned to the attack; they mounted the walls and turned the cannon against the stupefied Christians: "for if God had decreed it, how could we keep our judgment? and He took it from all of us that day." A storm of sudden violence arose, making it impossible for the boats to approach the shore; and there stood the huddled mass of Christians twelve hundred or more, while a bare hundred Moors struck them down with lances and swords and clubs. Some rushed into the sea, not even thinking to remove their heavy armor; of them was Contreras, and he was one of two picked up, half drowned, by a small boat. Juan de Padilla himself was drowned, and it was a sad fleet that returned to the islands. "We reached Palermo with the galleys' lights draped in black and the awnings spread, though it was August, rowing so aimlessly that it was a pity to see; and more when so many boats came to ask, one for a husband, and others for a son or a comrade or a friend, and we must needs answer: 'they are dead;' for it was true; and the shrieks of the women made the oars of the galleys to weep."

The captain's only matrimonial experience ended likewise in catastrophe. He relates it entire in a scant page, more laconically than is his wont, and with evident feeling. He married a lady from Madrid, the widow of a rich judge. They lived together happily more than a year and a half; then he was informed that a friend, "to whom I would have trusted my soul," was supplanting him. "And I, who was not sleeping, pretended to take no note, until their fortune had it that one morning I found them together. They died. May God keep their souls in heaven if at that moment they repented. There was much more

to the matter, but I write even this unwillingly. I will only say that of all the property I took not a cent, naught but my own service papers; all the rest went to a son by her first husband."

III

The soil of Spain has in all times produced two flowers, wholly distinct in color and aroma. The first is the white lily of mysticism, struggling up toward the blue sky with a power of aspiration and a depth of yearning known only to the greatest minds and hearts. Saint Theresa and Luis de León were the chosen fruit of the spirit, but they were not alone. The second is the red creeper of roguery, the very essence of realistic unscrupulousness, delighting in filth, aiming only at immediate pleasure. In fiction the pícaros were called Lazarillo de Tormes, Guzmán de Alfarache, Paul of Segovia; and in life they could not be numbered. But the white lily and the red vine both plunged their roots into the same soil, were both nourished by the same rich nature, the chief ingredient of which is passion, unbridled southern passion, direct and unashamed.

These reflections were suggested by Captain Contreras himself, creature of passion if such there ever were. In his own nature he bore the germs of both its diverse offshoots. His life as a whole reads like a picaresque romance, and one episode in it like the conversion of Loyola. A mystic Don Alonso certainly was not, but his religion, never disowned, went beneath the skin. In the year 1608 he returned to Madrid to solicit a post. Blocked by the notorious favorite Rodrigo Calderón, he had the temerity to appeal direct to Philip III at the Escorial. For his trouble he was ordered not to set a foot in the Escorial again on pain of death. "And I went riding back to Madrid, and in those seven leagues I took reckoning with myself, and resolved to go into the desert to serve God, and no longer Court nor Palace."

“I bought what is needful for an hermitage; hair-cilice, scourge, sack-cloth for a frock, a sun-dial, many penitential books, seeds, a skull and a little hoe.” Thus equipped, behold him setting forth for the Moncayo, a large mountain mass on the border between Old Castile and Aragon. The customs inspectors open his sack, and, seeing the implements, are horrified: “‘Sir, whither go you with this?’ I said: ‘To serve another King a space, for I am tired.’ And they, seeing I was not poor, pitied me; above all my mule-boy, who wept like a child.” But he was not to be dissuaded by tears, nor by the entreaty of some friendly knights of Malta on the way, nor by the sermons of the bishop of Tarazona, “setting forth the thousand obstacles and my youth;” nor by an old friend, the corregidor of Agreda, “who almost changed my intention.” In spite of all he perched his hermitage on a mountain slope half a league from the town of Agreda. Nearby there was a monastery of barefoot Franciscans, and he adopted their habit. He thus describes the life he led.

“Every day I came to the monastery to hear mass, and was besieged by the friars to join them, but I would not. Saturdays I entered the city and begged alms; I took no money, but oil, bread and garlic, which were my food; for I ate three times a week a mess of garlic and bread and oil, all cooked together, and the other days bread and water and many herbs that are on that mountain. I confessed and received the sacrament every Sunday. I took the name of Brother Alonso of the Mother of God. Some days the friars invited me to eat with them, to the end of persuading me to join their order; and when they saw it was not to be done, they beset me to leave off the habit or frock of their order that I wore. They succeeded in that, and I had to change my garb, much against my will, and put on that of the Victorine Friars; and I believe that if there had been any of their order in the neighborhood I would have had the same trouble; so great desire had these friars to make me enter religion!

“I spent about seven months in this life, without a bad word being said of me; I was perfectly content, and I promise you that if I had not been dragged away by force as I was, and if I had stayed there till today, many a miracle I should have performed.”

What was the brute force that came to tear Brother Alonso of the Mother of God from the path of sainthood, and set him down once more in the midst of the worldly turmoil that he had renounced? Nothing else than that forgotten deposit of arms which, long before, he had seen in the house of a morisco at Hornachos, and had not reported, since the royal commissioner had bidden him to be silent.

The unhappy descendants of the Moors, whose natural hatred of their victorious enemies had not been mitigated by just or wise treatment after the conquest of Granada, were soon to be driven from the land their ancestors had won nine centuries before. Harassed in their home life, in their beliefs, in their methods of earning bread, they were treated by the Christian populace more as slaves and outlaws than as fellow-Spaniards. In 1609 the attempt at their wholesale expulsion was to be made, and the moriscos suspecting a *coup* the nature of which they were unable to learn, were restless, accumulated stores of weapons and infested the highways. The authorities were more than ever alert to frustrate a rebellion. This state of tension is the explanation of Contreras' curious and dangerous adventure.

While working peacefully one day about his hermitage, he was astonished to see a body of armed men approach. He was seized, manacled and taken to Madrid. Some time passed before he learned his offense. It was five years after the discovery of weapons at Hornachos, and some ferret-nosed Dogberry had just heard of the case and decided to explore it. The ensign had learned of the arms and had not reported them; ergo, he had taken a bride. He was now in retirement between Castile and Aragon, in a mountainous stronghold; ergo, he was himself the

king of the moriscos, and was about to head an uprising! Such was police logic of the day, and it nearly cost the Captain his life. He was thrown into prison, questioned, taken to Hornachos to identify the house, confronted with the commissioner, who denied *in toto*, tortured (not too severely) and finally released on parole. Contreras, eager above all to clear his name and that of his family, broke parole to gather testimony from some of the soldiers who had been with him at the time. Then he returned to Madrid to give himself up, and found that he had done the best thing possible. He was at once acquitted, given a goodly sum of money and a captain's commission in Flanders. The commissioner, who was rich and had backers of high station, was let off with a short exile. Thus ended our hero's only attempt to behave like a saint.

IV

To relate all of his adventures would, as he says himself, take more paper than there is in Genoa. He served two years in Flanders in time of peace. Having returned to Malta, his early haunt, he was admitted to the lowest of three ranks of Hospitallers, as serving brother, "although some Knights opposed me, saying that I had two notorious murders to my name." He was thereby entitled to wear the habit and to be tried by the courts of his Order instead of the royal tribunals when at fault, which was not seldom. He was once imprisoned for a brawl, and twice, like Cellini, poisoned by his enemies. Luck and a stout constitution brought him off alive and free. In 1618 he was sent to the West Indies in command of two vessels, and had the advantage, so he says, in an engagement with the ships of Sir Walter Raleigh. Soon after, he relieved the garrison of Mehediah, on the Moroccan coast. With one small vessel he passed through the besieging fleet and carried supplies to the town. It was volunteer work, which others had refused, and it procured Contreras a personal interview

with the king, then Philip IV, and promises of advancement that were never fulfilled. It is true that he was offered a present of three hundred ducats with an expression of regret that the sum was not larger, but he declined, saying: "Sir, I do not need money if it is so scarce; I seek fame, not money."

It is singular that the middle portion of the autobiography is written with less wealth of detail than the pages devoted to the joyous, harum-scarum youth. Perhaps the writer felt at liberty to give his imagination freer reign in the years more distant from him. Then too, as he approached middle life his deeds were no less bold, but they were isolated by long intervals of waiting for positions, of dancing attendance on the court, of wire-pulling, necessary but irksome, of complaints against his superiors. Contreras was not tactful; he was a forthright man who settled a dispute by the sword whenever possible. He always preferred the justice of might to that of the appointed tribunals, and he was more likely to win by the former method. If he was ever worsted in a hand-to-hand combat, he does not tell us of it. No cowboy could take greater pride in being the first to draw.

For sixteen months he was governor of the island of Pantellaria, lying between Sicily and Tunis. As he had little occupation there, Contreras' religious fervor revealed itself once more, this time in an architectural manifestation. He renovated an old thatched church on the island, procured wood from Sicily for the roof, and even, modest Mecaenas, imported a painter to decorate the interior. The shrewd Captain may have harbored an ulterior motive beneath his zeal. Very soon he visited Rome and obtained from Pope Urban VIII in a private interview what had been refused to his previous petitions. He was granted a brief excusing him from the residence and caravans required of a member of the order of St. John before he was eligible to a commandery; much more, another brief "which orders the Religion, in consideration of my services, to

receive me into the rank of Knight, enjoying the privilege of seniority and of eligibility to all the knight commanderies and dignities which the Knights of Justice can obtain." It was not easy to persuade the Papal ministers to concur in these unprecedented favors, but with the aid of the Spanish ambassador their consent was gained. As soon as possible Contreras returned to Malta to present his briefs. "Without delay they were obeyed, at which they armed me Knight with all due solemnities, and gave me a Bull which I esteem more than I would to be a son of Prince Carlos, in which it is said that for my notable deeds and exploits I was armed Knight, having right to all the commanderies and dignities enjoyed by all the Knights of Justice. That day there were double rations at a great banquet."

To appreciate fully how great was the distance traversed by Contreras in rising from pot-boy to Knight of Justice of the Order of St. John of Jerusalem, wholly by his own efforts, it is necessary to recall the rules of the proud and ancient Order, then, it is true, somewhat relaxed by the license of the time. No doubt Contreras had taken the vows of poverty, chastity and obedience when he was received as serving brother; he had kept—possibly the last. His fellow Knights were in no better case, and there was another obstacle of greater moment. The members were divided into three ranks, Knights, Chaplains and Sergeants or Serving Brothers, the first and last being open to laymen. It was not difficult to become a serving brother; Contreras had been admitted in his thirtieth year. The Knights were of two classes, Knights of Justice and Knights of Grace. The latter might be chosen for superlative merit, but the former were required to prove sixteen quarterings of nobility; thus they were Knights "justly." Don Alonso never in his most boastful moments claims for his parents anything more than honorable poverty and untarnished Christianity (for the authorities had investigated his ancestry to the fourth generation at the time of his trial

for rebellion, and had reported no trace of Moor or Jew). On merit only he should have been elected a Knight of Grace. The special favor dispensed him by the Pope consisted in the command that he should be admitted to the highest, the exclusively noble rank. This took place about the year 1627.

V

For a time following Contreras, in fine spirits and employed in a region where he was given a free hand, found again the devil-may-care spirit and the vivid narrative inspiration of his youth. He served in the Spanish force occupying the kingdom of Naples, and was stationed often in outlying districts where he was his own master as he had been when captain of a privateer. I cannot forbear to offer one example of his methods, and, as best I may, of his style.

“In the Casales of Capua there is a usage most harmful to the poor; and it is that the rich folk who are liable to have soldiers billeted upon them send one of their sons into the first holy orders, and to him make over all their property. With this they are exempted from furnishing lodgings, and the Archbishop defends them because they maintain him. I reported this knavery to the Bishop and he told me it was just. That angered me, and I withdrew my soldiers from the houses of the poor and took them to the rich, and asked: ‘Which is the room of the priest?’ They said: ‘This one;’ and I: ‘It shall remain as spotless as the day of the Lord; and these others, who sleeps in them?’ ‘Sir, the father, the mother, the sisters and the brothers;’ and in them I quartered three or four soldiers. They protested to the Archbishop and he wrote me saying I should have a care, for I was excommunicated. I laughed at it; and one of those ‘wild priests’ (so they are called in that kingdom, because they have only the first orders, and many of them are married), bestrode a mare to com-

plain to the Archbishop; but a soldier jerked the horse back, and told him to wait till I had been informed. The mare knew the bit no better than the master Latin, so she reared and cast him on the ground, which did him no good. Hurt as he was, he went on to enter his complaint; at that the Bishop sent me word I was excommunicated by virtue of the chapter *quisquis pariente del diablo*. I made answer: 'Take care what you do; I know nothing of the chapter *quisquis*, and as for being a relative of the devil, I am not one nor was ever such in my ancestry; beware, for if I submit to being excommunicated, no man is safe from me unless he hides in the fifth sphere; to that end God gave me ten fingers on my two hands and one hundred and fifty Spanish soldiers!' He received my letter, and gave me no answer, but sent word to the Casales that they should urge the Viceroy to remove me, and that he would do the same, for he saw no other remedy. They got me out as soon as might be; but meanwhile the rich paid dearly without a single poor man suffering. And my rule was not so short but it lasted more than forty days.'

Contreras' Italian service was ended by a quarrel with his superior, the Count of Monterrey, who had nevertheless done him many favors and whom he admired extremely, as he tells us at some length. The Captain fell in with one of his many brothers, and persisted in trying to raise him to honors that he did not deserve, we must suppose, for none of the authorities would grant the favors asked. Contreras, with his usual obstinacy, disregarded the advice of all his friends and well-wishers and left Naples sooner than yield a jot. Within a few months he received a Commandery in the Order of Malta.

The manuscript breaks off abruptly in the year 1633, just as the author attempts once more to procure a place for his unlucky brother. Several sheets are missing. How much farther the autobiography extended in its original form, we do not know. If, as Contreras states, he wrote the greater part in the space of eleven days, most of the

material being twenty years or more old, he either possessed a wonderful memory, kept a diary or invented freely, for there is more detail in the early years than later. The stirring events that occurred before 1610 are described with as much freshness and verve as if they were not a week old. Whichever was the method, he was a gifted writer.

VI

I feel that I have done faint justice to one of the most individual of books, evidently written for the public and withheld from it so long. The one short volume contains no end of quotable stories, but nothing less than a translation can convey the color of the original. The Captain's particular art was the subjugation of rebellious recruits. One must read how shrewdly he dealt with the thieves at Eciija; with what a combination of diplomacy and courage he quelled the mutineers at Cadiz; how neatly he persuaded his company to remain five days at Nola during an eruption of Vesuvius, while ashes rained and lava flowed about them, till orders came to withdraw. Nor was he awed by the great. One of the most amusing passages tells how he defied the governor of Romagna, planning to give him a sound beating and then flee beyond his jurisdiction. And even if we make allowance for the natural bravado of a soldier-author, it appears that he faced the dignitaries of the Spanish court and Philip IV himself, with the mettle of a man who has dealt more wounds than he has received. Each of these anecdotes, despatched in a graphic page, would have furnished Mérimée a story and Dumas a novel.

I have many times observed one point of similarity between the productions of the greatest intellects and those of the crude and uncultivated. Writers may be divided into three layers: at the top the supreme thinkers, and at the bottom the quite untrained. Between them lies a vast

host of clever quill-drivers who write easily and possess a style, but whose ideas are drowned in a river of harmonious words. Amiel called the medium of expansion a necessary *pâte*, and regretted that he was not able to produce it. It might be named an excipient, like that used by pharmacists in compounding pills, to hold the true medicaments and give them bulk. Literature from the top and bottom layers is alike in lacking make-weight. When we read Montaigne or Bacon or Pascal we are astonished to find an idea in every line, just symbol of the powerful brain that conceived. An ordinary man may also, if he write little, say nothing that is not of meaning.

Contreras falls in the latter class. Having certain deeds to narrate, he did it with wise avoidance of the superfluous and a skill in wording that is far above the average. His haphazard style is the despair of a grammarian and the delight of a lover of racy Castilian. To find an antecedent for all his relatives or a subject for all his verbs is as hard as to lay bare the motives of all his acts. But he was not for nothing the contemporary of Cervantes and Quevedo; the picturesque word falls from his pen without an effort, although he says: "Here goes my book, dry and unwatered, as God created it and I was able, without rhetoric nor quilllets, formed only on the truth." It is a book that can be read word by word.

Research has not revealed the history of Alonso de Contreras' final years. Historians of the period do not mention him, although a few of his official petitions have been found. He tells us that he was honored with the friendship of the fertile playwright, Lope de Vega, whose house he shared as guest during more than eight months. We know that Lope, phoenix of intellects and king of improvisators, dedicated a drama to the Captain. In the prefatory note the poet recounts the salient exploits of his friend and promises to write a lengthy poem about them. He never did, and perhaps the Captain was led by the omission to set them down himself. The world was the

gainer; no flowery octaves could match the soldier's jerky, honest phrases.

We do not know when Don Alonso died, nor how. "Hung, king of an isle, governor of a city, monk, beggar, brilliant officer!" asks the French translator; for in life he had been all but the first. We do not know. But we will take oath that the old warrior set his face to the foe, and that the reaper did not conquer him without a struggle.

TACITUS AND SOME ROMAN IDEALS*

JEFFERSON ELMORE

In the first book of the *Annals*¹ Tacitus relates the case of two Roman knights who were charged with impiety, the one for having sold a statue of Augustus along with the pleasure garden in which it stood, and the other for having sworn a false oath by the divinity of Augustus. The accusations, which were first made before the consuls, came to the attention of the emperor Tiberius, who decided that no offence had been committed. "There was no impiety," he said, "in including a statue of Augustus, as of any other deity, in the sale of houses or gardens. As for the perjury it should be judged as if the name of Jupiter had been taken in vain; the gods must avenge their own wrongs."² In this last sentence Tacitus states the great principle of religious toleration, which, except in cases of suspected political disaffection, was the fundamental policy of the Roman government. It was doubtless a somewhat cynical toleration. "To the mass of the Romans" says Gibbon, "all religions were equally true, to the magistrates they were all equally useful, and to the philosophers all equally false." However this may be, Roman tolerance as a rule

* President's address delivered before the Philological Association of the Pacific Coast in San Francisco, November 29, 1915.

¹ i 73.

² The passages cited from the *Annals* are for the most part given in Ramsay's rendering, those from the *Histories* and the *Agricola*, in Fyfe's.

left the mind free, and it is glory enough for Tacitus to have singled out for approval and special record the principle which the modern world has only recently put into practice, and to have given it a powerful and altogether fitting expression.

Likewise in his theory of life in general the significance of Tacitus is in his relation to already existing beliefs.³ What is the dominating principle in human affairs? Is it providence, or chance, or necessity, or freedom? In certain passages he speaks as if the things that happen were determined by the gods, but he realizes that the difficulty of this doctrine is that the evil so often flourish while the good are cast down. It may be that there is a moral good which exists independently of external circumstances—a solution of the problem to which we ourselves frequently resort. More commonly Tacitus sees in events the work of chance. This is not the Latin *Fortuna* so much as *ἡ τύχη*, the powerful Greek goddess; or, if it be regarded more scientifically, it is a cause whose factors are so complex and so unknown that its operation can not be predicted. It is the same principle which plays so great a part in the modern theory of the origin of new species and which with its assumption of accidental variations, expressly disclaims the idea of purpose.⁴ Tacitus' favorite explanation of events is necessity or fate or destiny. To every one, in some mysterious way, is given one choice of life after which every thing is immutably fixed whether by the influence of the stars or by the sequence of natural causes. This doctrine which belongs both to astrology and Stoicism, being in fact the contribution of the former to the latter, played a great part in the ancient world, to say nothing of its reappearance in the all-pervading determinism of modern science. In giving the principle so much importance in the affairs of life Tacitus is a true inter-

³I am indebted here to Pöhlmann's *die Weltanschauung des Tacitus*.

⁴Kellogg, *Darwinism Today*, pp. 13 and 375.

preter of the Italian mind both of his own day and of the present. Finally, Tacitus raises the question whether after all men are not free to act as they will and to be the arbiters of their own fortunes. Here then we have four possible hypotheses. Necessity and chance may be in final analysis different aspects of the same thing, but it is obvious that they can not be reconciled either with providence or with free will. Tacitus makes no attempt to reconcile them. Indeed, as historian he is concerned with them only in secondary fashion, and is content like the most of us to leave unsolved the great question of destiny and freedom.

So far I have spoken of Tacitus in his relation to certain current ideas, which gave little opportunity for original thought. Let us now turn for a moment to his treatment of matters of more immediate experience, and first of all his observation of human character. In this field he suffered from a drawback which I think has not been sufficiently emphasized: I mean his adherence to the Stoic philosophy as a practical scheme of life. Its great object, tranquility of mind in the midst of the evils of the world, which it sought to secure by making reason the supreme guide, put it ever on guard against the disturbing influences of passion and pleasure. Its tendency was to suppress or ignore the whole emotional part of human nature. Stoicism thus, as Renan has somewhere remarked, declared war on life except in the one domain of duty. Now as a protection of the individual against the assaults of evil, this method has proved its worth both in ancient and modern times, but as a preparation for observing and understanding the world it has the defect of narrowing the vision. If one feels bound to hold himself morally aloof from certain things as dangerous or wrong, he will have little intellectual interest in them, or little power of imagination to understand them; indeed, true comprehension of certain phases of experience is possible only to those who have actually participated in them.

In the case of Tacitus this limiting influence is everywhere apparent. He had no eye for the refinements and elegancies of the civilization in which he lived and which flowered in a hundred great cities about the Mediterranean. The baths and banquets and lounges which the Britons took over from the Romans were so many Roman vices employed to complete the slavery of the vanquished.⁵ Even peace is enervating,⁶ while the works of peace form but an inglorious theme for the historian.⁷ The only blessings, as he said of Agricola, were the virtues.⁸ Under such a conception much of life must remain for Tacitus an unopened book.

For this reason, if for no other, one would not expect in Tacitus a comprehensive grasp of human nature. The characters whom he brings before us are usually engaged in some phase of the great struggle with chance or fate, and are drawn with reference to one or more dominating traits. Likewise the reflections which Tacitus permits himself from time to time in his work deal with a comparatively narrow range of human qualities, some of them however, being of extraordinary penetration. Thus speaking of ostentation he says that "some people are imposed on by it, taking it for liberality,"⁹ which of course is a great mistake. Liberality itself is not an unmixed blessing. "Benefactions," he tells us, (and doubtless *maximo omnium consensu*) "are welcome so long as it seems possible to repay them; when they go far beyond that limit, hatred takes the place of gratitude."¹⁰ a remark which is as true as it is characteristically Roman. Again in the same tone he says "It is always easier to requite an injury than a service; gratitude is a burden but revenge is bound to

⁵ Agr. 21.

⁶ Agr. 11.

⁷ An. iv 32.

⁸ Agr. 44.

⁹ Hist. i 30.

¹⁰ An. iv 18.

pay."¹¹ And yet he makes Cremutius say with reference to the forbearance of Julius Caesar "the insult which goes unnoticed, dies; to resent it is to accord it recognition," which may call to mind Bernard Shaw's characterization of Julius Caesar: "He did not forgive his enemies; he forgot them." A wanton injury however, like that of Domitian against Agricola, is doubly dangerous to the receiver, because "it is human nature to hate the man whom you have injured."¹² Good men may incur ill will merely on account of the contrast of their goodness with the surrounding evil, since "even glory and virtue have their enemies; for when placed too close to their opposites, they wear an aspect of rebuke."¹³ But nowhere has Tacitus' keener insight and grimmer humor than in his account of Marcellus,¹⁴ who was charged with having spoken evil of the emperor, "an accusation from which there was no escape, since the accuser picked out all the worst features in the character of Tiberius and charged Marcellus with having pointed them out. As the things said were true, it was believed that Marcellus had said them."

In these passages Tacitus not only touches with a sure hand on a certain weakness of human nature, but he does so in a spirit of independence and courage. "Courage," he makes Civilis say, "is the very birthright of man."

It was almost inevitable that as a Roman historian Tacitus should treat of war. Such a theme was in harmony with his temperament, so that it is natural for him to regret that the period of the *Annals* was an inglorious time of peace. And yet it is here from the practical stand-point that certain limitations become apparent. Let us take the invasion of Britain. Though much interested in this struggle, Tacitus does not think it worth while to explain how it came about. For nearly a hundred years after

¹¹ Hist. iv 3.

¹² Agr. 42.

¹³ An. iv 33.

¹⁴ An. i 74.

the first invasion of Julius Caesar, Britain "was left forgotten even in peace The sainted Augustus called this his policy and Tiberius preserved the precedent. . . . The sainted Claudius intiated the second invasion," which was destined to have such enormous consequences, but the considerations which led the sainted Claudius to depart from the policy of Augustus, and which we would give so much to know, remain forever hidden—an unsolved historical problem. Moreover in describing the actual operation of war Tacitus leaves so much to be desired that a recent critic has characterized him as almost the worst possible military historian. It is not general principles as such or mechanical details that interest Tacitus so much as men engaged in struggle, and it is perhaps for this reason that he has given us the incomparable portrait of the Roman soldier. In his pages this strange being with his superstitions, his passionate outbursts of resentment and rage, his equally passionate repentance, together with undying courage and deeply felt esprit du corps stands before us in ever vivid outline. It is not Otho, or Vitellius, or Vespasian, as some one has remarked, who is the hero of the Histories, but the legionary who goes tramping through their pages like a kind of doom. Again, no one, I venture to think, has portrayed the battle itself with truer realism. It is no thing of romance or glamor, but a desperate and ghastly hazard with death hovering ever in the background. On the morning after the great Roman victory in Briton "every where a vast silence reigned; hills deserted, homesteads smouldering in the distance, not a man to meet our scouts," while on the battle field itself, "on every side lay swords and bodies, mangled limbs and crimson grass." These are the triumphs of the literary artist in his own field, but they are not more precious than the noble sympathy which he can display with the oppressed. An example of this is again his attitude toward the Britons. Though his own father-in-law took a notable part in their subjugation,

it seems to be true that he regarded their resistance as a heroic struggle for country and freedom. Otherwise he could hardly have put that tremendous indictment of his countrymen into the mouth of Calpurnius: "The Romans plunder the whole world; and having exhausted the land they now scour the sea. . . . Neither East nor West can satisfy them. . . . To robbery, murder, and pillage, they give the lying name of Empire, and when they make a wilderness, they call it peace."¹⁵

In the course of his narrative, usually in connection with special occasions, Tacitus has managed to let the reader see what he thinks about war in general. The passages are numerous, but may be summed up briefly. War as a rule is due to greed and a desire for plunder. Those having the richest possessions being the most in danger. Thus "the Germans have always had the same motives for trespassing into Gaul—their greed and their desire to change homes with you."¹⁶ The conduct of war requires great material resources, and brave men, and in civil strife the longest purse is likely to win the victory. Among the evils are waste, relaxation of discipline, and a general loosening of moral ties. War is necessary to preserve the hardihood of a people, and those who long forego it are destined to lose both their courage and their liberty.

Still more instructive is the political standpoint of Tacitus. From it to my mind one gets the best view of the man himself. He was no political philosopher, as Montaigne (and many after him) thought; he was rather a political partisan, his whole life being colored by his political experiences. Under the republic (as I may be permitted to recall to those not especially conversant with these things) the Roman government came to be in the hands of the senate. Even the elected officials were merely its agents

¹⁵ Agr. 30.

¹⁶ Hist. iv 73.

inasmuch as they took no important step without its approval. This position of the senate was not of course unchallenged, but in a general way it was maintained. When Caesar Octavian, after twenty-five years of civil strife, had made himself master of the world, it was necessary to devise a different arrangement. The senate was too large, too partisan, and too inefficient to be entrusted with the sole direction of affairs. The world, it was thought, would drop again into chaos. What was obviously needed was a strong hand, and this was secured by incorporating into the old republican constitution the new office of president, to the holder of which the Romans gave the modest title of *princeps*—"the first citizen." The government was then divided between the princeps and the senate. The latter became the legislative body, though still retaining administrative functions with respect to certain of the provinces and Italy. In the other provinces the princeps, who was the great executive of the state, had sole and supreme authority and, in order that he might have a free hand, was given a treasury and an army, both under his exclusive control, together with the right to declare war and conclude peace. He also had important relations to the senate. He could preside at the sessions, introduce new measures, and even veto the action of the majority. He also had the power of removing members of the senate and of bringing them to trial for *lèsé majesté*. For this form of government which they themselves devised the Romans had no special name, but it has been happily described by Mommsen as a dyarchy—a government of two powers. Its outstanding feature for our purpose is the precarious situation of the senate; it had no check on the executive since the control of the public purse and of the army was mainly in his hands, and it had to depend for the free exercise of its rights on his good will. We shall the more readily comprehend this form of government if we reflect that the type is reproduced for us (strangely

enough) in the American university of today. This is not the place to follow out this interesting and significant parallel, or to speak of the interrelations of the two ruling powers in our academic dyarchy. The fact that in this department of our life, we are trying over again the great Roman experiment invests the reaction of Tacitus to the similar political situation of his time with an almost poignant interest, and makes the *Annals* one of the most timely of books.

Tacitus entered public life under Vespasian and though the exact date of his death is not known, he was probably a member of the senate for more than a third of a century. He thus had an abundant personal experience, but he is not necessarily an unbiased witness. He was biased in the sense that he saw things from the senatorial standpoint, and even though the princeps was actually more efficient in administration especially in the provinces, than the senate,¹⁷ this was not a matter he was interested in putting forward. As for the senate he leaves no doubt that its condition even in the early stages of the dyarchy was one of virtual slavery. Up to the time of Nerva its liberty had been incompatible with the power of the princeps,¹⁸ Augustus having drawn into his own hands all the functions of the senate, the magistrates, and the laws.¹⁹ Under the better rulers things are more favorable and he personally awards high praise to Nerva and Trojan, but he has no illusion as to the system; as long as it exists it will be under all forms the rule of one man.²⁰ He might well say with Marcellus, "I pray for good emperors, but I take them as they come. . . . I am but a senator and we are all slaves together."²¹

¹⁷ An. i 2.

¹⁸ Agr. 3.

¹⁹ An. i 2.

²⁰ An. iv 33.

²¹ Hist. iv 8.

One of the evils of this system was its encouragement of flattery, which as Tacitus remarks is fatal to character. He brings this out most strikingly in the case of Tiberius who, though everything had been arranged by his crafty and powerful mother, appeared in the senate and pretended to hesitate about accepting the principate. After much supplication and entreaty he finally said that he might undertake a part of the government, but on a certain senator's asking which part he desired, he was taken back and offended, whereupon the senator replied that "he had not put the question with a view of dividing what was indivisible, but to convince Tiberius out of his own mouth that the state had but one body and must be governed by a single mind."²² In its finer aspects, however, flattery is a difficult art for which Tacitus sometimes condescends to give practical directions. "In evil times too much flattery may be as perilous as too little."²³ Again, set speeches should be used only by those especially skilful in the art,²⁴ while the most subtle form of flattery is that which makes a show of independence.²⁵ Sometimes the flattery was mixed with bitter irony as when Tiberius declared a deep conviction on a question before the senate and one of the senators said: "Sir, will you vote first or last? If you vote first, I shall have a guide to follow, if last, fear I may unwittingly disagree with you."²⁶

In a speech to the army Tacitus represents Piso as saying that no one has ever filled a high office well who won it by foul means.²⁷ "One who wins a throne by violence," says Otho a little later, "can not keep it by suddenly acquiring a respect for the law, and putting on

²² An. i 11.

²³ An. iv 17.

²⁴ An. iv 4.

²⁵ An. i 8; Hist. i 1.

²⁶ An. i 74.

²⁷ Hist. i 30.

an austere dignified manner."²⁸ Both of these utterances reflect the value, if not the necessity of moral ascendancy in leadership. If a leader falls to a lower level, Tacitus recognizes that he must make whatever struggle he can from this level, and that no pretended virtue or assumed dignity can disguise the fact of his fall. Likewise in case of a sudden rise to power by legitimate means, there should be no undue pride of position, for "it is an inborn trait of human nature to turn critical eyes on new found fortune and to insist on moderation, most of all in those who used to be our equals."²⁹ For men in the highest place real friendships are difficult. Thus "there is a fatality which forbids a relation of this kind to be permanent, or perhaps a feeling of satiety comes on when one side has given all it has to give, or the other has nothing left to ask."³⁰ Again, "to pry into the Prince's inner mind and to search out his secret intentions is to tread on dangerous ground; nor though you search may you discover."³¹ Some men, however, are more successful than others in the relations with the great, the explanation of which is not altogether clear. "I am compelled to doubt," he says, "whether the favor of a princeps toward some men and his dislike of others depend, like all other things on fate and on the lot assigned to us at our birth, or whether it is not possible to steer a middle course between abrupt defiance on the one hand, and degrading compliance on the other."³² When the princeps dies "rumor is ever charged with horrors in dealing with his death"³³ and "the public never wearies of appointing successors until a choice is made."³⁴ Their judgment as to the fitness of the claimants is not

²⁸ Hist. i 83.

²⁹ Hist. ii 20.

³⁰ An. iii 30.

³¹ An. vi 9.

³² An. iv 20.

³³ An. iv ii.

³⁴ Hist. ii 1.

always justified by the events, as in the case of Galba: "had he never been emperor, no one would have doubted his ability to rule."²⁵

With his general attitude toward the princeps it is instructive to consider Tacitus' treatment of Tiberius, which has long been a puzzle. Tiberius, as a step-son and co-worker of Augustus, after many hardships and disappointments reached the principate at the age of fifty-six. Though of austere disposition and a forbidding manner, he is generally regarded in the first half of his administration as having ruled ably and well. In the second part after the death of his son, he became a victim of suspicion and administered the law of treason with harshness and injustice. Tacitus, however, from the first seeks to put Tiberius in a bad light, representing him as pursuing a tortuous course, doing even good acts from hidden and usually evil motives, and finally becoming a moral and political monster. In producing this impression Tacitus feels free to employ every necessary means, such as twisting the evidence, accepting rumor as fact, and in the absence of both resorting to odious insinuations.²⁶

What was Tacitus' motive in this procedure? He could have no purely personal grudge against Tiberius who died several years before Tacitus was born. It is true he suffered with many others under the blight of Domitian's tyranny, but against him he had abundant opportunity to wreak his resentment. Editors sometimes justify Tacitus by saying that he does not always suppress facts that make against his view, and that at all events history was regarded as a branch of literature and objective truth was less highly valued than in modern times. But this leaves the question of motive untouched. Recently an ingenious student has maintained that the Tacitean Tiberius is the conventional tyrant of the orators outfitted with such facts or distortions

²⁵ *Hist.* i 49.

²⁶ Ramsay, *Annals*, p. 10.

of facts as were necessary to bring out the traditional characteristics. I would not underestimate the influence of rhetoric on any prose writer of the early empire, least of all on Tacitus, but he was a man of too much insight and feeling, and of too deep convictions to find both the plan and the motive of his work in these stereotyped forms.

In seeking a solution it will be of assistance to recall the case of Juvenal—a man of much the same outlook on the world, as Tacitus. Juvenal felt great resentment against certain social institutions and his first impulse was to attack them in the person of their contemporary representatives. But this, as he realized, would bring him into conflict with the powerful, and he ended by directing his attacks against evil doers of an earlier generation.

The thing which colored the life of Tacitus was his hatred of the principate as the destroyer of the freedom of the senate. He hated it as an institution, but he could not assail it in the person of the contemporary holder of the office or any predecessor of the same line. Like Juvenal he was compelled to turn to an earlier time, and for his purpose no one offered a more shining mark than Tiberius. In the *Annals*, in short, Tacitus takes his revenge on the principate, and who shall say that it is not a splendid one?

In spite of his somewhat gloomy view of human nature and of the great influence which he assigns to chance and fate in human destiny, Tacitus is not a pessimist. "Even under a bad ruler," he says, "men may be good. Obedience and discipline, if coupled with diligence and energy, lead to great heights of fame."³⁷ The thought of fame is often in his mind; indeed, the great compensation for evil is that good deeds and kindly and noble thoughts will be remembered. When Cremutius took his life in anticipation of being condemned for treason the books he had written were ordered to be burned, but were in fact hidden away and saved. "Hence" says Tacitus in one of his noblest

³⁷ Agr. 42.

passages, "one can not but smile at the dullness of those who believe that the authority of today can extinguish men's memories tomorrow. Nay, rather those who penalize genius do but extend its power: whether they be foreign tyrants or imitators of foreign tyranny, they do but reap dishonor for themselves, and glory for their victims."³⁸ Whether the individual survived after death was a matter concerning which Tacitus was uncertain; it was indeed of no great importance, since the true immortality was to live in the minds and hearts of those who came after.³⁹

In such wise has Tacitus allowed us significant glimpses into his mind and soul. He is not a detached observer as may easily be seen, but one with a deep and sometimes passionate interest in the issues of the times. It can hardly be said that he transcended the old ideals, but at all events he embodied them anew, and one in particular, (I mean the glory of prestige of the senate), he upheld with ardor. The great originality of Tacitus is his personality, which expresses itself naturally in his elaborate if somewhat artificial style; his service seems to me to have been his unflinching devotion to what he knew was a lost cause, but which with all its failings was then (as it is now in my judgment) the cause of liberty.

³⁸ An. iv 35.

³⁹ Agr. 46.

MYSTICISM AND IDEALISM*

J. LOEWENBERG

It requires not a little temerity to approach the subject of mysticism. The topic is so complex, so vast, so elusive. It is well-nigh impossible to say anything with which friend or foe of mysticism would not heartily disagree. Whatever opinion one may hold of it, one is sure to be told that one has misunderstood it. If he confesses to being alien to the mystic temperament, his right to speak of it is justly challenged, and if he is personally intimate with the mystic experience its ineffable character lends itself to no intelligible discourse. Whether inside or outside the charmed circle, speech seems equally ineffectual. With regard to death we are in the same predicament. While we are still living, our indirect opinions of it can lay claim to little validity, and once we are dead we do not talk. But just as we cannot, as intelligent beings, renounce the right to endeavor, however unsuccessfully, to penetrate the mystery of death, to interpret its meaning, to grasp its significance, so in the case of mysticism it is impossible for us to refrain from the attempt to understand, albeit imperfectly, a spiritual phenomenon which has deepened and enriched the inner life of the race and without which its religions and its arts would have remained lamentably impoverished.

* An address before the Philosophical Union of the University of California, December 10, 1915.

The analogy between mysticism and death, however, is not altogether perfect, for the mystics, unlike the dead, speak and act, although their words and practices have, to the uninitiated, little meaning, little relevancy. The uninitiated find the mystic utterances so unfathomable that for an appreciation of them they, for the most part, depend upon the numerous interpretations of mysticism undertaken from so many angles, such as the psychological, pathological, religious, aesthetic, philosophical. The result is that most information concerning mysticism is, at the best, third hand. Is it a wonder, then, that "doctors disagree", and that the prevalent opinions about what constitutes mysticism are so numerous, conflicting, and often far from enlightening?

It is fortunate that, in our interpretation of mysticism, we are able, in a large measure, to follow the guidance of Professor Hocking's profound book, *The Meaning of God in Human Experience*. In sincerity, sympathy, and sanity of judgment, few accounts of mysticism can compare with his. Although Part V of Mr. Hocking's work forms the general background of this paper, I have essayed no exposition of our author's views. To expound him with any degree of adequacy is a task from which many men more enterprising than myself might well shrink. The book is so unique in style and composition that it admits of no summary restatement. Any attempt at a *precise* restatement of Mr. Hocking's views would be sure to fail because of his method. He unites so intimately lyrical and reflective qualities that the reader is often at a loss to tell what the author sets forth as personal conviction due to solitary meditation and what as argument claiming objective validity. But the reader without attending to precision or exactness soon yields to the spell of Mr. Hocking's seductive style and ere long finds himself sharing the author's mood. And if a work of art may be judged by the genuine mood it creates and sustains, *The Meaning of God in Human Experience*, besides being eminently profound,

has also the merits of an artistic creation. As one reads it the appreciation of being admitted to the author's intimate meditations makes one so sensitive that to disturb their continuity and lyrical charm by interposing questions and doubts would seem nothing short of rude pedantry. Please do not ask me therefore to give you a literal review or synopsis of his discussion of mysticism. I must presuppose a knowledge of the text and, using it as background, deal with the whole topic in my own way. Measuring mysticism by a frankly rationalistic standard, you must, of course, not be surprised to find my attitude towards it rather critical. I am second to none in profound appreciation of the supreme value of the mystic *mood* for religion and art and life generally, but here I must assess its strictly philosophic worth and significance, and its strictly philosophic worth and significance we shall find to lie in its decidedly non-mystical character. So without further apologies, but with fear and trembling, let me address myself to my task.

It is a pity that the word "mysticism" should have become a name to cover such a variety of things. As Evelyn Underhill, perhaps the most modern interpreter of mysticism, says, "a word which is impartially applied to the performances of mediums and the ecstasies of the saints, to 'menticulture' and sorcery, dreamy poetry and medieval art, to prayer and palmistry, the doctrinal excesses of Gnosticism and the tepid speculations of the Cambridge Platonists . . . soon ceases to have a useful meaning."¹ Recent writers have endeavored to purge mysticism from all these accidental associations and to fix its essential meaning by declaring it to be a way of intense or enhanced living. So Miss Underhill characterizes it as "an organic life process, a something which the whole self does . . . a definite state or form of an enhanced life."² Delacroix interprets it in the same way. Mysticism for him is "a new

¹ *Mysticism*, London, 1910, p. 86.

² *Ibid.*, p. 96.

level of life power," "an organizing power," "a higher variation of life." Similarly, Rufus M. Jones, who speaks of the mystical experience as "a unifying, fusing, intensifying inward event."³ Hocking, too, emphasizes the life of the mystic rather than his teaching. "Mysticism," he says, "we shall define, not by its doctrine but by its deed. . . . It is a way of dealing with God . . . affecting first the mystic's being and then his thinking."⁴

Mysticism, as Professor Hocking further interprets it, is not only a life-enhancing and life-heightening power, but is a universally human attitude shared by some individuals at rare intervals and by other individuals more frequently. The most essential elements of the mystic's attitude Hocking finds in common worship. Indeed, "mysticism and common worship," so he asserts, "do stand or fall together."⁵ The mystic impulse should thus not be looked upon as a matter of special temperament. "There are mystics in all temperaments," Hocking continues, "the spiritual ambition of the mystic is the prerogative of no one particular type of human nature."⁶ Wherever one finds worship, there one finds mysticism. The difference between the common worshiper and the traditional mystic would then seem to be one of degree: the latter's life work consists in what to the former is but a passing mood. The insatiable hunger for the immediate contemplation of absolute reality makes of the individual who has such hunger a perpetual worshiper. The longing for coming face to face with the eternal and innermost being of things, sporadic and diffused in all human beings, is permanent and specialized in the mystic. Those, then, in whom the will to worship is the dominant and ruling passion—"the specialists in

³ "Mysticism in Present-Day Religion," *Harvard Theological Review* for April, 1915. The above citations from Delacroix are taken from this article.

⁴ *The Meaning of God in Human Experience*, New Haven, London and Oxford, 1912, p. 355.

⁵ *Ibid.*, p. 356.

⁶ *Ibid.*, p. 361.

worship"—are, according to Hocking, the mystics by birth, the mystics of genius, the mystics by profession.

What is more precisely the art of worship? Hocking describes it as "a spontaneous impulse for spiritual self-preservation . . . for the ultimate judgment of life and for the renewal of the worth of life." The one who is engaged in the act of worship—intermittently or permanently—fixes his attention upon the higher and spiritual values of life, seeks these values in a realm other than the ordinary world he lives in, and derives from this higher level the meaning and the worth of his very existence. Through his act of worship, the worshiper endeavors to establish a spiritual relation with a higher level of life, and this relation, evanescent in its effect in the rare worshiper, is sustained in the typical mystic. But this relation—the final aim of worship—whether evanescent or sustained, has always been assumed to be of a peculiar nature. It is not an intellectual relation. It is rather an experience 'touched with emotion,' a personal passion, an immediate communion, which, like all immediate and emotional experiences, cannot be described in general terms to those who have not had such experiences. This experience is by all mystics of all ages declared to be essentially ineffable, and altogether too much has been made of the ineffable character of the mystic experience, which, perhaps, more than anything else, has contributed to envelop it in a shroud of mystery. The mystic experience is not mysterious because ineffable. It shares ineffableness with all affective and sensational experience. A toothache and the sensation of a color are not mysterious, yet they are as ineffable as the 'mystic union' with God. He who has never felt a toothache, he who is color-blind, and he who has never shared the mystic impulse—to him all these experiences are equally incommunicable.

The approach to God exemplified in every act of worship is, then, the peculiar mystic approach. In its uniqueness

¹ *Ibid.*, p. 366.

and immediacy and ineffableness, this approach, when its consummation—the union with the Absolute—is reached, partakes of the nature of passion, but is strangely at variance with the way of reflection. Reflection is communicable, discursive, articulate, and mysticism has, therefore, always displayed a marked hostility towards reflective thought. The well-known mystical saying, “Believe not those prattlers who boast that they know God. Who knows him—is silent,”⁸ pithily expresses the anti-intellectualism of the mystic. Miss Underhill emphasizes the contrast between the mystic and the philosopher thus: “Where the philosopher guesses and argues, the mystic lives and looks; and speaks consequently the disconcerting language of first-hand experience, not the neat dialectic of the schools. Hence, whilst the Absolute of the metaphysicians remains a diagram—impersonal and unattainable—the Absolute of the mystic is lovable, attainable, alive.”⁹ Upon closer scrutiny the contrast between reflection and worship discloses itself to be the ancient and the modern conflict between mediacy and immediacy, between theory and practice, between abstract and concrete experience, between discursive and intuitive knowledge, between argument and vision, between thought and deed, between reasoning and living. Directly and concretely and practically—through the worshipful deed and through the worshipful life—the mystic claims that he ultimately rises to a higher level of existence and there attains the vision and the certainty of an Absolute Reality. The thinker, on the other hand, seems to the mystic to offer nothing but sterile principles, useless abstractions, and lifeless theories. “We come to you not as thinkers, but as doers”—so Evelyn Underhill interprets the message of the mystics.

In the preference for “doing” to “thinking,” and in the sundering of practice from theory, the mystic reveals

⁸ Quoted from J. Royce, *The World and the Individual*, New York, 1912, vol. I, p. 148.

⁹ *Mysticism*, p. 28.

himself, curiously enough, as the ally of common sense, strange and weird though the mystic's particular doings and practices may appear to it. To pronounce contempt for abstractions and to stigmatize theory as useless belongs to the very prerogative of a so-called 'practical' and common-sense point of view.¹⁰ Mysticism and common sense, intent upon the practically significant deeds to which life should be devoted, are at one in rejecting philosophic speculation as abstract, barren and useless. Why speculate? To speculate upon life seems a waste of the time that should be spent in *living*; to think upon the world threatens to imperil one's chances for *doing* something in it. Only mysticism is more definite in its pronouncements regarding the kind of practical life which has supreme value. Common sense, on the other hand, beyond a vague counsel to be practical, is reticent about both the meaning of the practical life and how best to live it.

What both common sense and mysticism fail to appreciate, however, is the theoretical implications of their practical attitudes. The question "What is practical?" is itself a theoretical question. To walk on one's head, for instance, is far from being a practical activity, yet its non-practicality can only be exhibited by means of a well defined theory of life with which walking on one's head is incompatible. Behind all practical admonitions lies concealed a theory. The reason *why* one should live in conformity either with the Golden Rule or with the Categorical Imperative or with the dictates of common sense or with the promptings of one's mystic impulse is because the *best* or the *right* kind of life is thus attained. But what the best or the right kind of life is is a matter of controversy and can be decided on theoretical grounds only. In vain, then,

¹⁰ The practical man's negative attitude towards theory often expresses itself in an amusing fashion. Thus, President Wilson's nomination was for a long time opposed by many politicians who seriously questioned the practical efficacy of a mere 'theorist,' a mere 'professor,' and "Professor Wilson" became a derogatory epithet which many newspapers then adopted.

does one attempt to evade theory. The practical derives its very practical significance from being consonant with a certain implied theory. Indeed, by practical can be meant nothing else than what furthers a certain end or fulfills a certain purpose regarded as valuable. But the value of the end in question must be justified. No end has axiomatic value—not even life itself. And the justification of any value will be found to involve a complete theory of life and of the world. Of mysticism this is particularly true. In extolling a practical and exalted life of worship as supremely valuable, mysticism is moved by motives which are theoretical as they are passionate. The value of worship is for the mystic not merely subjective. To be sure, worship and its concomitant results bring the individual serenity and an inward peace that passeth understanding, but the meaning and value of this subjective state is derived, not from the experience itself which the mystic obtains in worship, but from the *object* which is discovered and appropriated at the final stage of the mystic's worshipful quest. The supreme value and validity of the mystic experience is, after all, *cognitive*. Worship surpasses all else in value, because it finally institutes an immediate acquaintance with the deepest reality, with the Absolute, with God. Did not the mystic experience terminate in such cognition, worship would be devoid of all worth and significance. But to confer upon worship a supreme worth and validity because by its means reality is discoverable is to hold a certain view or theory of reality. Reality must be of such a nature as to conform to the mystic insight, and, which is more important, to the mystic insight alone. It is because reality is of a certain spiritual structure that to its discovery there leads but one path, namely, the mystic and molecules, for example—the mystic vision might still possess the value of an emotional experience, but could scarcely claim objective validity. It is this claim to objective validity which commits the mystic to a theory of the universe, in the light of which the mystic life and its

strange practices become full of philosophic meaning and import.

The mystic's negative attitude toward other forms of cognition arises from his special theory of the Real. In all ages mystics have been emphatic in denouncing other than mystical means of communicating with God. Worship is by them looked upon, not as one of many legitimate methods of approaching the Absolute, but as *the* method. But reality, to be inaccessible to sense and reflection alike, must be of a certain determinate and definite character. Because reality is known or postulated to be alien to the stuff of which sense and reflection are made, sensible and reflective knowledge are stigmatized as invalid. To reject these forms of cognition, mysticism must know beforehand the sort of reality for the reach of which they prove ineffectual. To quote Hocking, "This and that, he [the mystic] says, are not God: It is not these that I seek."¹¹ The mystic must then *know* what he seeks in order to identify the object of his search when he has found it. It is impossible to begin the quest without in some measure defining both the object of the quest and the direction the search should take. And about both the mystics have never been in any doubt. The object of the mystic's search is perfectly definite: It is That Which Is, Pure Being, or Ultimate Reality. Ultimate Reality, however, is at once identified with the Absolute, or God; and the Absolute or God is further identified with the One and Whole, Immutable and Perfect. And because sense and reflection furnish but discrete fragments and bits of experience and never the One and the Whole, they must quite consistently be discarded as guides to the Ultimate. What they give is nothing but appearances. Ultimate Reality must thus be looked for in an experience radically different from and other than sense and reflection. This necessitates an elaborate purging from sense and reflection, and when this is accomplished the One and the Whole

¹¹ *The Meaning of God in Human Experience*, p. 365.

stands revealed to an immediate, unique, and ineffable experience.

It will already be noted that the mystic's fundamental assumption—that ultimate reality is One and Whole and that this One and Whole must be of a spiritual character in order to be discoverable by a spiritual experience—forms the very tenets of Absolute Idealism. Only in philosophic idealism they are not assumptions, but the result of an elaborate and systematic process of reflective thought. Mysticism must begin by assuming the general idealistic thesis if the mystic quest have any meaning at all. For the mystic's adventure is no leap into the Unknown, he ventures upon no strange and unmapped seas; far too certain is he even of his landing place—a reality which is *One and Whole and spiritual revealable to a spiritual experience*. To be sure, his successful arrival—his later union with the Absolute—gives 'pragmatic' sanction to his quest—his idea 'worked'—but it is impossible to grant the mystic a legitimate right to assume the essentially idealistic nature of reality ere his mystic experience has disclosed it to him—this experience being the only certain and valid test.

Thus, prior to those practices of the mystic which are to terminate in a luminous vision of the Real, the Real already has that character which such vision alone can confer upon it. At the outset of the mystic's search is a theoretic assumption—illegitimate on the mystic's own grounds—that a new sort of knowledge yet to be won will directly reveal a definite kind of reality. All knowledge other than the one not yet attained, however, is stigmatized by him as invalid, in fact, illusory. The knowledge, then, which directs the mystic's quest, the knowledge that a definite kind of reality will be present to an immediate experience must itself be illusory. And yet it cannot be illusory, without destroying both the object and the direction of the mystic search. Such is the mystic dilemma. Thus, the general theory of Absolute Idealism—formulated and proved by means of the circuitous and "illusory" route

of reflection—is the mystic's necessary presupposition, a presupposition assuming certainty for him only after he has won the rare and difficult experience of which he is in quest. Without this presupposition the whole mystic enterprise is unintelligible, not only to us but to himself. With this presupposition the mystic's "adventure" becomes full of meaning and significance. But the mystic is in the paradoxical situation of the queen in *Alice in Wonderland*, who at the well-known trial-scene commands, "Sentence first—Verdict afterwards."

With the mystic's presupposition of the nature of reality in mind, the details of his attempt to institute an immediate acquaintance with the Absolute become intelligible. The mystic's approach to the Reality is a long pilgrimage of which "union" with the Absolute is the consummation. A process of complex preparation must be initiated—an active and strenuous inward pursuit—before that complete state of *illumination* can be secured in which the soul of the mystic is immediately aware of Absolute Truth. This process of preparation is of an intensely dramatic character and is usually characterized as a *negative way*, because it consists in first detaching oneself from things finite, from the objects of sense and reflection, from the whole world of space and time. "Into this house (of his innermost self)," says Tauler, "must man now go and completely desist from and abandon his sensations, and all sensible things, such as are brought into the soul and perceived by the senses and the imagination. And he must also put away all the ideas and forms, even the conceptions of reason, and all activity of his own reason."¹² The necessity for this "essay in detachment"—to use Hocking's apt phrase—is perfectly consistent with the mystic's "theoretic" assumption. The reality which the mystic seeks having been *defined* as absolutely other than the objects of sense and reason, the road to it must indeed be a road far removed from these cognitive processes. If,

¹² Quoted by Hocking, *ibid.*, p. 373.

as the mystic believes, sense and reflection can report only isolated facts or abstract law, transitory states or traditional concepts; if sense and reflection can never reveal a living whole, a transcendent unity, an immutable spirit, what can the mystic, seeking his Absolute, do but rid himself of these cognitive impediments? "He who believes that 'if God is to come in, the creatures must go out' must make his drastic choice," says Hocking.¹³ It will not do to contemplate a land route if the object of one's desire is located on a "green isle in the sea" or, to vary the metaphor, it is absurd to consult a map of the earth if what one seeks is hidden in the interior of a different planet. The mystic sets out on a definite voyage in pursuit of a definite object. He knows not only what he seeks, but he knows the ways which lead away from and those which lead towards it. The mystic's preparation is, therefore, marked by a characteristic absence from wavering and hesitancy. Definite as the object of his quest, is his procedure in initiating and completing it. The ways which lead away from the Absolute the mystic knows must not be trodden. "The darkness of the cave of sense" and the "wilderness of intellectual theories"¹⁴—both must be shunned. Thus, the *via negativa* or the "purgative stage" in the traditional mystical ascent is not only consistent with, but is an inevitable part of, the mystic "theory" of the Real.

It may be here remarked, in passing, that the *via negativa* is not an exclusively mystic road, but is one which not only idealism but all philosophy has trodden. From Thales on, philosophy has recognized that reality is not what it seems and it does not seem what it is, and that the seeker after truth must first purge himself from the prejudices and errors of sense and common sense ere he can hope to meditate upon the eternal verities. The paral-

¹³ *Ibid.*, p. 374.

¹⁴ Royce, *The Problem of Christianity*, New York, 1913, vol. II, p. 258.

leism between the stages in the mystical ascent and those of philosophic reflection is a subject worthy of a detailed examination, but lack of space forbids more than a mere mention of it. Students of Descartes, to point at one illustration, whose philosophy is indeed far removed from mysticism, will easily distinguish in the "Cartesian Ascent" the 'purgative,' the 'meditative' and the 'illuminative' or the 'intuitive' phases. And to Hegel's vision, to name an absolute idealist, there leads no other path than the negative path. His *Phenomenology of Spirit*—called by Hegel himself his "Voyage of Discovery"—consists of a series of progressive purgations—necessary rungs on the ladder which leads up to his own philosophic vision. Indeed, without intellectual purgation there can be no sound thinking.

Thus the "purgative" process is one of self-detachment from what the mystic knows the real is not. Appearance and reality are concepts unhesitatingly used by him to designate two distinct levels of existence, from the first of which he must completely divest himself if he is ever to reach the latter. To consider farther the details of the "Mystic Way" lies beyond the scope of this paper. It is sufficient to add that upon the removal of the appearances of outer sense and discursive thought there follows the phase of "meditation"—a concentrated, attentive 'gazing' upon "the divine things in which he [the mystic] already believes," a complete abandonment "to the contemplation of them," and the attainment of "a certain inner state of delightful contemplation, while conflict and complexity gives way to peace."¹⁵ This is preliminary to the final, the 'illuminative' or 'unitive' stage—the terminus of the mystic's journey, the result of which is characterized by Hocking thus: "The mystic has been knocking at the door of his world, an outsider, preparing himself inwardly

¹⁵ J. Royce, "George Fox as Mystic," *Harvard Theological Review*, vol. VI, January, 1913.

and outwardly What he reports is, that he *has been admitted*; that from being an outsider, knocking at the door of things, he has ceased to be an outsider and a subordinate. He uses the words 'illumination,' 'union,' sometimes 'deification,' to express what has come to him. In some way he is admitted to the council of the maker of this world of things. He has become an understander of the heart of it. And in evidence of his truth he is able to walk about among things and men—do we say an alien?—on the contrary, as one for the first time fully present and at home, able to recognize himself and God in whatever declares itself, able to open himself to the whole of experience. This is what the mystic reports."¹⁶

Upon the psychological nature of the mystic experience it is not relevant here to express any opinion. Professor Hocking has dealt with it lengthily and sympathetically and has tried to bring it "within the range of law." For the rhythm, the disconnection, and the solitude which characterize the mystic experience, he finds numerous analogies in normal mental life. From the epistemological point of view, the experience—whatever its psychology—can mean nothing more than a peculiar and personal verification on the mystic's part of his preconceived "theory" or "hypothesis" of the Real. He reports that he has at last found what he has set out to find. We must here not be deterred by the mystic's "negative" narrative of his pilgrimage. His account of the Absolute as "an undifferentiated One," "the Silent desert of the Godhead where no one is at home," "an abysmal Dark," "a nameless Nothing," is a mere rhetorical device. These expressions *connote* a Being whose perfection, whose glory, whose finality, no particular name can denote. "The Absolute is the very opposite of a mere nothing," says Royce, "for it is fulfillment, attainment, peace, the goal of life, the object of desire, the end of knowledge The light above the light is, to our deluded

¹⁶ *The Meaning of God in Human Experience*, pp. 387, 388.

vision, darkness. It is our finite realm that is falsity, the mere nothing. The Absolute is All Truth."¹⁷

But the mystic postulates from the very beginning of his quest and in advance of that ineffable insight which alone constitutes the mystic test of truth, the identity of all Truth with the Absolute, of all Reality with the Perfect One, of all That Is with a Divine Being. To the discovery and attainment of such an assumed identity, the mystic's life of worship is devoted. Thus, it is a definite "thesis" of the nature of reality with which the mystic must begin, and as the "proof" of such thesis he offers his unique and indescribable experience. But until this peculiar proof, the "mystic union," is actually achieved, the mystic cannot escape the charge of entertaining an unverified hypothesis of the Real, an hypothesis, moreover, because it is not yet verified by the only form of cognition having validity, must be looked upon as being on a par with all that which he stigmatizes as "illusory." Without this particular hypothesis, however, both as his starting point and his goal, the mystic life and its practices are robbed of all meaning and significance.

A certain type of idealism, then, the type embodied in the doctrine that Reality is Absolute, One, Whole, and Spirit, accessible to the spiritual nature of man, is implied in the mystic's endeavor—nay, in a sort of axiomatic fashion is deliberately assumed in the mystic's practical and meaningful life of worship. But this idealistic doctrine, if it has any truth, has the truth which the labor of reflection alone can sustain. It is a doctrine which means to be an interpretation of the universe in its entirety and complexity, and as such presupposes a complete and systematic and critical examination of the problems of life and of the world. Its method is reflective and argumentative, i.e., it consists in convincing rationally that the idealistic interpretation can most successfully cope with the universal

¹⁷ *The World and the Individual*, vol. I, p. 171.

problems of life. If it can succeed in exhibiting that it alone is a complete and coherent and self-consistent interpretation of the universe, then and only then may idealism lay claim to validity. The view of reality assumed by mysticism is a *result* of articulate and elaborate reflection, and is not merely a point of departure.

Absolute Idealism, with the general thesis of which mysticism begins, permits of a variety of formulation and interpretation. To the general abstract notion that Reality is Absolute and One and Whole and spiritual, knowable to a spiritual insight, all absolute idealists may be said to subscribe, but they will not agree upon the kind of absoluteness, unity, wholeness, and spirituality that may belong to reality, and upon the ways of knowing such reality. Mysticism, however, begins and ends with an abstract and vague unity, wholeness, and spirituality of its Absolute. We glean from the mystic, either before or after his "illumination," nothing beyond the bare fact that the Absolute somehow is One, is All, is Perfection. In what does the absoluteness of reality consist? *How* is the unity of the world to be interpreted? *What* is the nature of its wholeness? *What* constitutes its spirituality? *How* must one conceive of its infinity and perfection? *Why*, if reality is absolute, one, and whole, and spirit, does it present contradictory and discrepant features? With these, and with countless other questions, philosophic idealism seeks to grapple. For the mystic who either still seeks or who has already found absolute reality, these questions do not exist, because he does not ask them, and in ignoring these questions the mystic is, from his point of view, again quite consistent. When one is yearning to be united with a lovable and living reality, when one hopes and somehow knows that in such a union all will be well, when the fading away of the "doubter and the doubt" constitutes the solution of all problems, it is ill to prolong the agony of thinking, escape from which is the mystic's supreme attempt. "He wishes to be, rather than to think," is

Hocking's characterization of the typical mystic's attitude. But the intellectual and spiritual travail of the ages, the united and sustained philosophic effort of the centuries, may be required to disclose the wealth and the depth and the complexity of the questions which mysticism ignores and which its "theory" of the real assumed in its practice persistently invites.

If the view of mysticism here developed be at all correct, the objects of the mystic quest must be held to be identical with that form of reality which is the reflective outcome of many types of absolute idealism. Only, in the latter the outcome is not assumed, as it is in mysticism, at the beginning, but is the result of a rational attempt to interpret the world in its totality and complexity. The proof of such interpretation does not depend upon a knowledge wholly unique, exclusive, and ineffable, but upon a knowledge which is both articulate and demonstrable. The mystics, together with other anti-intellectualists, appear to identify reason or reflection with the power of forming abstract ideas or with the process of framing definitions, making divisions, classifications, and generalizations. Reason for them is essentially artificial and analytical, working piecemeal, obtaining but bits and fragments. "To understand life by concepts," says William James, "is to arrest its movement, cutting it up into bits, as if with scissors, and immobilizing these in our logical herbarium [where they are kept] as dried specimens."¹⁸ Evelyn Underhill, voicing the mystic protest against intellectualism, rejects an intellectualistic Absolute as "a meaningless diagram, a superfluous complication of thought. Every effort made by philosophy to go forth in search of it is merely the metaphysical squirrel running round the conceptual cage."¹⁹ But the function of analysis is only one aspect of the complex life of thought. Thought appears in its most significant work as synthetic, constructive, inventive. In its synthetic

¹⁸ *Pluralistic Universe*, New York, 1909, p. 244.

¹⁹ *Mysticism*, p. 16.

capacity, thought has to do, not with parts but with wholes, not with dividing but with unifying, not with definition but with insight. Ever since Plato, the distinction between thought as analytical and thought as synthetic has been emphasized, and in Kant, but more particularly in his followers, the term "understanding" is employed for the former, while the latter alone is the principal function of "reason." This technical matter can not be here pursued further. It is pertinent only to call attention to a different view of the nature of reason, which, if true, would remove in a large measure the mystic's objection to philosophic idealism. For reason, too, can have 'visions,' 'insights,' 'intuitions.' And one may add that to this function of reason is due all constructive work of science. Science is not a matter merely of analysis, classification, and abstraction. It is to the intuitive or imaginative mind of the scientist that we owe the invention of successful hypotheses and the discovery of scientific laws. Science and philosophy alike depend upon synthetic insights and intuitive visions. "Reason," as Royce says, "means simply broader intuition, the sort of seeing that grasps many views in one, that surveys life as it were from above, that sees, as the wanderer views the larger landscape from a mountain-top."²⁰

A "vision" of reality is thus not the exclusive prerogative of the mystic. Vision of an intellectual sort is a philosophic attitude *par excellence*. If philosophy is taken to mean a science or an art of interpretation and appreciation, and not merely one of description and classification, can it be aught else than an expression of vision? In the matter of vision, metaphysics allies itself with poetry or with art in general, rather than with the positive or natural sciences. To both the poet and the metaphysician reality throws out but dim suggestions which they have a right to interpret. The meaning of interpretation is nothing else than the ability to see far beyond or behind these

²⁰ *The Sources of Religious Insight*, New York, 1912, p. 86.

suggestions. True, the poet and the metaphysician employ different methods in interpreting the suggestions which reality hints to them. But the right and the will to interpret is grounded in both cases on a vision. Whence, then, the deeper reality or meaning of things? Whence the search or quest for a deeper reality or meaning? This very search is grounded upon a particular vision or inner experience—neither mystical nor mysterious—which must come to every philosopher. This vision is the first and primary condition of every philosophy. This simply means that the philosopher or poet “sees” things in a way different from common sense. On account of such a vision, Thales, I fancy, is entitled to be called the Father of Philosophy; he asked questions about the universe which nobody before him thought of asking. He had a vision that the world was not what it appeared to him. It is in such a general sense that we may also speak of ‘metaphysical imagination,’ but there is nothing exclusive about it, and in this sense it is indeed true that any or anybody’s philosophy is due to a vision. Which and whose vision is the right or the true vision is, of course, a different question, to be decided on different grounds.

This interpretation of a philosophic vision not in opposition to reason, but being the very life of reason, would apply to mysticism as well. The *whole-idea* with which the mystic begins his quest, without which, as has been shown, the entire mystic enterprise would be meaningless, the *initiation*, rather than the completion, of the “Mystic Way,” constitutes his really *philosophic* vision. Vague and abstract, to be sure, is this vision, but it is perfectly determinate. For the mystic, it will be remembered, does not set out to seek for an indefinite somewhat. His object is clearly defined: a Reality, One and Absolute and Spiritual, discoverable by a spiritual seeker. He in a measure already possesses that which he seeks. His quest is a quest for verification of a definite hypothesis. It is the intellectual hypothesis—the *non-mystical* starting point of the

mystic—and not its ineffable esoteric and purely personal verification which is a vision possessing genuine philosophic significance.

And because the mystic has this *whole-idea*, because he begins with this *intellectual* vision for which he seeks non-intellectual confirmation, because his starting point is an idealistic hypothesis, mysticism will always demand philosophic attention. Mysticism cannot articulate what it finds, but what it seeks is a verification of a determinate hypothesis which it has in common with philosophic idealism. Both the idealist and the mystic share in the same implicit doctrine, but while the mystic vanishes from a definite relatively exoteric hypothesis into an ineffable esoteric immediacy, the idealist progresses to a mediate explicit interpretation of the universe. The difference between them may well be illustrated by the story of a French professor who, at the opening of a course in metaphysics, summed up his whole philosophic doctrine by means of three gestures. He said "L'Idealisme," raising his hand towards heaven, "Le Materialisme," pointing his finger downward, and "Le Spiritualisme," pressing his hand to his heart. "These gestures," he continued, "contain my whole metaphysical system, but it will require more than one year to develop their profound meaning, to understand the wealth of their implications, and to justify the theory of the universe they express." In relation to philosophic idealism, we may conclude, mysticism remains but an inarticulate hint, a subtle shrug, a silent gesture, whose full and deep meaning and whose vast and rich significance the intellectual travail of generations of men cannot completely exhaust.

MITHRIDATIUM AND THERIAC, THE MOST FAMOUS REMEDIES OF OLD MEDICINE*

GEORGE W. CORNER

Of all the nations which at one time or another came to mortal conflict with Rome, none is now more utterly forgotten than the kingdom of Pontus. Her landmarks are uprooted, her temples are fallen, and of her mightiest ruler there remain but distorted legends. Mithridates the Sixth, surnamed Eupator, was the King Alfred of his day; or perhaps was more like Peter the Great, to whom Reinach the historian compares him. Between war and turmoil he found time to encourage at his capital all the arts and sciences. He spoke two and twenty languages, and conversed with subjects from all parts of his realm without need of interpreters. To him the famous Bithynian physician Aesclepiades dedicated his works, and he himself dabbled in medical studies. It is certain that he was an enthusiastic experimenter with deadly poisons, and it is likely that his researches extended to the dosing of prisoners with fatal drugs. Tradition says that he carried out surgical operations upon his courtiers, and even poisoned some of his own family through excess of scientific zeal. Ever fearing treacherous attacks upon his life, and confident of his medical knowledge, he undertook to accustom his own body to harmful drugs by taking small daily doses

* Reprinted from the Johns Hopkins Hospital Bulletin.

of all sorts of poisons, both animal and vegetable, and finally compounded that strange pharmaceutical medley called after him Mithridatium, whose amazing history is briefly traced in this paper.

The story of Mithridates' death in the year 63 B.C. fires the imagination even at this day, and calls up lurid visions of Oriental strife. Routed at last by Lucullus and Pompey, the king escaped with two daughters (the queens of Egypt and Cyprus) and a few faithful followers to his castle at Pantikapaion on the Bosphorus, where he was besieged by his unfaithful son Pharnakes. His citadel in ruins and capture imminent, Mithridates drew from his jewelled sword-hilt a vial of poison and shared it with his daughters. The women expired at once, but the king, by a strange ironical fate, having hardened his body against poisons, was unharmed by the potion. Then, as the Roman soldiers burst into the palace, the king gave his last command, and fell upon the drawn sword of the last remaining member of his bodyguard.

Pompey had such superstitious regard for the memory of his enemy, that when a coffer was found in the citadel, full of manuscripts in the king's hand, recording his researches, the papers of the royal poisoner were given to the freedman Lenaeus to be translated. Thus the formula and composition of the Mithridatium were preserved, to be revered as a potent remedy for 1900 years. The works of Lenaeus were, of course, extant in the time of Pliny the Elder, who quotes from him a simple recipe for the drug: "Two dry walnuts, 20 leaves of rue, two figs, pounded and strewn with a little salt; taken fasting in the morning it should protect against every sort of poison during the day."

Whether or not this was the original composition of Mithridates, by the first century A.D. another and more complicated prescription was honored with his name. It was preserved in verse by Damocrates, an obscure physician, and is quoted in Galen's *De Antidotis* in a Latin poem of thirty verses.

The prescription is also given by Celsus. But we do not have to search dusty pages of the ancients, for the same concoction extolled by Celsus and Galen in the first and second centuries is published with commendation in the English dispensatories of the eighteenth century.

To decipher the nature of the ingredients, however, is a task of another sort. Different authors and editions give varying prescriptions, but the oldest existing formula is that of Celsus, which contains thirty-three ingredients, the nature of some of which we can only guess.

The chief of Nero's medical attendants was Andromachus the Elder, a man notable for skill in healing, upon whom first of Roman court physicians was bestowed the honorable title of Archiater. By this time the Mithridatum had come to hold a regular place in the doctor's armamentarium, and perhaps it is not unduly fanciful to imagine the bloated features of Claudius Nero himself twisted awry over a nauseating dose of it. Andromachus undertook to improve the formula by adding new substances and, in order to protect his successors from error in compounding, put his prescription into one hundred and seventy-five Greek iambic verses.

In the poem the physician dedicates his remedy to his sovereign, recommending it against poisons, serpent-bites, and the graver diseases, including blindness, incipient phthisis, dropsy, stricture, rabies, and so on. He then gives the formula and dosage. The additions made by Andromachus consist chiefly of squills, viper's flesh, and opium in generous quantities; he, too, mixed the ingredients in honey to make the drug more agreeable. The name *theriaca* is from the Greek word signifying wild or venomous beast, in token of the curative power of the medicine against the bites of animals. This is the prescription which held supreme honor as an antidote against all poisons, and as a remedy in all febrile diseases, until 1750 A.D. Under the name of Theriaca Andromachi, or Venice treacle, it is

to be found in every work on the treatment of fevers for 1800 years.

What pharmacological conceptions led to the use of such mixtures is difficult to imagine. Most of the ingredients belong to those classes called by Paulus Aegineta desiccative and heating, and should thus be useful against the supposedly cooling action of poisons and the acute infections. Many medieval writers report that overdoses of theriac produce undue sweating and prostration. It is unnecessary to explain the addition of opium. The use of viper's-flesh forms a most interesting chapter of ancient medicine. Perhaps a clue to the old theories which led to its use is found in the *Royal Pharmacopœia* of Moses Charras (1678):

The powder of vipers is very much enlivened with the volatile salt wherewith the vipers abound, which enables it to force its virtues through the pores, though never so close shut, to the more remote parts of the body.

The viper's-flesh is, therefore, apparently the dynamic part of the composition, calculated to help the other ingredients permeate the body. In brief, the theriac of Andromachus was an opiated sudorific, a sort of glorified Dover's powder.

Both the Mithridatium and theriac found favor with Galen, who discourses of them extensively in his *De Antidotis*. In another treatise (*Galenus de theriaca ad Pisonem*) we are told that the noble Marcus Aurelius partook daily of the Mithridatium. Undoubtedly the great popularity and enduring fame of the two royal remedies, during all the Middle Ages, were largely due to the magical influence of the Father of Roman Medicine. No one remembered, or all ignored, the scornful words of Pliny (*Historia naturalis*, Lib. XXIX, Cap. 8):

The Mithridatic antidote is composed of four and fifty ingredients, none of which is used in exactly the same way, and the quantity prescribed is in some cases so small as the sixtieth part

of one denarius! Which of the gods, pray, could have instructed man in such trickery as this, a height to which the mere subtlety of human invention could surely never have reached? It clearly must emanate from a vain ostentation of scientific skill, and must be set down as a monstrous system of puffing of the medical art.

The Saracen physicians, unlike their confrères the mathematicians and chemists, made little progress in learning. The shadow of Galen lay athwart the age, and the Moslems mistook it for a great light. Under these circumstances it is natural that the theriac should be admired by the Arabians, and that in the interminable commentaries upon the Greek and Roman writings, which took the place of original work with them, they should descant at length upon its preparation and uses. Averrhoes and Haly Abbas discuss it, and most interesting of all is a passage from Serapion the younger (*ca.* 900 A.D.), who describes the following methods of trying whether the theriac be good: First, give of it to the amount of a drachm to a person who has taken a powerful emetic or cathartic, such as scammony or hellebore, and if it counteract the effect of the medicine that has been taken, we know that it is genuine. Second, as Galen directs, having got a wild cock, allow it to be stung by a venomous reptile, and then give it a proper dose of the theriac. If the fowl escapes unhurt, we are sure that the medicine is good; but if he die we know that it is not to be depended upon. Third, give a poisonous substance, such as opium, to a cock or dog, and then administer the theriac, the powers of which may be judged of from the result. Here we have a series of biological tests as scientific as some of those used in modern serum laboratories.

The treacle of Andromachus followed the Crescent even to Cairo and India, whence we shall hear of it later. In the Moslem universities of Spain it was of course taught to physicians, and hence took hold in Europe, for when the Moors were expelled by Ferdinand and Isabella they left

behind their scholarly traditions and their Arabic manuscripts, so that a little beacon was left burning in that "windy night of time." There are a dozen extant theses and treatises from all the European countries, touching upon the virtue of the drug, especially in the plague; and as I have said, the theriac is recommended in every book on fevers and poisons until nearly 1800. Thus Daniel Defoe, in *A Journal of the Plague Year*, quoting his "particular friend, Dr. Heath:"

"Only that," says he, "some recommend one thing as most sovereign, and some another. Some," says he, "think that *pill ruff*, which is called itself the antipestilential pill, is the best preparation that can be made; others think that Venice treacle is sufficient of itself to resist the contagion; and I," says he, "think as both these think, viz., that the first is good to take beforehand to prevent it, and the last, if touched, to expel it." According to this opinion, I several times took Venice treacle, and a sound sweat upon it, and thought myself as well fortified against the infection as any one could be fortified by the power of physic.

The remedy was indeed so famous that its name became in several languages a general term denoting any antidote. So the Man of Lawe's comparison:

Christ, that which is to every harm triacle.

And Chaucer tells us, too, that a store of the remedy was in demand upon the immortal pilgrimage:

Seyde I nat wel! I cannot speke in terme;
 But wel I woot, thou dost my herte to erme,
 That I almost have caught a cardiacle.
 By Corpus bones! But I have triacle,
 Or elles a draught of moyste and corny ale
 Or but I here anon a merry tale,
 Myn herte is lost for pitee of this mayde.

(*Words of the Host to the Physician.*)

Some sub-editions of the "Bishop's" English Bible of 1568 are called by bibliographers the "Treacle Bible," on account of their rendition of the very familiar verse, Jere-

miah viii, 22: "Is there no *tryacle* in Gilead? Is there no physician there?"

A few men raised feeble voices against the theriac during all these centuries. Three of them get a hearty scolding from Diemerbroeck, author of a famous treatise on the plague:

Capivaccius, Trincavellius, and Julius Alexandrinus alone are silent, and try to exterminate from medical practice this divinest and most useful of drugs.

Trincavellius seems also to have held the heretical opinion that bubonic plague was a hot disease and not to be treated with sweats and calorifics. Besides these three culprits, one Vincentius Calzavelius, a physician of Brix in Bohemia, wrote in 1570 a thesis *De theriacae abusu in febribus pestilentibus* upholding the same view. So far as I know, these were the only medical men who opposed the use of the drug, and the two of them, whose works I have examined, opposed it in the pestilential diseases only, not objecting to its use in other ailments. Robert Burton, the anatomist of melancholy, has a polemic against treacle and all other compound prescriptions, but then he was no physician, but a clergyman, and as he says himself, like a ranging spaniel barked at every bird he saw.

The drug could not only be used directly, but was often made an ingredient of other prescriptions, and was put into powders, electuaries, potions, waters, pills, ointments, and plasters. There were several grades of theriac in commerce, according to the place of manufacture, as that of Paris, of London, of Venice, and so on. Since Venice, with its great fleet, had the most direct trade with the Mediterranean lands whence most of the ingredients came, its product was considered the best. From this fact the medicine was called by the name commonest in English books, Venice treacle. Then there were modifications of the formula, such as those of Monavius the German, of Edinburgh, and others. There is an apt passage in Burton's *Anatomy of Melancholy*:

Mellichius, Cordus, Wecker, Quercetan, Renodeus, the Venetian, Florentine states have their several Receipts and Magistrals: They of Noremberge have theirs, and Augustana Pharmacopœia, peculiar medicines to the meridian of the City: London has, every City, town, almost every private man hath his own mixtures, compositions, receipts, magistrals, precepts, as if he scorned antiquity and all others in respect of himself. But each man must correct and alter to shew his skill, every opinionative fellow must maintain his own paradox, be what it will; *Deliriant reges, plectuntur Achivi*: they dote, and in the meantime the poor patients pay for the new experiments, the Commonalty rue it.

There was a disagreement between the Colleges of London and Edinburgh as to the manner of preparing the viper's-flesh which was used in making the theriac, London apparently preferring the imported article in the form of troches, whereas the wise men of Edinburgh held that a fresher and therefore better product could be made from native vipers.

A learned discussion on "Troches of Vipers for the Theriac" ends thus:

Take of Viper's-flesh after the skin is stripped off, the fat and entrails being taken out, 8 ounces; of the finest wheaten Bread, or rather Bisket, powdered and sifted, 2 ounces. Let them be formed into little Troches, by anointing the hands with Opobalsam, or Oil of Nutmegs by expression; then dry them upon the bottom of a sieve inverted in some open place, where the air hath passage through; and turn them often till they are thoroughly dry. . . . Vipers are frequently brought to us from several parts of *Italy*, and particularly from *Venice*, but they that lay most stress upon them, chuse rather to be the preparers themselves with our own Vipers here; which at the proper time of the year are full as good, and the Troches are much the better being fresh; which they cannot so well be when they come from abroad. The College of Edinburgh prefer the dried Viper's-flesh to the Troches thereof.

The formula varied so much by this time that Johann Nolt of Lübeck thought it worth while to print a large table giving in parallel columns eleven formulæ for Andro-

machus' theriac, for purposes of comparison. The Orviétan celebrated by Molière

O grande puissance
De l'orviétan!

was one of the complicated mixtures based upon theriac.

One of the most notable theriacs was that of Matthiolus, court physician to the Emperor of Austria about 1550. His prescription contained one hundred and twenty-seven ingredients, one of which was ordinary theriac, itself containing fifty-odd more substances, to say nothing of a half-dozen other compounds thrown in for good luck. Diemerbroeck calls it

famosa illa antidotus, magna illa congeries plurimorum simplicium sine ordine, sine methodo, sine ulla ratione simul congestorum ac conjunctorum.

This masterpiece reigned as the king of drugs until Joseph Duchesne, (Latinized *Quercetanus*) invented and published in 1607 a theriac so surpassing in its powers that he called it *Benedicta*, the blessed. Not even content with such a blessing, Frederic Greif, of Tübingen, took in hand the Blessed Treacle, boiled it down to the consistence of a pill-mass and added various substances until he evolved a prescription of one hundred and fifty ingredients, and so mighty in its virtues that it was called the Exalted or Celestial Treacle.

It must be remembered that the therapeutists of that time did not desire drugs to meet single indicated symptoms, as in modern medicine, but just as the alchemists were searching for the universal element, so the pharmacists were ever seeking a universal remedy, wishing to place beside the Philosopher's Stone an equally magical Physician's Stone, potent to assuage all disordered humors, to charm away all ailments at a single stroke, and valuable in every diverse condition. Christianus Paullinus (1643-1712) published a treatise on the Celestial Theriac, giving an index of lesions curable therewith, which covers the entire cat-

alogue of diseases, including "all the external and internal malignancies" from nightmare through toothache and "obstruction of the spleen" to scabies.

Of course these medicines, composed of such numerous ingredients, most of them exotic and many rare, were very expensive and to be had only by the rich. Therefore, there was a cheap kind, the *theriaca diatessaron*, made for the poor, having only five ingredients (gentian, laurel-berries, birthwort, juniper-berries and honey), but in spite of its simplicity, "excellent against fevers and poisons." I like to fancy that the sulphur and molasses, "spring medicine" of our great-grandmothers, was a poor relation of the celestial sulphur-and-honey of Tübingen.

The fame of theriac was so great that the drug passed out of the hands of legitimate physicians, and became an article of commerce among the people. To that rascally medieval army of peripatetic mountebanks, palmers, medicant friars and pardoners, was added a troop of *triacleurs*, who wandered from place to place selling their nostrum to the rustics. Bernhard, in his little volume about theriac in France, quotes the title of an old farce, "Le Pardonneur, le Triacleur, et la Tavernière," and prints a magistrate's license of the sixteenth century, allowing a friar and a triacleur to travel in company; a convenient arrangement which permitted a layman to buy pardon for his sins and balm for his diseases from the same firm. Needless to say there were many tricks of the trade and plenty of fraud in the treacle business.

"I remember," says Matthiolus, "seeing one of these fellows who gave his boy 'poison' substituted in this sleight-of-hand way, and then pretended he would not give medical aid until the boy's pulse ceased and he was at the brink of death, in order to prove the power of his false and adulterated theriac. Having first admonished the sly youth to repress his respiration, to change color, to roll his eyes, and to contort his face, the demonstrator called to his side a physician who was among the bystanders (not a very shrewd man, to my way of thinking) and requested him to testify publicly that the boy's pulse had ceased. The good

doctor, so thoughtlessly made the dupe of the peddler, announced to all that he found no pulse in the boy; which he might well say, since the fellow knew how to stop his pulse, as Galen describes, *Lib. 6 de placitis Hippocratis*, where he says 'arteries, like nerves, if cut or compressed, are deprived of all pulse and vibration.' They had contrived to put a cord about the boy's upper arm. . . . After that young scalawag had taken the quack's medicine, he gradually worked the cord loose and finally returned to a natural condition.'

The tricks and frauds of such villains as these were taken as a great insult by decent physicians like Matthiolus, and by honest apothecaries. In self-defense, therefore, in the seventeenth century the regular profession began to hedge about the preparation and sale of theriac with divers laws and customs tending toward uniformity. The drug was often compounded in the public presence by reputable men, in order that the populace might know that everything was done in proper manner. The first of these public confections of theriac was held at Montpellier in 1606 by Maître Catalan, chief apothecary of the city. He set a fashion, which was thereafter continued, of publishing a book in Latin, containing a discussion of the history and nature of the drug, together with certificates from the authorities that due care had been taken in the work. The best-known man connected with such performances was Thomas Bartholin, the Danish anatomist, who made theriac in 1671. He had a certificate from the faculty at Padua that the pastilles of Italian vipers they had sent him were freshly and skillfully prepared.

About this time there began to be sumptuary laws or at least regulations of the apothecaries' guilds, forbidding apothecaries to make the drug without permission.

At Paris, the public preparation of theriac took a very elaborate form. We learn from M. Planchon that Moses Charras, "The King's Chief Operator in His Royal Garden of Plants," was the first to make it publicly at Paris (1670). The participation of Charras would undoubtedly

lend dignity to the affair, since he was a man of note and author of the *Royal Pharmacopœia*, which I have already quoted, a work which was translated into many languages, even into Chinese. A little later the official preparations were held by the *Compagnie des Marchands Apothicaires*, who yielded their privilege in turn to a *Société de la Thériaque* open to master-apothecaries, with a large capital and full authority to compound the remedy. Apparently the last public preparation was made in 1790.

These solemn ceremonies lasted from fifteen to seventeen days, beginning at 5 A.M. The session was opened by the presidents of the college of apothecaries and the faculty of medicine, the lieutenant-general of police and the king's procurator. The person to whom had been given the honor of making the theriac addressed the audience, lauding the virtues of the drug, usually with many quotations from the ancients and much show of oratory. He then gave a scientific description of the ingredients, exhibited them to the public gaze, and finally weighed and mixed them. The finished product was stored in a porcelain jar 88 centimeters high, (still extant in Paris) which was locked with three locks, the keys of which were held by three officials high in the councils of the apothecaries. Several times during the fortnight of preparation there were addresses and collations.

It is easy to see the psychological and financial advantages of such pomp and circumstance. Imagine the effect of a public preparation of Peruna in an American city with addresses by the mayor and the state chemist, the medical faculties attending in academic robes, assisted by Sousa's band!

It is astonishing that this pedantic fol-de-rol went on without a word of protest for so many years. But a bold opponent was lying in wait—no less a person than William Heberden, the English practitioner, he of "Heberden's nodes." In his "*Antitheriaca—An Essay on Mithridatium and Theriaca*," a little volume published in 1745, he

makes a caustic attack upon Venice treacle, so level-headed and withal so learned, that I wish time permitted to read the whole nineteen pages. Let the following suffice here:

MITHRIDATES, the famous King of Pontus, had a strange affectation of superior skill in the powers of Simples. His Courtiers, we may imagine, flattered him upon it, and he has accordingly been delivered down to us as a second Solomon. Whereas if we consider the little leisure that he had for his own inquiries into this part of nature, or the little helps that he could have from the people about him, we must conclude that his knowledge was very inconsiderable. However, Pompey seems to have been possessed with the vulgar opinion and, after he had conquered this King, took uncommon care to secure his writings, in hopes of some mighty treasures of natural knowledge. He was soon convinced of what he might easily have foreseen, and is represented as laughing at the disappointment of his own credulity, when instead of those great arcana, he found only one or two trifling receipts.

There were probably some artful people at this time, who were not disposed to part so easily with the great expectations that had been raised, nor to lose this fair opportunity of enriching themselves by a plausible imposture; which has since been several times repeated and is frequently practiced among us at this day. For soon after, there was published in Rome a most pompous medicine with the name of *Antidotum Mithridaticum*, which was pretended to have been found among his papers: though Plutarch, who gives a minute detail of them (mentioning the Love-letters and several interpretations of Dreams), says not one word of this famous medicine; which one can hardly think that he would have omitted if he had found the tradition supported by any proper testimonies. The authority of Q. Serenus Samonicus is more positive, who says that, notwithstanding the many receipts of *Mithridaticum* that were handed about, the true medicine found in the cabinet of Mithridates was only that trivial one consisting of twenty leaves of rue, two dried figs, one grain of salt, and one nut. So that there is some reason to suspect that Mithridates was as much a stranger to his own antidote as several eminent physicians have since been to medicines that are daily advertised under their names.

And so on, with many quotations from erudite works of all ages, for Heberden will fight with authority, he says, that which is defended by authority. He points out that

one of the great reasons for the popularity of treacle was the medieval fear of murder by poison, which led people to make much use of antidotes. But the only poisons known when the treacle was composed were hemlock, aconite, and the venoms of beasts. How then could the drug be of use against the newer poisons, such as arsenic, quicksilver, and the like? Moreover; first the formula has never been the same for a hundred years together; second, there is grave danger of error and overdosing when opium is given in such complicated mixtures; third, to give theriac is to load a sick man's stomach with useless things; fourth, whatever effect the theriac has can be gained with a few simple drugs.

Allow me to quote one more paragraph, that in which he comes to a brave conclusion:

It still goes on to be prepared in the old manner, as near as may be, in all the great cities of Europe. Its power indeed and fame has of late been manifestly declining; and we may hope that its reign will not last much longer. Enough has surely been given to antiquity: let not length of time, which has ever been the fatal enemy of falsehood and imposter, be made in this instance to support and protect them. Perhaps the glory of its first expulsion from a public Dispensatory was reserved to these times and to the English Nation; in which all parts of Philosophy have been so much assisted in asserting their freedom from ancient fable and superstition; and whose College of Physicians in particular hath deservedly had the first reputation in their Profession. Among the many eminent services, which the authority of this learned and judicious body hath done to the practice of Physic, it might not be the least that it had driven out this medley of discordant Simples, which, perhaps, has no better claim to the title of *Mithridatium*, than as it so well resembles the numerous, undisciplined forces of a barbarous King, made up of a dissonant crowd collected from different countries, mighty in appearance, but in reality an indifferent multitude, that only hinder one another.

Heberden promptly followed up his words by deeds, and forced a vote in the College of Physicians, on the expulsion of theriac and Mithridatium from the London Pharmacopœia. It is said that when the ballot was taken there were thirteen votes in favor of retaining the theriac

and fourteen against it. Thus came to an ignominious defeat, in an English committee-room, after a glorious career of 2000 years, the greatest medicine of all the world.

Although Heberden had dealt the death-blow, the theriac was to linger on a while in many parts of the earth. Alexander Monro, Senior, cured himself of a bad angina by its use, as late as 1781; and Benjamin Bell says that in his time it was in frequent use in England as an application to ulcers.

In 1835, Dr. Malcolmson of Madras was told by some of his native patients of a drug which had worked wonderful cures in beri-beri, called Teriak Farook. He was able to purchase some of it in India, finding it in cannisters bearing Turkish characters stating that it was invented by a famous Turkish doctor called Andromakoo, in the fortified city of Vendeck. He found, however, on pulling off the outer label, another showing that the material really came from Venice; it represented, therefore, the last trace of that once-mighty commerce of Venice with the East. The word *farook*, applied to the drug, is explained by a passage in Prosper Alpinus' *De medicina Aegyptorum*, 1591, who states that in his time theriac was in much use by the Sultan at Cairo, and was called *Tharach faroch*, as Mahomet called his successor Omar faroch, the unsurpassed. In 1837 Maxwell of Calcutta read Malcolmson's article, found some theriac in the bazaars, and tried it on himself and many beri-beri patients without result. This is the last recorded use of theriac, in the realm and reign of Queen Victoria the Good, 1899 years after the death of Mithridates.

THE RURAL CREDIT SYSTEM NEEDED IN
WESTERN DEVELOPMENT*

ELWOOD MEAD

One of the important questions confronting this country is the creation of a land policy suited to conditions which have arisen in the last quarter of a century. Until recently it was our boast that any man who had industry and thrift could enjoy landed independence. That statement needs now to be qualified. The increase in the number of farm renters compared with the number of farm owners; the colonizing of rural communities with foreign-born immigrants who can and do pay higher rents because they are content with a lower standard of living, are significant indications of the dangers to rural life which need to be removed.

These conditions are due largely to the fact that the rural institutions of this country, have failed to keep pace with the changes in our industrial and social life. In other countries where the problems of settlement are older and more acute, the subject has had greater attention than here, and methods have been adopted which have done much towards their solution. In every case the principal agency is a system of rural credits designed to enable men of small capital to buy and improve farms and thus become owners instead of tenants.

* Address delivered before the National Conference on Marketing and Rural Credits, Chicago, Ill., November 30, 1915.

The Western third of the United States presents the most inviting field in this country for the establishment of such a system and has greatest need for it. In this section millions of acres of irrigable land capable of supporting a dense population are either unpeopled and awaiting settlement or the settlers are having to undergo hardships, and are menaced with failure from causes that are removable and should be removed. High interest rates, the inability to secure money to make necessary improvements on the land and the lack of direction and oversight of unskilled beginners, cause so many to fail before they get started that it is becoming an economic wrong and is retarding the progress of Western agriculture, and all related interests.

Irrigation works which have cost in the aggregate nearly \$200,000,000 are financially unsuccessful because of delay in settling the land or because settlers are too poor to pay water charges. The nature of the obstacles that confront development and the hardships and losses of settlers in recent years are not understood by the country as a whole. The economic changes which have taken place in the last fifteen or twenty years and the need of financial adjustments to conform to those changes are matters about which a wider knowledge is desirable.

ECONOMIC CHANGES IN RECENT YEARS

Up to about a quarter of a century ago there was little need of capital or skill in agriculture to enable men to secure homes in the West. Land was obtained as a gift from the Government. There were large areas which did not require irrigation, and where irrigation was necessary, the water could be taken by cheap ditches out of the mountain streams. Usually these consisted of nothing but a small furrow built by the settler's own labor. Even where they were built by companies it was seldom that water rights cost over \$10 per acre. Some of what is now the highest

priced farm land in the West was obtained from the Government for nothing, or purchased from railroad land grants for from \$2 to \$5 per acre. The ditches which watered these lands cost only from \$3 to \$10 per acre, hence with free land that did not need irrigation, or cheap water rights for that which did, the man with \$1000 or \$2000 had ample capital with which to acquire and improve a 160 acre farm. Or if he had no capital at all, it was possible through industry and economy to meet all the expenses of development.

EARLY OPPORTUNITIES ARE GONE

These natural opportunities have, however, disappeared. The fertile lands which did not require irrigation are all in private ownership. The cut-over forest lands or the arid lands which have to be irrigated, both require a large expenditure to make them productive. The opportunities for cheap and easy irrigation have all been absorbed. To obtain water for new areas it is necessary to control great rivers and build costly reservoirs to conserve the flood water. The railroad lands that could once be obtained for from \$2 to \$5 an acre have passed into private ownership. In one way and another some of the best undeveloped areas have become part of great landed estates. The actual construction cost of irrigation works built in the last five years varies from \$30 to \$100 an acre. Unimproved privately owned land under those works sells from \$15 to \$100 an acre.

Few settlers today have access to free range or free timber. Often they have to pay high prices for land, and always high prices for water as compared with fifteen years ago. They have therefore one burden which the pioneer settler did not have to carry; that is, interest charges on the greater expenses of development. This makes it impossible to prolong the period in which the land is being cleared, leveled, or water provided, as was often done by the earlier settlers.

GREATER PRELIMINARY OUTLAY REQUIRED

There are few places in the West where improved farms can be purchased or raw public land made habitable and productive for less than \$100 per acre. The houses, fences, implements, livestock, and, in the case of arid lands, the water rights needed to make these farms going concerns, involve an expenditure greater than most home-seekers can meet. Yet the largest part of this outlay should be made immediately, in order to meet living expenses and prevent interest on debts falling into arrears. If these improvements can be made promptly, and especially if the settler has time enough in which to bring the land into full production, and earn the money out of the land, he nearly always succeeds. The profits of intense culture are great, and in some directions are continuous and reliable.

The great need of successful development is therefore that the settler may either have capital enough of his own, or be able to borrow money on a very long time at a low rate of interest, to enable him to, without delay, improve, equip and stock his farm and then cultivate it in accordance with scientific methods.

COST OF DEVELOPMENT

Very few settlers and still fewer of the public understand the cost of improving raw land, and of equipping farms for scientific agriculture. The Division of Rural Institutions of the University of California has recently been making a first-hand investigation of this subject, and of the plight in which a settler finds himself when he makes an attempt to acquire a home without adequate capital, and has to depend on existing credit facilities for money needed before he has his land ready for cultivation. The results already obtained show that many settlers with from \$1000 to \$3000 find themselves in debt and without credit

before they have their land ready for irrigation and are unable to go on because the commercial banks cannot lend money except on revenue-producing property, and no reliable land mortgage company will loan except on first-mortgage security. Some settlers are able to obtain money on their personal credit, but in these cases the loans are usually for a short time with commissions for obtaining the loan and for its renewal, and with interest rates varying from 8 to 12 per cent. The settler has therefore to pay interest rates above the profits of agriculture and has always before him the ever impending menace of a mortgage foreclosure.

NEED FOR CREDIT AND ORGANIZED DIRECTION IN SETTLEMENT

The absence of adequate credit facilities and of organized oversight of settlement is an economic wrong to the settler in many ways. He needs livestock to consume his fodder crops, and if he could purchase these he could often make money where he is now losing it. Scores of settlers are attempting to cultivate crops for which the land and climate are not suited and who lose (through mistakes that intelligent oversight would avert) the money that would pull them through the critical period.

No one can visit a developing district without realizing the waste involved in leaving each individual settler to carry out his improvements without organization or expert direction. No beginner can level land properly, no individual settler can afford to buy the proper implements, and as a result each one of them wastes time, labor and money. Leaving each individual settler to buy the material for his house and arrange for its construction causes him to lose time that ought to be spent on cultivation, makes the cost more, and the result far less satisfactory than if this were done under competent practical direction in accordance with a comprehensive plan.

CAPITAL NEEDED FOR WORKING EXPENSES

In one district visited recently the fields were dotted with alfalfa stacks. It was a picture of seeming agricultural prosperity; yet many settlers in the district were "dead broke" and in debt. They had spent all their money preparing to grow alfalfa and there was no market for hay. If they sold hay they had to sell at less than cost. Fat cattle and fat sheep brought high prices, and the obvious way of marketing their alfalfa was to feed it to cattle and sheep. But, as one settler expressed it, there was no use to suggest that, because they had neither money nor credit with which to buy a suit of clothes. One settler was financed by a local banker in buying ten dairy cows. For the risk the banker charged him \$10 a cow above the purchase price. He required the settler to make payment by giving half of the return from each cow. The settler paid a lawyer \$10 for preparing a chattel mortgage, and \$4 for recording it. Hence, to begin with, he was loaded with \$11.50 a cow above the cost price. Some of these cows were unprofitable. Every good dairyman has to cull his herd; he wanted to sell the poor ones and buy good ones, but the banker insisted on a new chattel mortgage every time this exchange was made. In six month's time it had cost him more in legal fees, lost time in consulting the banker, and in recording new mortgages than the returns would justify, and he gave up the herd.

One settler who had a title to 320 acres of government land needed \$10,000 to level it for irrigation. To obtain the loan of that sum he paid a commission to the loan agent of \$500. He agreed to pay 10 per cent interest, with six months interest in advance; that was another \$500. He was required to insure his life for 10,000, the policy being drawn in favor of the lender; that cost \$200. He actually received of his \$10,000 loan \$8800, and for that he had to pay each year \$1200. Agriculture will not stand interest charges of that character. These are not isolated instances.

The investigation referred to has shown scores of the same character, leaving no question that the high interest rates are a burden on the beginner too heavy for him to successfully overcome.

In one district the average farm mortgage indebtedness over the whole area of nearly 200,000 acres is \$50 an acre, and the chattel mortgage indebtedness on the same area is about \$15 an acre. The interest rate, with commissions, will average somewhere between 10 and 12 per cent, and to this has to be added heavy payments on the principal.

LOWER INTEREST RATES URGENTLY NEEDED

If, instead of having to pay 10 per cent interest, these settlers could obtain money at 5 per cent it would mean an annual interest saving to the farmers of this district of over half a million dollars, and to some settlers this interest saving would mean over \$5 an acre a year. Yet 5 per cent interest is about the highest rate of interest paid in any country having an effective rural credit system. If, instead of having to pay off the debt in five years, they could have amortized payments extending over thirty years, it would mean that the average payment on the principal in this district would drop from \$10 an acre a year to 75 cents an acre a year. This change would mean a saving to the settlers of this district during the early trying years of over a million and a half dollars a year; it would mean the difference between success and failure, between confidence in the future and harrassing anxiety. It would mean good food, good clothing and comfortable living for hundreds of settlers and their families which are lacking today because we have a wholly unscientific credit system.

THE RURAL CREDIT SYSTEM OF AUSTRALIA

A few years ago conditions in Australia irrigated areas were almost a direct counterpart of those now confronting irrigated agriculture in this country. Costly irrigation works had been built, but the water was not being used.

The number of farmers on irrigated areas was decreasing. Men who were without capital could not buy the land, and those with capital did not care to. Irrigation works were unprofitable because there were not enough people on the land to cultivate it as successful irrigation requires.

In order to change these conditions the Government decided to inaugurate a new system of land settlement, in which the social and economic benefits to the public rather than the profits from land sales would be the governing considerations. It was decided to buy privately owned land held in large tracts, and to subdivide and sell them on such conditions as would enable men of small capital to become farm owners. Investigation was made to ascertain the number of acres needed to make a living area, and the amount of money required to prepare these areas for irrigation and properly equip them for intense cultivation. It was realized that few settlers had capital enough to buy and improve these farms unaided, and that a rural credit system similar to those of Ireland, Denmark and Italy, would have to be made a part of the plan.

A study of the land settlement laws of a number of European countries and New Zealand was made before the policy now in operation was put into final form. The scheme of subdivision finally adopted provided for farm units varying in size from 2 acres to 200 acres. The two acre units were for the farm laborers. Such an area would enable a farm laborer's family to keep a cow, some pigs and poultry, and to grow most of the fruit and vegetables consumed. Such a farm gave the farm laborer landed independence, tied his interest to one locality and gave to the district a reserve of labor in the children of these families for fruit picking and grain harvesting seasons. No feature of the system has proven of greater value than the two-acre farm laborer's block. The number of these originally provided for in each district has subsequently been increased, as the lands of the district were brought under intense culture.

Investigations and experience both show that the success of the settler with small capital quite largely depends upon his being able to obtain a living income from his farm within a year, and to get the whole area into cultivation inside of two years. The saving of time in the preliminary development became therefore an essential factor. In order to do this the State decided to give organized and comprehensive aid to settlers in building their houses and in leveling the land for irrigation. It could build houses cheaper than the settlers could, because it could buy material in large quantities and pay cash for it, and could give skilled oversight in the preparation of plans and in watching the work of contractors. The outcome was that this plan not only saved the settler money but it protected the district from the unsightly makeshifts which the settlers, if left alone, would have perpetrated. A district with all the houses properly built, newly painted and provided with those things that go for decency and comfort, has a great social influence. It awakens pride and stimulates efforts in the whole community.

At first only ten and fifteen acres, or one quarter of each farm, was leveled for irrigation, it being believed that with this done, the settlers could complete the work. But experience showed that better results would come from leveling and seeding about three-fourths of every farm at the outset, and later on large areas were leveled and seeded in advance of settlement. One result of this was that some settlers going on these ready-made farms were able to obtain a living income from dairying within thirty days after their arrival. At first each settler was left to buy his own tools and livestock without any suggestions from the State, but when it was found that they were being victimized because of their inexperience, the State placed at their service an expert buyer of dairy cattle, who by getting in touch with the farms in widely scattered dairying districts was able to protect them from the purchase of worthless animals and to supply them with good stock at about one-half what

they would have had to pay if each individual had been left to take care of himself.

**IMPORTANCE OF PRACTICAL ADVICE AND DIRECTION
TO BEGINNERS**

The most important feature of the system was, however, the placing in each district of a farm inspector or adviser. He was there to be consulted by the settlers whenever they desired, but it was also his business to travel continually through the district observing the habits and methods of the beginners, to correct their mistakes when seen, and where they refused to adopt proper methods or showed lack of industry and persistence to notify the authorities in charge, and having this warning, they were careful about making loans for improvements or extension of time on payments. The influence which this exerted on the methods of the farmer and on the agriculture of the district was immediate and important.

All of the estates purchased were bought without any compulsion. The land desired by the State was appraised by three impartial values and as a rule the average of these values was offered. There were few instances in which it was not accepted. After subdivision each of the farm units was separately valued so as to repay, when sold, the purchase price with about 15 per cent added to meet the expense of subdivision of the land and interest on the money invested between the time of purchase by the State and sale to settlers. The lands were disposed of to settlers on the payment of 3 per cent of the cost, the remainder being paid in 31½ years with interest at 4½ per cent and amortized payments at 1½ per cent, making a total of payment for principal and interest each year 6 per cent. Each settler was required to deposit about 20 per cent of the cost of leveling the land and about 40 per cent of the cost of houses and other buildings, the State furnishing the remainder and the settlers repaying these advances in from

20 to 30 years with interest at 5 per cent. Where the settler made his own improvements the State could loan him up to 60 per cent of the value. Experience has shown that with this aid nearly all the settlers succeed. Without it fully two-thirds of them would have failed. The financial returns have been entirely satisfactory. It has brought important benefits without any cost to the general taxpayer.

HOW MONEY IS OBTAINED

The money for the purchase of land and making loans to settlers is obtained in the Australian States as a rule from the State Savings Bank. In two States it is provided by the Commonwealth Postal Savings Bank, while in New Zealand the money comes from the sale of bonds in London. In all the States about 4 per cent interest is paid on the money borrowed, and as this is loaned to settlers at from 4½ to 5 per cent, there is from ½ to 1 per cent profit, which is expected to meet the expenses of management and the loss incurred where settlers fail to meet their obligations. A full report of the financial operation of the different State systems is given in the recent report of the Commission of British Columbia. In all cases these systems have been self-supporting.

CAPITAL REQUIRED BY SETTLERS

There was much difference of opinion at the outset regarding the capital which a settler should have. It was at first fixed at \$1000. Since then it has been made more flexible. The capital now required depends on the size of the farm the settler purchases and something on his personal qualifications. No one is allowed to buy land who is already a land owner, and actual settlement is insisted upon. Title to the land does not pass for twelve years, but the settler can sell his interest at any time before that provided the buyer conforms to the restrictions governing the original settlement. The maximum value of land purchased by one

settler is \$12,500, and the maximum amount which the State can advance to one settler is \$2500. On units for farm laborers, or on areas of ten acres or less, the capital of the applicant is not considered. He is only required to make the payments on the land and the part payment on the house and other improvements. On small units settlers can meet land payments from wages, but when the farms have more than 20 acres the income must be far more than the settler can earn in wages to meet the interest and other expenses. Whoever attempted to purchase farms of more than 20 acres should therefore have sufficient capital to make his initial payment on that land and at least one third of the cost of its improvement.

There have been instances of settlers borrowing the money to make the necessary land payment, who have met promptly all their obligations to the State, but as a rule even the best of settlers need all that the State can expend in order to provide for the development expenditures of the first three years.

It is the belief of all who have made a first-hand study of conditions in the western third of the United States that unless some such system is introduced here, future settlement should be restricted to men of considerable capital, say \$3000 each, for the settlement of public land and \$5000 each for the settlement of privately owned land.

STOPS DRIFT TO CITY

The adoption of this system by this Australian State has stopped the drift of the young men from the country and attracted to the land scores of young men from the cities. It has created opportunities for hundreds of poor men who without it would have never been land owners. Under its operations more than 4000 farmers, all starving with limited capital, now live in their own houses and are landed proprietors. It has given the people better houses at less cost, better live stock, and better tools, than they

could have obtained without financial aid and the expert knowledge and advice that went with the system. How it is regarded where it is in operation is set forth in the last budget speech of the premier of Victoria:

“The final success of this investment depends upon the returns which can be obtained, and in this respect the State stands in an entirely different position from that occupied five years ago when it made intense culture combined with closer settlement the basis of future development. This was an experiment, the success of which was doubted by many; now it is a demonstrated success. Over large areas in widely separated districts more than ten times as many families are settled in comfortable homes, under attractive social conditions as were there five years ago, and they are obtaining returns from their holdings that even less than five years ago were regarded as impossible. The demonstration that families can be fully employed and obtain comfortable living on from 20 to 40 acres of irrigable land not only ensures the financial success of our investment in irrigation works, but gives a new conception of the ultimate population which this state will support and the agricultural wealth it will produce.

“Notwithstanding the fact that many of the settlers were inexperienced and lacked capital, the small irrigated farm is paying well and doing this in districts having relatively high water charges.”

OBJECTIONS TO STATE ACTION NOT WELL FOUNDED

There is some opposition in this country to a land settlement system of this character, on the ground that the State is incompetent to carry it out, and that all such matters should be left to private enterprise. There is also much meaningless talk about what can be accomplished through co-operation. But how the co-operation of a body of men who lack both money and credit is to provide these essentials has never been explained. A conclusive answer

to all objections is furnished, however, by the success of the rural credit system financed by the State in countries where the conditions and needs are like ours, and equally conclusive evidence that no other system will answer, by the absence of a single successful system of land settlement, through the aid of either co-operation or corporate rural credit, where the conditions are like ours.

Germany, with that thoroughness and business sagacity so characteristic of the nation, did not attempt to employ the *Landschaft* or any other co-operative system in aiding German farmers to become landowners in Poland or South-west Africa. Instead, it adopted direct State action, identical in its working features with the system of New Zealand and the Australian States.

STATE TO PROVIDE

The State is the proper authority to provide the money. It is the only authority in a developing district where all men are borrowers, where values are being created, where the people are new to each other, and where they are strongly inclined to be individualistic, that can provide cheap money. And the State has reasons for doing this that do not prevail with either private or corporate enterprises. The basis of State action is the general welfare, the creation of better conditions in rural life, the bringing into cultivation of unoccupied land, increase in taxable wealth and trade and commerce. All these things are gains for the public, of which the State is the representative. The Federal Government has about \$100,000,000 invested in irrigation works. The financial return from these works and the welfare of the settlers living under them can in no way be so effectively helped as through the establishment of a State or Government Rural Credit system like that of Australia. The money for these loans in Australia comes almost entirely from savings banks. If the Federal Postal Savings Bank system in this country were changed

so as to make the interest rate $3\frac{1}{2}$ per cent and the limit of deposits \$2000, there would be an ample fund in this country with which to carry out this work.

EXPERT ADVISERS

In addition, the State has already in its experiment stations and the officers appointed under the Smith-Lever bill a body of expert advisers familiar with local conditions. It would only need an increase in their number to do all that is being done by the advisers of the rural credit system of Australia, and with the power that this system would give them, their influence would be far more potent than it now is, and the progress of agriculture correspondingly accelerated.

NOT AN EXPERIMENT

If we adopt this system we will have the experience of a number of countries to guide us. We do not have to break any new trails. It will be in no sense an experiment. It will be entrusting the creation of new communities and the shaping of their social and industrial life to the only authority which should exercise that power, and the only one that has the resources, the continuity of existence, and the disinterestedness needed to insure the results desired. There need be no fear of the ability of a State to render a direct service to the people and to do this with economy and efficiency, if the management is made non-political and placed in the hands of competent men, who have a long tenure of office. During the last 30 years I have worked for private enterprise and for the State, and it is my conviction that men will work harder for the State and in the interests of public welfare, than they will for a corporation, whose motive is profit. I am quite sure that there is no corporation in this country whose employes worked harder for longer hours or took keener interest in

their work than did the officers of Victoria connected with the management of its rural credit system. If this system is made non-political, and if in its working methods there is incorporated the safeguards that have made the Australian system so continuous and so conspicuous a success, or those incorporated in the British Columbia law, or outlined in the report of the Wisconsin State Board of Public Affairs, there need be no misgivings as to the results.

UNIVERSITY RECORD

VICTOR H. HENDERSON

The notable achievements in research of the College of Agriculture during the past year are chronicled in Dean Hunt's annual printed report for 1914-15, practically the entire report being devoted to an account of things found out. During the past two years 366 subjects have been outlined for agricultural investigation by the University of California, and definite progress achieved in 133 of these research projects.

Here are some of the things found out:

To help the plant to secure and assimilate a proper supply of nitrogen is one of the greatest needs of California agriculture, and this may be achieved by aiding the nitrifying power of the soil through plowing cover crops under for green manuring, or by the use of stable manure or low grade nitrogen fertilizers.

It has been discovered that the nitrogen of low-grade organic fertilizers is more readily worked into available form by the soil bacteria than that of high-grade materials in arid soils poor in humus.

"Little leaf," "mottle leaf," and "die-back" are apparently due to lack of available nitrogen in the soil, and the remedy is to aid the nitrifying power of the soil by cover crops and low-grade nitrogen fertilizers.

"Bitter clover" (*Melilotus indica*), when grown as a cover crop and then plowed under, has been found to enrich the soil as much as a cover crop of rye turned under plus fertilization with 1080 pounds of nitrate of soda per acre.

Alkali soils have been made to produce barley and alfalfa by using sulphuric acid.

It has been shown that thirty inches per annum to the acre of irrigation for alfalfa will on the average give the best results,

though California farmers have been injuring their soil and wasting water by using much larger amounts.

It has been proved that the temperature at which irrigation water is applied is an important matter, orange seedlings, for instance, being retarded in growth when the water is colder than 55° F. and maximum growth being attained with water at about 72° F.

The avocado has been proved more nutritious than any other fruit known.

The date palm has been shown highly resistant to alkali.

The University has grown 3500 date seedlings of ten different varieties and distributed a thousand of them.

It has been shown that "bench root" in citrus nursery stock may be reduced from 24 per cent to 10 per cent by soaking orange seed before planting.

"Sour sap" has been shown to be due to the same fungus which causes "brown rot" of lemons.

It has been discovered that half the deciduous fruit trees in California are infected with "wood rot," but shown that simple precautions to prevent infection of tree-wounds by the spores of fungi will prevent wood decay and make the profitable lives of peach orchards, for instance, twice as long as at present.

It has been found how to control "olive knot" by cutting out the knots at first appearance, and how to control "oak fungus" by trenching and the use of sulphide of carbon.

It has been discovered that the leaf-hopper transmits the previously unknown organism which causes "curly top" in sugar beets.

Lime sulphur spraying has been shown to increase the walnut crop by controlling insects and diseases.

It has been shown how to reduce depreciation in the value of lumber by better methods of kiln-drying.

Valuable evidence has been gathered as to the superiority of dwarf milo and sweet sorghum, and work has progressed in the testing and improving of many varieties of wheat, oats, barley, corn, etc.

Control of the citricola scale and mealy-bug on citrus trees has been worked out.

It has been shown that Egyptian cotton yields most when planted close instead of far apart.

The feeding of meat and fish scrap has been shown to increase profitably the production of eggs.

Various alleged methods of immunizing calves against tuberculosis have been found useless, and sometimes positively dangerous.

Prevention and cure have been found for dermatitis in horses and "smallpox" in pigs.

It was found that 102° F. is the best average temperature for incubating eggs.

A method was worked out by which any poultry-grower may quickly, easily, and cheaply vaccinate his hens so that they will be immune to chickenpox, this discovery promising to stamp out one of the most serious diseases of California poultry yards.

These are but a few of the numerous discoveries made which are of immediate use in agriculture. A very large number of other pieces of research have been carried on by members of the agricultural staff, of special technical interest as regards the fundamentals of agricultural science.

How vast is the need of agricultural research in California may be better appreciated when it is realized how few are scientific workers in arid regions where irrigation is practiced. California is as large as nine North Atlantic states put together. Yet it receives only one-ninth as much money from the United States for its experiment station work as the government spends in an equivalent area on the Atlantic Coast. It has, moreover, Dean Hunt points out, a climatic range as great as the thirteen original colonies, grows practically everything raised commercially anywhere in the United States, and its agricultural industries are highly specialized. Hence the variety of the problems pressing for solution.

GROWTH OF AGRICULTURAL TEACHING

How great has been the recent growth of the College of Agriculture is pointed out by Dean Hunt in his annual report. Only two degrees in Agriculture were conferred in 1900, the first Commencement after President Wheeler came to Berkeley. In 1915 the University conferred seventy-nine degrees in Agriculture and thirty-six certificates for completion of the three-year course in Agriculture at the University Farm School. The College of Agriculture has tripled in students in the past six years. There were only 197 in 1909 and 599 in 1915—not counting the 289 in the University Farm School. In 1915 just 143 freshmen began the four-year course in Agriculture at Berkeley, and sixty-four, of an average age of twenty, the three-year course at the University Farm; that is, 207 students of college age began the study of Agriculture under the auspices of the University.

The University now has Farm Advisers in thirteen counties. Nineteen thousand are enrolled for its correspondence courses in agriculture. The vastness of the number reached by Farmers' Institutes

is illustrated by the fact that at a recent demonstration at Kearney Park of the pruning methods which have so greatly increased the yield of the University's own vineyards there, more than eight hundred farmers spent the whole day listening and watching.

Through the leadership of the University, agriculture is now taught in sixty-eight California high schools, in thirty-one cases by graduates of agricultural colleges, and in fifty-six cases by teachers who have had farm experience ranging from one to over twenty-five years.

FARMS NEEDED FOR YOUNG FARMERS

The need of a rural credit system in California was strikingly illustrated when a questionnaire sent by Dean Hunt to the six hundred students of the College of Agriculture elicited the information that four out of five of the Seniors expected to have to begin by working for wages on graduation, while only one out of five expected to be financially able to commence farming for himself at once.

Other interesting results of these inquiries were that forty-one per cent of the agricultural students who replied reported that they had been brought up on a farm, while thirty-two per cent came to the University directly from farm homes; that the students reported an average of nineteen months of actual experience in full-day's work on the farm, even the Freshmen reporting an average of eleven months and fourteen days of full-day's work; that twenty per cent reported an intention to enter experiment station or government research work, and that sixty-five per cent declared it their definite intention to go into farming. These results were chronicled and discussed by Professor B. H. Crocheron in the December number of the University of California Journal of Agriculture published by the students of the University.

LIVESTOCK PRIZES WON

The success in livestock breeding which is being achieved at the University Farm is witnessed by the fact that the steers from the University Farm won every first and every grand championship prize for which they were entered in the livestock show of the Panama-Pacific International Exposition, eleven of these steers winning eleven first prizes and seven championships, while the wethers from the University Farm won every prize for which they were entered, including three championships.

EASTERN JOURNEY FOR BOY FARMERS

The prize of a nine-thousand-mile journey across the continent and back, lasting from October 14 to November 17, was won by twenty-nine boys in the crop growing contests held by the Boy's Agricultural Clubs organized by the University. The journey began with a visit to the University Farm at Davis, where 309 boys attended a convention at which were represented fifty-five out of the sixty-five boys' crop-growing contest clubs organized by the University. It is said that no state convention of boys' agricultural clubs has ever before been so numerous attended. After visiting the Exposition, the twenty-nine prize-winners boarded a special car for a month's journey, under the leadership of Professor B. H. Crocheron and his assistant, R. M. Hagen. They saw the three best dairy herds in America, rice fields, sugar and cotton plantations, cattle ranches, and fine examples of all the chief types of agricultural practice in America.

Thirteen distinct types of agriculture were observed—the Pacific Coast type of grain farming, at the University Farm at Davis, the semi-arid type under irrigation at Provo, Utah; the semi-arid type under biennial farming, at Lincoln, Nebraska; the humid type of farming, specializing in corn, at Ames, Iowa; the New England type of general farming, specializing in dairying and trucking; the Middle Atlantic type of general farming, in Maryland; the blue grass type of farming, specializing in fine stock, at Lexington, Kentucky; the Southern type, specializing in cotton, at Meridian, Mississippi; the Gulf type of citrus and truck farming at New Orleans; the Gulf type of sugar farming, at Adaline, Louisiana; the Gulf type of rice farming, at Crowley, Louisiana; cattle ranching in Texas, and the Pacific Coast type of citrus farming at Whittier, California.

These Boys' Clubs are proving exceedingly successful in bringing to broader knowledge and use the discoveries of agricultural science. When a boy in one of these clubs grows as many bushels of potatoes on a quarter of an acre of land as the average California yield for a whole acre, or feeds pigs scientifically, their fathers and neighbors sit up and take notice.

ENROLLMENT GROWS

Of the August and September registration of 5614 at Berkeley (exclusive of the 5364 in the Summer Session of 1915 and the 292 enrolled in San Francisco in Medicine, Dentistry, and Pharmacy), 1599 were undergraduates admitted to the University this fall for

the first time. These 1599 new undergraduates exceed by 117 the number for the corresponding term in 1914. Of the matriculants, 17.2 per cent (275) entered with advanced standing from colleges, 4.8 per cent (76) from normal schools, 2.6 per cent (42) from junior colleges. From colleges outside of California came 203 students as compared with 176 last year. Of the matriculants, 52 per cent were men. Of students coming directly from California high schools 56.8 per cent were men, while the percentage of men from California institutions of all kinds was 53.1. A larger proportion of women than of men came from the schools and colleges of other states, viz.: women, 55.7 per cent, and men, 44.3 per cent. Of the 1690 students admitted, only 24 presented less than 45 units of credit, and only three had less than 42 units of credit. Even these, however, had completed four years of high school work.

The greatest relative increase of the year has been in the Graduate School, which for the fall of 1915 enrolled 782 as compared with 661 for the corresponding half-year in 1914, a growth of 18 per cent.

During the half year beginning in August, 1915, only 113 special students were admitted to the University, as compared with 129 for the first half of the previous year. Of these 51 were men and 62 were women, and none were less than twenty-one years of age.

ADVISORS FOR FRESHMEN

The custom of dividing up all the men in the Freshman class between certain selected members of the faculty known as a corps of advisors has this year been replaced by the new experiment of having a corps of Seniors as advisors—a plan which past experience has proved to work well among the women students. Each Freshman is assigned to some particular Senior. This Senior helps to guide him through the devious mazes of interpreting the regulations and getting registered. Endeavor is made to have the Freshman feel that a Senior advisor is a friend and counsellor not merely for the opening days but for the rest of the year.

CORRESPONDENCE TEACHING FOR 24,000

The enrollment for correspondence instruction continues to grow apace. Nineteen thousand have registered for correspondence courses in agriculture, and for correspondence courses in subjects of University grade 4470. Free correspondence courses in agriculture are now being given on alfalfa-growing, the onion, barley-

growing, dairy, swine, and poultry husbandry, bee-keeping, the pear, the walnut, the almond, the olive, grape-growing, citrus fruits, home floriculture, semi-tropical fruits, the fig, adult and child nutrition, vegetable growing, and canning and preserving. The University Extension Division finds the greatest demand for correspondence courses in English, while Spanish comes second and mathematics third, enrollments up to December, 1915, being as follows: English, 1386; Spanish, 825; Mathematics, 637.

Among other subjects in which the University Extension Division gives correspondence courses are accounting, advertising, architecture, art, anthropology, astronomy, business management, salesmanship, Spanish, stenography, commercial law, journalism, free-hand drawing, mechanical and instrumental drawing, economics, electrical engineering, hydraulics, German, history, home sanitation and disease prevention, home economics, Latin, music, oral and dental hygiene, philosophy, French, Italian, Russian, Polish, stenography, typewriting, and zoology.

MOTION PICTURES

The moving picture is now a part of the work of the University Extension Division, a Bureau of Visual Instruction having been organized, with Wallace Hatch as its Secretary. This bureau is to aid schools, libraries, clubs, and other organizations to make use of moving picture films, stereopticon slides, traveling case exhibits, and other methods of appeal to the eye, as a means of instruction in scientific, historical, and industrial subjects. Many of these films and much other teaching material will be sent out free of charge, save for carriage, while a rental of a dollar a day will be charged for a wide variety of other films.

HIGH SCHOOL TEACHING STANDARDS

The Academic Senate has memorialized the State Board of Education as to the need of legislation providing that high school certificates shall be regarded as temporary or probationary until two years of creditable service has been done. A further recommendation was that all candidates for a high school certificate who, in addition to compliance with the time requirements, have satisfied with high credit the academic requirements of the State Board of Education be permitted to do their practice teaching wholly or in part in the high schools of the State, under regulations calculated to secure adequate supervision. It was recommended, further, that the State Board of Education be empowered to fix for each high school subject the minimum of preparation.

MILITARY SUMMER CAMPS

The University has co-operated with the government's policy of military summer camps for students by a decision of the Academic Senate, on September 27, that satisfactory completion of a course in such a summer camp shall earn two and one-half units of credit toward the five units prescribed as a minimum of work in the Military Department. Or such a course may count for three units of credit if taken in addition to the five units required by the University.

UNIVERSITY BUILDING BONDS SOLD

The University Building Bonds, voted by the people of California in 1914 through approval of an initiative measure proposed by the alumni, were sold on October 28, 1915, by State Treasurer Friend William Richardson at a price which will not only bring in the \$1,800,000 of their face value, but also a premium of \$51,552. They were bought by E. H. Rollins and Sons of San Francisco and Kountze Brothers of New York, the highest of many bidders, at a price of \$102.86 per share, which means that the State will really pay only 4.37 per cent interest on the total money received from the sale, at a premium, of these 4½ per cent bonds.

CAMPUS IMPROVEMENTS

From Mrs. Sather's gift moneys, \$38,000 has been allotted by the Regents for steps, balustrades, gardening, and planting about the Jane K. Sather Campanile. Included will be two broad flights of brick steps, west of the Campanile, with granite balustrades, and an esplanade, running north from the tower, planted with European sycamores.

That a charge of ten cents should be made for the use of the Sather Campanile elevator by all persons excepting members of the faculty and officers of the University was voted by the Regents on October 12.

The University Printing Office has moved to a new concrete building, approximately eighty feet square, on Bancroft way west of the new running track. Much gain in efficiency is expected from the fact that the entire composing, printing, and binding plant will now be consolidated on a single floor and that the University Press will also have offices and storeroom and mailing-room in the same structure.

During the University year ending June 30, 1915, the University Printing Office printed 5212 pages of administrative and scientific publications, besides the miscellaneous job-printing which it did for the University. Nearly a thousand pages of this was agricultural publications, and 2256 pages was "University of California Publications," appearing as sixty-three papers in seventeen different scientific series—in Agricultural Sciences, American Archaeology and Ethnology, Botany, Classical Philology, Education, Engineering, Geography, Geology, History, Mathematics, Modern Philology, Pathology, Physiology, Seismography, Semitic Philology, and Zoology. The University of California Publications are now exchanged with 1231 learned societies, institutions, etc. Last year 3048 serials were listed by the University of California Library as "received by exchange."

The University has purchased from Warren Olney, Jr., property with a frontage of 126.4 feet on the east side of Telegraph avenue, south of the Sather Gate, with a minimum depth of 107.11, at a cost of \$45,000, as a charge against the Permanent Building Fund. The property will be useful as affording access to the region of laboratories, gymnasium, and athletic fields which constitutes the Hillegass Tract.

Several handball courts will be built, with an appropriation of \$735 from the Permanent Building Fund, on the site of the old running track.

The United States Bureau of Mines has established a metallurgical branch in the Hearst Memorial Mining Building. Dr. Frederick G. Cottrell, formerly in charge of the government's metallurgical and fume work on this Coast, has now gone to Washington as Chief Metallurgist of the United States Bureau of Mines, and the local work is hereafter to be in charge of Dr. L. H. Duschak.

The storage-battery and electric system at the Lick Observatory is to be overhauled and improved at an expense of approximately \$2400.

ENDOWMENT POOL RATE

The success of the Regents' stewardship of endowments is attested by the fact that the rate of income of the Endowment Pool, in which are pooled all endowments the terms of which permit, was 5.7101 for the half-year ending June 30, 1915.

INFIRMARY CARES FOR 153 DAILY

There has been a notable increase this year in the work done by the Infirmary. A daily average of 153 students received medical advice or treatment in the Infirmary during October, which meant that 842 men and 677 women students received a total of 4744 consultations or dispensary treatments during the month. The bed cases averaged 15.2. The dispensary average for 1914-15 was 120, the bed average 13.66. The demand for service in the new dental clinic has been so great that appointments must be made many weeks in advance. The result of this provision for care of the teeth of the students, at approximately two-fifths the usual cost, is a marked lessening already of cases of rheumatism and of affections of the heart among students coming to the Infirmary for medical care.

Anti-typhoid vaccination has been administered by the University during the past two years to 1639 students and members of its faculty. This anti-typhoid vaccine, as prepared in the State Hygienic Laboratory in the improved methods developed by Professor F. P. Gay and Dr. Edith J. Claypole, is now sent free to any physician in California.

DR. CABOT URGES GROUP MEDICINE

Dr. Richard Cabot, Professor of Medicine in Harvard University, in a recent public address in Boston gave the highest praise to the Infirmary of the University of California, and argued for the development of similar systems for other communities.

"Ninety-seven per cent of the people of the United States do not now receive the efficient treatment medically they ought to have." Dr. Cabot is quoted as saying.

"If the University of California can accomplish these results," said Dr. Cabot, (after explaining that 6000 students at Berkeley have their health efficiently cared for at a total expense of only six dollars per annum each), "why, the idea can be worked out in other communities. One of the surprising things I noticed at the University of California was the apparent health of these 'patients' who visited the Infirmary. They had become accustomed to going to the doctors when disease had only a slight hold on them, and it was possible for the doctors to prevent serious complications later on. They took this precaution mainly because there was no cost to them."

Dr. Cabot declared that at the University of California Infirmary he had found the quality of the medical technique far superior to anything of its kind he had ever witnessed.

"The student patients," said Dr. Cabot, "receive the most careful, humane, and sympathetic treatment. They are not being treated as one-two-three patients, but were led to believe that the attending physician was theirs and theirs only, and this in itself went a long way toward a cure.

"If this plan is good for students, why would it not be good for the community?

"Modern medicine means group medicine. Group diagnosis, group treatment, group medicine—that is the triple force to be employed in sickness in the future. At present group treatment is offered only to a very small percentage of our people. We should make it available for all the people."

DISCRETION AS TO CONTRACTORS

The right of the Regents to use their discretion as to who is the lowest responsible bidder on contracts was again confirmed by the decision rendered by Judge Crothers, in favor of the Regents and against the Seibert Company, who had sought judicial prohibition of the execution by the Regents of a contract with the Turner Company for the heating and ventilation for the University Hospital, and with Robert Dalziel, Jr., for the power plant for the Hospital. The successful contention of the Regents was that for the work in question the firms to whom they had awarded these two contracts, rather than the Seibert Company, were the lowest responsible bidders, and that determination as to who was the lowest responsible bidder was a matter within the discretion of the Regents.

JOHN KEITH'S GIFT FOR THE HOSPITAL

Mr. John M. Keith died on April 27, 1914, after having paid \$5000 on account of his subscription of \$150,000 to the University Hospital Building Fund. His executors and heirs contested the University's claim for \$145,000 against the estate. Judge Seawell of the Superior Court of San Francisco decided the suit brought by the Regents in favor of the University. Appeal was then taken by the heirs to a higher court. Eventually Judge Seawell approved of a settlement whereby a payment of \$125,000 was made by the estate to the University, in addition to the \$5000 which had been paid by Mr. Keith during his lifetime.

KEARNEY VINEYARD PROSPERS

This year's raisin crop of 996 tons, grown by the University at Kearney Park, exceeded by 161 tons any raisin crop ever before gathered at the Kearney Vineyard, the great 5400-acre ranch near Fresno bequeathed to the University by Mr. M. Theo. Kearney. The largest raisin crop ever harvested at the Kearney Vineyard up to 1913 was 700 tons, and yet at one time the Kearney estate had nearly a thousand acres of vines, as compared with the present bearing vineyard of 698 acres, part of the former vineyard now being in alfalfa or other crops. Improved pruning methods introduced by Comptroller Ralph P. Merritt and Manager Parker Frisselle are responsible for the rapidly increasing yield of raisins. A pruning demonstration was held recently at Kearney Park. Professor F. T. Bioletti and other members of the University's agricultural staff demonstrated the new pruning methods which have shown such notable results in the University's handling of what is probably the largest raisin vineyard in America in a single ownership. More than eight hundred farmers were in attendance throughout the whole day.

The Kearney Vineyard made a profit of \$36,606.59 for the year ending June 30, 1915.

STATE HISTORICAL SURVEY

The University is to share in the important work now begun by the California State Historical Survey Commission, for which \$5000 per annum was appropriated by the last Legislature, since Owen C. Coy, for some years past a graduate student at the University, has been appointed Secretary and Archivist of the Commission, and Herbert E. Bolton, Professor of American History, one of the three members of the Commission. The other members are J. M. Guinn of Los Angeles, long editor of the publications of the Historical Society of Southern California, and as chairman, John F. Davis, Grand President of the Order of the Native Sons of the Golden West. Mr. Coy for some years past has been engaged in exploration of the local records of the Humboldt Bay region. By exploration of the records of the county, the municipalities, the government land office, old newspaper files, family papers, and the recollections of pioneers, he has found a wealth of unpublished material to tell what really was going on there in the days of the 'Forty-niners, stories of oil, mining, and timber excitements, of now vanished boom towns of the 'fifties, of the traffic along old trails, and of the spread of settlement. He is to undertake

a preliminary field survey to find just what is available in California in the way of state, county, municipal, school district, road district, government, church, and cemetery records, old publications, manuscripts in private possession, etc. He will endeavor also to co-operate with local authorities in developing better methods for the protection and care of these invaluable materials for American history.

Mrs. Mary M. Bowman of Los Angeles has been appointed Field Assistant by the Commission. She is to make her headquarters in Los Angeles and to continue her valuable researches among the family papers of various Spanish families in Southern California and in various other fields of archival work.

NATURAL HISTORY OF THE YOSEMITE

The field work has now been practically completed of the natural history survey of the Yosemite National Park to which the staff of the California Museum of Vertebrate Zoology has devoted much attention throughout the past year. It is soon to be followed by publication of the results, so as to aid the public to understand and enjoy to the full the teeming natural life of this great national playground. The richness of the bird life of California, for instance, is illustrated by the evidence recently found by Director Joseph Grinnell of the California Museum of Vertebrate Zoology that more different species of birds are known in California than in any other state in the union—many more, for instance, than in Texas, although Texas is two-thirds as large again as California. Director Grinnell lists 541 species of birds as living in California. This is 50 more species than were known thirteen years ago, and many of these additions are unquestionably newcomers, such as, for instance, Mother Carey's chicken, the water-turkey of the Mexican tropics, the Tennessee warbler, and the Louisiana water thrush.

DEATH OF MRS. LE CONTE

On October 11, at the age of eight-eight, died Mrs. Caroline Nisbet LeConte, the widow of Dr. Joseph LeConte, Professor of Geology and Natural History from 1868 to 1901, and one of the most beloved of all the men who ever taught in the University of California. Funeral services were celebrated at St. Mark's Episcopal Church in Berkeley on October 14, with a large participation of members of the faculty and alumni. Since the death of Professor LeConte, Mrs. LeConte had made her home with her son, Joseph Nisbet LeConte, '91, Professor of Mechanical Engineering.

SOME FACULTY MATTERS

President Wheeler has accepted an invitation to serve as one of the non-resident members of the newly established Riverside City Planning Commission.

Elwood Mead, Professor of Rural Institutions, has been appointed Chairman of the Rural Credit Commission created by the California Legislature at the session of 1915, and David P. Barrows, Professor of Political Science and Dean of the Faculties, has been appointed one of the four other members of the Commission. The Commission has been actively at work creating opinion in favor of a system by which the newcomer and the young man may obtain long-time credit and an opportunity to become an independent farmer.

An interesting light is thrown on the relation to the University of the Professor Emeritus by the fact that Bernard Moses, Professor Emeritus of History and Political Science, has recently published two volumes on "The Spanish Dependencies in South America"; Edward J. Wickson, Professor of Horticulture Emeritus, is continuously active in agricultural editing and writing; Professor Hilgard has continued to contribute frequently to various agricultural and scientific journals, and Isaac Flagg, Professor of Greek Emeritus, has just published a delightful verse play, "Circe"—a dramatic fantasy, rich in classic flavor, but essentially modern in its lyric optimism and its gay humor.

Lincoln Hutchinson, Associate Professor of Economics (on the Flood Foundation), has been granted additional leave of absence, from January 1 to June 30, 1916, to continue his work as Commercial Attaché of the United States in Brazil. This extension of leave was at the urgent personal request of President Woodrow Wilson and Secretary of Commerce William C. Redfield. "The work that Professor Hutchinson is doing in Brazil," wrote Secretary Redfield to President Wheeler, "is not only of great value to the present and future relations of the United States with Brazil, but is of a fundamental character not only as affects those relations but as regards the type of work possible for the present and future staff of commercial attachés all over the world. He has established by his work a standard both of the character and quality of performance which is of great value. His work is at its very height now and while he was permitted to come to us with the understanding that it was to be for one year I am writing in the hope that because of the peculiar value of his services it may be possible for you to extend his time for another year." And this request of Secretary Redfield President Wilson endorsed

in his own hand with this comment: "I most warmly and earnestly join in this prayer. It means a great deal to the public service."

To observe political, social, and economic conditions in Europe in these days of the great war, and to aid in the work of the American Commission for Relief in Belgium, David P. Barrows, Professor of Political Science and Dean of the Academic Faculties, has sought leave of absence for a half year, and from December 20, 1915, to June 30, 1916, Henry Rand Hatfield, Professor of Accounting (on the Flood Foundation), will serve as Dean of the Academic Faculties.

To aid also in Belgium, Clare Morse Torrey, Secretary to the President, has sought leave of absence from December 1, 1915, to June 30, 1916. With him to Belgium goes also John L. Simpson, Alumni Secretary in 1914-15 and since then of the staff of the California State Commission on Immigration and Housing. Newton B. Drury, '12, who was Mr. Torrey's immediate predecessor as President of the Associated Students, will receive a half year's leave of absence from his duties as Instructor in Public Speaking to serve as Secretary to the President during Mr. Torrey's absence.

The honorary degree of Doctor of Science was conferred upon Charles A. Kofoid, Professor of Zoology in the University of California, by Oberlin College at its last Commencement, in recognition of his investigations in marine biology and concerning the fresh-water plankton.

Charles E. Rugh, Professor of Education, was winner of the thousand dollar prize awarded at the recent general session of the International Congress of Education, held in Oakland, for the best essay on "The Essential Place of Religion in Education, with an Outline of a Plan for Introducing Religious Teaching into the Public School." There were four hundred and thirty-two competitors.

Dr. Wilbur A. Sawyer, Lecturer in Preventive Medicine in the University, has been appointed a member of the California State Board of Health, and Secretary and Executive Officer of the Board. For the past five years he has been Director of the State Hygienic Laboratory maintained at the University by the State Board of Health. In his new capacity he will have charge of all activities of the State in public health, including the State Hygienic Laboratory, the Bureau of Sanitary Engineering, and the Food and Drugs Laboratory, all of which have their headquarters at the University, and the Bureaus for administration, the registration of nurses, vital statistics, anti-tuberculosis work, etc., which have their headquarters at Sacramento.

PROFESSOR HOWISON ADDRESSES THE UNION

Eighty-one years of age, George Holmes Howison, Professor Emeritus of Philosophy, came as an honored guest on November 19 to address the Philosophical Union of the University of California, which he himself founded some thirty years before. His address was on "The Knowledge of Other Minds." A former member of the faculty of Washington University, the Massachusetts Institute of Technology, the University of Michigan, and Harvard University, Professor Howison in his twenty-five years of teaching in the University of California trained a distinguished body of disciples, including such men as Charles M. Bakewell, Professor of Philosophy in Yale University; Charles H. Rieber, head of the Department of Philosophy of the University of California and Dean of its Summer Session; George M. Stratton, Professor of Psychology in the University of California; Harry A. Overstreet, Professor of Philosophy in the College of the City of New York; Arthur O. Lovejoy, Professor of Philosophy in Johns Hopkins University; Ernest Norton Henderson, Professor of Education and Philosophy in Adelphi College; E. B. McGilvary, Professor of Philosophy in Johns Hopkins University; Henry W. Stewart, Professor of Philosophy in Stanford University, and Sidney E. Mezes, formerly Professor of Philosophy and then President of the University of Texas, and now President of the College of the City of New York.

This year's monthly meetings of the Philosophical Union are devoted to a study of "The Meaning of God in Human Experience," a recent volume by W. E. Hocking, now Professor of Philosophy in Harvard University, and Assistant Professor of Philosophy in the University of California from 1906 to 1907.

THE ALUMNI ASSOCIATION

One of the most notably enthusiastic and successful football banquets ever held by the Alumni Association was celebrated at the San Francisco Commercial Club on Friday evening, November 5—the eve of the California-Washington game. Oscar Sutro, '94, President of the Alumni Association, introduced Regent Charles S. Wheeler, '84, as Toastmaster, and the other speakers were as follows: President Wheeler; President Henry Suzzallo of the University of Washington; Judge W. W. Morrow, LL.D., '13; Professor George C. Edwards, '73; Frank Otis, '73; Mayor S. C. Irving of Berkeley, '79; Professor Edmond O'Neill, '79; Regent James

K. Moffitt, '86; Professor T. M. Putnam, '97; Milton H. Schwartz, '01; Douglas Brookman, '10, and Herman H. Phleger, '12.

Harvey Roney, '15, Editor last spring of the Californian, the student daily, has been chosen by the Alumni Association as Secretary and as Editor of the Alumni Weekly. He has edited the alumni journal with vigor, freshness, and success. The Regents have appropriated \$3000 as an aid to the Alumni Association in bringing up to date the list of names and addresses of the alumni, and in furtherance of the work of the association in general.

The alumnae of the classes from 1906 to 1915, inclusive, held a football dinner at Hearst Hall on the evening of November 5, with an attendance of about 150.

The Chinese graduates of the University of California who live in the region of Peking, together with various American alumni there, have organized a University of California Club of North China, under the chairmanship of Julean H. Arnold, '02, Commercial Attaché of the United States for China and Japan, and have signified their intention of presenting a silver cup to their Alma Mater as a perpetual debating trophy for an annual debate on some question pertaining to China and its various affairs.

GIFTS TO THE UNIVERSITY

Miss Annie M. Alexander gave \$3870 during the half-year ending June 30, 1915, for the support of the California Museum of Vertebrate Zoology. On June 30, 1915, the Museum contained 54,555 specimens, including 21,888 mammals, 25,495 birds, 5,558 reptiles and amphibians, and 1614 sets of birds' eggs. During the year the staff published thirty-five papers and numerous signed reviews, and other papers were published by investigators outside the staff of the Museum which were in large part based upon material in its collections.

The Babcock and Wilcox Company of San Francisco, through C. E. Weymouth, '98, has given a number of mechanical engineering books to the Department of Mechanics.

Mrs. George Baugh of Berkeley has given to the University Library forty-three volumes of special interest to students of the Bengali, Hindustani, Tamil, and Singhalese languages.

Albert Bonnheim and Fannie Bonnheim, who in 1897 created the Joseph Bonnheim Memorial Fund, and the Trustees of the Joseph Bonnheim Memorial Fund (Mr. and Mrs. Bonnheim, Harris Weinstock, H. Thorp, and W. A. Briggs) have now conveyed to the Regents preferred stock of the Weinstock Lubin Real Estate Company of a par value of \$25,000 and common stock of the same

company of a par value of \$45,000. The income is to be expended to "assist worthy boys and girls in their education at the University of California, with a view to making them self-supporting as rapidly as possible. The Regents shall use their own best judgment in making selections of the persons to receive assistance from said fund and in determining the amount to be expended for assisting beneficiaries, provided that the benefits to any one person shall not be less than \$20 per annum nor more than \$400 per annum. In selecting the beneficiaries, the Regents shall make no distinction on account of sex, race, color, nationality or religion, giving preference, however, to boys and girls between the ages of sixteen and nineteen years, but continuing the assistance after that age if in their judgment necessary to make the beneficiary self-supporting. By 'education' is meant education in its broadest sense, having in view such preparation and training as will make the beneficiary self-sustaining by whatsoever trade, profession or calling as may seem best adapted for such purpose in each case."

F. W. Bradley, '86, has made his third annual gift of a thousand dollars toward the Mining Student Loan Fund. Already twenty individuals have been aided from this fund, and there are student loans outstanding to the amount of \$2300.

The Class of 1915 has given \$1000 as the Class of 1915 Fund, the income (subject to determination of the rate by the Regents from time to time) to be paid to the class, and upon the death of the last surviving member of the class or at such date prior thereto as may be fixed by the class, the fund to be devoted to some University purpose.

Mrs. Elizabeth C. Fisk has given various Filipino weapons and Filipino articles of clothing as an addition to the Asa F. Fisk Collection in the University of California Museum of Anthropology.

The French Republic has given to the University (under the patronage of the Friends of France) the extraordinary collection of six thousand volumes of French literature, science, and art, which for the past year has been on display in the library room of the French Pavilion at the Exposition. Seldom has so remarkable a collection been brought together. The French government invited the leading French authorities in philosophy, history, philology, science, and the arts to write a chapter each on the contributions of the French people in their special fields. To each chapter was appended a bibliography of the most important French writings on the subject. With comparatively few exceptions the works mentioned in these bibliographies prepared by the most distinguished experts are a part of the great gift now made to the University Library.

A friend of the University has given \$1200 as the Edith Claypole Memorial Research Fund for 1915-16. The Edith Claypole Fellowship is this year held by Dr. Sanford B. Hooker, who is working with Dr. Frederick Parker Gay, Professor of Pathology, on the problem of treatment of typhoid with an immune serum, a new method through which Dr. Gay has succeeded in aborting typhoid fever in approximately forty per cent of cases.

A friend of the University has given \$675 to provide salary for an instructor in Neurology in the University of California Medical School until December 31, 1915.

A friend of the University has offered a loan of \$26,000, without interest, repayment to be made when University funds become available during the next fiscal year, so that a new Printing Office may be built and the old quarters of the Printing Office made available to relieve the serious overcrowding of the Department of Anatomy. The new Printing Office has been erected, in concrete, on Bancroft way, southwest of the new running track. The removal promises much gain in efficiency and economy.

The Hahnemann Medical College of the Pacific has given funds to provide a salary of \$2000 for the first year and \$3000 for the second year for Dr. William Boericke, Clinical Professor of Homoeopathic Materia Medica.

Regent Phoebe A. Hearst has given funds for the construction, for the mining museum in the Hearst Memorial Mining Building, of a replica of a model of the Homestake Mine which constituted a part of the exhibit of the Homestake Mining Company at the Palace of Mines at the Exposition.

The Knights of St. Patrick have repeated their customary annual gift of \$100 to buy Irish books for the University Library, a generosity which is building up a valuable Celtic collection, ancient and modern, in the Library.

Dr. Harry East Miller has given to the University a set of the *Illustrirte Zeitung*, from 1870 to 1912, inclusive, and over two hundred volumes of valuable chemical journals, and has expressed the intention of turning over to the University eventually his entire technical library.

Bernhard Nathan has bequeathed to the University \$5000, the annual income to be used to "assist deserving students, while at the University, with particular consideration for those of Jewish parentage." The executors of this pioneer California merchant, who, though for many years past a resident once more of his native Germany, had kept keen his interest in California life, are Mr. A. B. C. Dohrmann and Mr. H. Wiener.

Whitney Palache, '86, has created an endowment of \$10,000 for a bed in the University Hospital in memory of Mrs. Palache (Belle Garber Palache) and Joseph Baldwin Garber, Medalist of the Class of '92. For this purpose Mr. Palache has deeded to the University lots 10 and 11, in Block "E" in Claremont Court, giving full authority to the Regents to sell when and on what terms they desire.

Miss M. C. Robinson has given to the University two hippopotamus skulls in memory of her brother, the late R. H. Robinson, '75, the mining engineer.

The Rockefeller Institute for Medical Research has made a grant of \$500 to aid the researches of Professor F. P. Gay in regard to the specific treatment of typhoid.

The Sangamo Electric Company has given to the Department of Mechanics and Electrical Engineering several electrical instruments, including two water meters, an ampere-hour meter, and a Shunt-trip-circuit-breaker.

The San Jose High School has given \$125 as the San Jose High School Scholarship for 1915-16.

Mrs. J. E. Thane, the mother of Mrs. James B. Whipple, has given to the University the football used in the thirty to nothing California-Stanford football game in 1898, this trophy having been in the possession of James B. Whipple, Captain of the '99 Football Team, and at the time of his death Assistant Manager of the Alaska-Gastineau Gold Mining Company and a leading figure in the mining world of southwestern Alaska.

SELF-SUPPORT AMONG STUDENTS

That 22.2 per cent of all the men enrolled as students at Berkeley earn every dollar they spend, and that an additional 33.4 per cent are partially self-supporting has been shown by statistics gathered by Recorder James Sutton and Professor T. M. Putnam, Dean of the Lower Division. From cards filled out in August, 1915, by 2963 men, they found that 55.6 per cent of the men are earning their own way, either wholly or in large part, and from cards filled out by 2136 women students, they found that 20.7 per cent worked their own way either wholly or in part, 9.4 per cent of them relying entirely upon their own efforts.

Of the 730 young men who make their college home in fraternities or club-houses, it was found that 355 were either wholly or partially self-supporting, and 112 entirely self-supporting. Of 1087 young men who reported that they lived with their parents or relatives, 122 replied that they were wholly self-supporting.

Of the 748 young men who board elsewhere than with relatives or at fraternities or clubs, 199 reported that they were wholly self-supporting. It was found that 26.7 per cent of the men lived in fraternities or house clubs, 39.9 per cent with relatives, and 27.4 per cent elsewhere than with relatives or in fraternities or clubs. Of the women 54 per cent live with relatives, 14 per cent in fraternities or house clubs, and 24.2 per cent elsewhere than with relatives or in club-houses. It was found that 74 men and 30 women students were housekeeping for themselves as single individuals, in complete solitude, while 88 of the men and 132 of the women students are doing their own housekeeping in association with other students.

SELF-GOVERNMENT AND VERN SMITH'S CASE

With the clearing of Vern Smith by the Academic Senate from charges which the undergraduate Committee on Students' Affairs had deemed proved, and with the conferring upon him of the Bachelor's degree which he would otherwise have received last May, ends this episode in the history of student self-government in the University.

For many years all charges of cheating, disorder, or other misbehavior on the part of students have been referred to the undergraduate Committee on Students' Affairs. With most admirable earnestness, zeal for truth and justice, and painstaking care, these student committees, appointed from year to year by the President of the Associated Students, have investigated all such charges and have presented recommendations to President Wheeler as to the disposition of the case.

Last spring Mr. Smith was accused of having been found in the gymnasium dressing-rooms, where he had no locker, and accused of having been seen with his hands in the pockets of another man's garment and of having hurried off on being thus observed. Mr. Smith stated to the Committee that it was a case of mistaken identity, that he was not in the gymnasium at the time alleged, and he brought witnesses to testify to his alibi. The student committee found against him, however, and recommended his exclusion from the University. Mr. Smith then took the case into the courts, but the judges of the Alameda County Superior Court sustained the University's demurrer on the ground that he had not yet sought his proper constitutional relief by appeal to the Academic Senate. Smith thereupon made such appeal to the Academic Senate. The whole matter was

thoroughly investigated by a committee of the faculty, and the result was the vindication which he had sought.

Never before in the many years since President Wheeler gave self-government to the students of the University has question been raised by any accused student as to the essential justice of the final recommendation arrived at by the undergraduate Committee on Students' Affairs. That in this instance denial of the justice of the accusation by the student under charges resulted in a reopening of the matter, followed by a most painstaking investigation by the faculty itself, and by an eventual clearing of the student concerned, shows how carefully safe-guarded are justice and the interest of the individual student. And that only once in fifteen years has a new investigation by the faculty been even requested by a student is a great tribute to the care, fairness, and wisdom with which the students have administered through so many years this great trust of student self-government.

"BRASS TACKS" AND "STUDENT OPINION"

"Brass Tacks," a student weekly, created a teapot tempest by an editorial heatedly denouncing extremes in dancing declared by Editor Joseph H. Wadsworth to be observable at times at student dances, and by an article in the same issue by "Junius, Jr.," on "The Double Standard among College Men." "The Californian" and other student publications made rejoinder with declarations of the essential wholesomeness of the tone of morals and manners among the students of the University. "Brass Tacks" seemed in its later issues to feel that its tone of statement had been perhaps unduly heightened in color. But "Student Opinion," a weekly journal newly established by a group of students, seems to have been allured by the hubbub and stir caused by the plunge of Brass Tacks into sensationalism, and to have adopted a somewhat similar policy, with the outcome of attracting newspaper attention to its own pages, with results that aroused heated declaration on the part of the students in general that "Student Opinion" was not student opinion.

SKULL AND KEYS AND ITS RUNNINGS

On November 18 the Skull and Keys, the Junior and Senior honor society, made public the following statement, unanimously adopted at a meeting of the society on November 9, 1915, concerning its future "runnings"—the annual public portion of its initiations, staged each fall before the crowded bleachers, of an afternoon, during football practice:

“At the regular meeting of the Skull and Keys Society, November 9, 1915, the following resolutions were unanimously adopted:

“1. A committee of three members of the faculty, approved by the Students' Affairs Committee, shall supervise each running.

“2. Each part of the running shall be sanctioned by this committee before presentation in public.

“3. Any neophyte who in the opinion of the members of this committee does or says during the running anything which has not received their sanction shall not be initiated into the society.

“4. The society shall request the Students' Affairs Committee to take action against any student who does or says during the running anything objectionable.

“These resolutions were unanimously adopted by the Skull and Keys Society, in order to assure the public that there will never be a recurrence of certain objectionable features of the last annual running.

“In the past neophytes have prepared their original stunts with no supervision by the active members. The results have been such as to show the unwisdom of this plan. The advice and the instructions of the men in charge of the running have not been heeded by the neophytes.

“The Skull and Keys Society sincerely regrets it has given cause for adverse criticism. For twenty-five years the running has afforded fun for the whole University. The action which has been taken will assure the University that in future the fun of the running will never be objectionable.”

FOOTBALL AND STANFORD RELATIONS

The football season began under the heavy handicap of the necessity of learning a new game. For eight years Rugby had full sway in the University of California, and the return to the American game meant the task of overcoming all those instinctive reactions in which Rugby differs from American football. The “Big Game” of the season, with the University of Washington, on California Field, on November 6, resulted in the disastrous score of seventy-two to nothing.

In a many letter, dated November 10, James G. Schaeffer, 'ex-'09, whose record as a coach was of three football games against Stanford won, two lost, and one tied, and in baseball four won and one lost, offered his resignation. On November 10 this resignation was accepted by the Executive Committee, on the theory that the change to a new game made it advisable to seek for another year a coach whose own undergraduate experience had been wholly with the American game.

In a spirit of intense personal loyalty to Coach Schaeffer, the team, so thoroughly beaten but one week before, went to Seattle and in a return game with the University of Washington achieved the impossible by holding Washington without a score on either side until ten minutes before the close of the game, the contest ending with a score of thirteen to seven in favor of Washington.

This splendid achievement was followed by a defeat of the University of Nevada by eighty-one to six, and by a notable contest with the University of Southern California, which had had the advantage of two seasons' instead of one season's experience in the American game. This game in Los Angeles resulted in a victory for the California team by a score of twenty-three to twenty-one.

The friendly and fortunate relations established with Washington resulted in the organization of the Pacific Coast Intercollegiate Conference of which the members are California, Washington, Oregon, and Oregon Agricultural College. All members of this Conference are pledged to the principle that no Freshman shall be permitted to play on 'varsity teams.

California's breaking off of athletic relations with Stanford, which came about because of California's insistence upon the exclusion of Freshmen from 'varsity teams, has had the result of raising the athletic standards of the whole Pacific Coast.

Agreements now entered into with the University of Washington and other institutions make impracticable a return by the University of California to the Rugby game, the abandonment of which was forced by the break with Stanford over the Freshman issue, but even if Stanford does not wish to adopt the American game, it is hoped that California-Stanford competition—minus Freshmen on 'varsity teams—may be resumed in the "spring sports," such as baseball, crew, track, tennis, etc.

All the mayors of California and Washington, and their wives, were invited by Mayor Samuel C. Irving, '79, to luncheon the day of the Big Game and to attend the contest with him. Some twenty-five mayors accepted this invitation.

The annual football show was celebrated, on the evening of the Washington-California game, in the Harmon Gymnasium, as a fortunate change from the old custom of having the football show in San Francisco.

Seventy men came out this fall for soccer, as compared with forty-two the previous season.

The Freshman football team on October 30 defeated the University of Nevada 'varsity by thirty-nine to seven.

THE TRACK EMBLEM

With the interruption of track competition with Stanford, it was necessary to decide upon a new method of awarding the Big "C" to track athletes. In the past the winning of a point in the California-Stanford track meet has entitled the track man to the coveted emblem. At the instance of Track Captain T. L. Preble, the Big "C" Society has decided that hereafter the Big "C" shall be conferred upon track men who score a total of six or more points in any two of the three big meets of the year, these colleges to be designated by the Executive Committee. It is believed that the new system will allow more men to compete for their letters, without lowering standards of time and ability.

The Big "C" Society, at the request of various organizations, and also of the Department of Physical Education for Men, has assumed control of intramural sports, and will furnish officials, draw up schedules, and assume general supervision of inter-organization tournaments, not only in baseball, track, and basketball, but also in boxing, wrestling, tennis, etc.

INTERFRATERNITY COMPETITIONS

In the interfraternity track meet Sigma Pi on October 28 was winner over twenty-six fraternities and clubs, its score being twenty-six as compared with fifteen and a half for Theta Chi, its nearest competitor among the fraternities, and fifteen for the Casimir Club, which was the first house club.

Delta Chi, having won the baseball championship of the fraternities, defeated Bachelordon, winners of a similar contest among the house clubs, by a score of five to three on November 21.

SOME OTHER UNDERGRADUATE MATTERS

A reasonable ability to read and write at least one foreign tongue must be demonstrated by passing the "Subject B" examination before the Junior Certificate can be won. Of 1054 students who took this examination in the fall of 1915, only 55 per cent passed; this is the highest average yet reached. Of those passing, 59 per cent were women and 51 per cent men. In January, 1915, 41 per cent passed; in October, 1914, 51 per cent; in January, 1914, 49 per cent. In the last Subject B examinations, 422 took the examination in German and 320 in French, and 55 per cent passed in each subject. Of 218 taking the test in Spanish, 62 per cent

passed; of 83 in Latin, 40 per cent; of 8 in Italian, 75 per cent; of 3 in Greek, 2 passed and 1 failed.

There is a class in the University in the writing of verse, conducted by Leonard Bacon, Instructor in English. Now for the second time a little volume has been printed containing the fruits of this adventure. This "California Book of Undergraduate Verse," issued jointly by the English Club, the Occident, and the University, has the glow of youth, sincerity, and vigor, and an excellence of form which attests that training is of value in the art of verse just as it is of value in the other arts. The contributors to the volume are Frederick Schiller Faust, '15; Sidney Coe Howard, '15; Joseph McMorrow, '18; Helen Campbell, '17; Jewell Parrish, ex-'16; Hazel Havermale, '16; and Leslie Bates, '15.

Mr. Henry Ford having invited the University of California to be one of some fifteen different American Universities to send one representative each from the student body to join his peace mission to Europe, President Wheeler designated as the student representative of the University Mr. Paul Fussell, '16, one of the five students chosen to Phi Beta Kappa as Juniors from the Class of 1916. Just a few days before his appointment—on November 20—Mr. Fussell had won the Bonnheim Upper Division Discussion Prize by an admirable public discussion of the theme: "The value of a league of nations in the Western Hemisphere pledged to united action against any member that attacked any other member save by authority of the league."

The Associated Women Students, by a vote of 309 to 41, adopted an amendment to the constitution providing that no elective or appointive officer of the Associated Students of the University of California, nor member of any affiliated committee or organization, shall be or become during her term of office a member of any secret society other than a Greek letter society, house club, or scholastic or departmental honor society.

After this amendment had been proposed, but before it came up to be voted on, Torch and Shield, an organization formed a number of years previously, and consisting of a few of the chief leaders among the women in each Senior class, made for the first time public announcement of the names of its members, of its constitution, and of its purpose—to promote the best interests of student life among the women of the University—by such announcement ceasing to be a secret society.

To aid toward enjoyment of the opportunities of "college life" by women students whose home is in San Francisco, the Associated Women Students have made definite arrangements by which such

women students may at any time find accommodations over night in various women's fraternities and house clubs.

Maude Meagher, '17, won the annual competition for the "Parthenaia"—the "Masque of Maidenhood"—produced every spring in the Faculty Club Glade by the women students. Her dramatic poem is entitled, "Aranyani of the Jasmine Vine." Miss Meagher played the leading role of Margot in the 1915 Parthenaia, "The Queen's Masque," by Mary Van Orden, '06. Honorable mention was given to "The Mask of the Dawning" by Gladys Kreamer, '17, to "Amaryllis and Anemones," by Ruth Doggett, '19, and to "Magic Flower," by Monica Flannery, '16.

The women students interested in journalism have organized the Istye Club, its charter members being Leslie Wilde, '15, President; Elsie McCormick, '16, Vice-President; Francis B. Brown, '17, Secretary-Treasurer; Hazel Havermale, '16; Marion Hook, '16; Jean Watson, '16; Anna Barrows, '17; Carol Eberts, '17; Esther Kittridge, '17; Algeline Marlow, '17, and Anne Wharton, '17; honorary members: Professor Jessica Peixotto and Deborah Dyer, '14.

Osgood Murdock has been chosen editor of the Californian for the spring of 1916, and Robert Blake as its managing editor.

John Bruce, '17, has been appointed managing editor of the Occident, which means that for 1916-17 he will succeed Miss Hazel Havermale, the present editor.

D. T. Carlisle has been chosen editor of "Brass Tacks" for the spring of 1916.

The Class of 1915 has appointed, through President J. S. Brown, an "Insurance Plan Committee," whose function is to work out a plan for insuring the lives of members of the class in favor of the University, so that a fund may eventually be created as endowment for the University and as a memorial to the class.

President J. S. Brown of the Class of 1915 appointed as Governors of Senior Hall H. H. Spindt and M. E. Hazeltine; as Chairman of the Committee on Senior Assemblies, C. H. Straub; as Chairman of the Extravaganza Committee, Lloyd N. Hamilton, and as members of the Insurance Plan Committee, W. B. Augur, T. E. Gay, W. H. Falck, J. L. Reed, D. L. Preble, J. C. Witter, A. C. Johnson, and B. E. Shaub.

Alpha Zeta, the agricultural honor society, has initiated M. A. Rice, '16; W. B. Saunders, '16; J. W. Adriance, '17; W. A. Graham, '17; A. F. Hall, '17; P. J. Hartley, '17; W. D. Norton, '17, and B. M. Stafford, '17.

Beta Gamma Sigma, the economics honor society, has initiated S. M. Arndt, Homer L. Havermale, M. E. Hazeltine, W. A. Reynolds, and O. P. Smith.

The Press Club has initiated L. N. Hamilton, '16; H. B. Seymour, '17; D. T. Carlisle, '16; Percy Mills, '16; W. Elam, '17; C. J. Carey, '17; Marshall Maslin, '17, and Preston Hotchkiss, '16.

Skull and Keys, the Junior and Senior honor society, has initiated the following named: E. G. Stricklen, Newton B. Drury, and James Fisk from the faculty; and from the student body, Benjamin Alexander, Guy Witter, James C. Candee, Cecil H. Straub, Percy A. Mills, Preston Hotchkiss, James Clune, Edwin Stanton, Bradley Crow, Lyman Heacock, Aloysius Diepenbroek, Warner Chadbourne, Ernest Camper, T. P. Lane, C. D. Lane, Carlyle Prindle, Frederic Janney, Willis Montgomery, Marshall Madison, Joseph Moody, Ludwig E. Langer, F. B. Hulting, Springer F. Evans, Dickson Maddox, Richard McLaren, James Bequette, Chris Momson, Harry Seymour, Roger F. Goss, Douglas Cohen, Osgood Murdock, Luther Nichols, Floyd Stewart, and Donald Campbell.

Tau Beta Pi, the engineering honor society, has initiated the following named: Alumni, C. H. Snyder, H. C. Vensano, and Dr. B. M. Woods; Seniors, Clinton de Witt, C. H. Foulds, W. L. Haker, C. A. Hancock, B. J. Heffner, F. J. Hoenigman, J. V. Johnson, W. D. Lowry, T. C. McFarland, H. N. Pratt, and R. M. Steed.

Theta Tau, the geological honor society, has initiated B. E. Darke, '15; Samuel Adair, '16; L. J. Brunel, '16; E. M. Butterworth, '16; O. A. Cavina, '16; W. B. Miller, '15; A. R. May, '17, and Roy Starbird, '17.

APPOINTMENTS

Clinical Professor of Homoeopathic Materia Medica, William Boericke, from September, 1, 1915.

Professor of School Administration, William Webb Kemp, from September 1, 1915.

Acting Associate Professors: Leroy Abrams, Botany, from August 1 to December 31, 1915; R. Ruggles Gates, Zoology, from October 15, 1915, to June 30, 1916.

Lecturers: Herbert Stanley Shuey, Economics, from January 1, 1916; Arthur Robinson Williams, Mathematics, from July 1, 1915; Jean C. Gontard, Romanic Languages (in the University Extension Division), from September 14, 1915.

Instructors: W. F. Meyer, Astronomy, from January 1, 1916; John Jay Parry, English, from July 1, 1915; J. A. Magni, French, from July 1, 1915; Joseph F. Paxton, Greek and Latin, from

August 1, 1915; James Craig Neel, Obstetrics and Gynecology, from August 1, 1915; Robert Emmett Harmon, Physical Education (in the University Farm School), from September 1, 1915.

Instructors in the University Extension Division: Clyde I. Blanchard, Business Economy, from September 1, 1915; Deborah Dyer, English, from August 15, 1915; Edgar Sullivan, Journalism, from September 14, 1915.

Edith Claypole Research Assistant in Pathology, Sanford B. Hooker (for researches in typhoid with Professor Gay), from September 1, 1915.

Research Assistant in Pathology and Physiology (on a grant from the Hooper Foundation for Medical Research), Carl L. A. Schmidt, from July 1, 1915.

Resident Fellow in History, at Seville, Spain, Joaquin de San Leandro.

Teaching Fellows: E. S. Thomas, Geography, from August 1, 1915, to May 31, 1916; Ferdinand John Neubauer, Astronomy, from August 1, 1915; Edwin Kent, Mathematics, from July 1, 1915; Charles Donald Shane, Mathematics, from July 1, 1915; Clifton Edgar Brooks, Political Science, from July 1, 1915; Charles E. Martin, Political Science, from July 1, 1915.

Assistants: Walter William Wobus, Agricultural Education; E. R. Utter, Astronomy, from September 1, 1915; Helen Margaret Gilkey, Botany, from July 1, 1915; H. N. Cooper, Chemistry, from September 1, 1915, to January 1, 1916; H. J. H. Levinson, Chemistry, from July 1, 1915; Leona Esther Young, Chemistry, from July 1, 1915; F. C. Mills, Economics, from August 1, 1915, to May 30, 1916; Clara Mortensen, Economics, from August 1, 1915, to May 30, 1916; L. B. Smith, Economics, from August 1, 1915, to May 30, 1916; Elmer Ralph de Ong, Entomology, from October 1, 1915; Ludwig Augustus Emge, Obstetrics and Gynecology (Resident at the University Hospital), from August 1, 1915.

LEAVES OF ABSENCE

Samuel Jackson Holmes, Associate Professor of Zoology, for 1915-16.

Willis Linn Jepson, Associate Professor of Dendrology, from September 1 to December 31, 1915.

Walter I. Baldwin, Instructor in Orthopedic Surgery, from September 13, 1915, to October 31, 1915.

RESIGNATIONS

Assistant Professor of Veterinary Science, W. J. Taylor, from August 31, 1915.

Instructors: Seth B. Nicholson, Astronomy, from August 31, 1915; F. J. Nickels, Insect Industry, from August 31, 1915; Faith Hunter Dodge, Romanic Languages (University Extension Division), from August 21, 1915.

Assistants: H. M. Butterfield, Agricultural Education, from August 31, 1915; O. E. Cushman, Chemistry, from July 1, 1915; B. F. Havens, Poultry Husbandry, from August 31, 1915.

UNIVERSITY MEETINGS

September 6—Regent Chester H. Rowell, Editor of the Fresno Republican and member of the California State Commission for the Panama-Pacific International Exposition, and Major General George W. Goethals, builder of the Panama Canal.

September 10—Fred H. Jung, Grand Secretary of the Native Sons of the Golden West, and Henry Morse Stephens, Sather Professor of History.

September 24—Hon. Myron T. Herrick, formerly Ambassador to France, and Charles Mills Gayley, Professor of the English Language and Literature.

October 8—Charles K. Field, editor of *Sunset Magazine*, and Alfred Holman, editor of the *San Francisco Argonaut*.

October 22—Elwood Mead, Professor of Rural Institutions, and J. H. Hammond.

November 5—Oscar Sutro, '94, President of the Alumni Association; John H. Finley, Chancellor of the University of the State of New York, and Henry Suzzallo, President of the University of Washington.

November 19—Mrs. George Riggs (Kate Douglas Wiggin), and Rear Admiral William Fullam, Commander of the Pacific Coast Reserve Squadron.

LECTURES AT THE UNIVERSITY

September 1—William Howard Taft, twenty-seventh President of the United States and Kent Professor of Law in Yale University, "The Presidency: Its Powers, Duties, Limitations, and Responsibilities." (These lectures were given in the Greek Theatre at the invitation of the Pacific Theological Seminary and the University of California.)

September 1 and 2—Horace M. Kallen, Instructor in Philosophy in the University of Wisconsin, "Hebraism and Democracy."

September 2—Professor Edmund Kemper Broadus, head of the Department of English in the University of Alberta, "The Development of the Office of Poet Laureate."

September 3—Professor William Howard Taft, "The Presidency; its Powers, Duties, Limitations, and Responsibilities."

September 4—Dr. John Mez, President of the Corda Fratres of the Cosmopolitan Club, and Dr. Jacob Loewenberg, Instructor in Philosophy, "Supernationalism." (Before the Cosmopolitan Club.)

September 7—Harry Beal Torrey, Professor of Zoology in Reed College, an address before Beta Kappa Alpha.

September 7—Ira B. Cross, Assistant Professor of Economics and Member of the National Commission on Prisons and Prison Labor, "Conditions in California Prisons." (Illustrated with the stereopticon.) (Before the Associated Pre-Legal Students.)

September 11—Jack London, ex-'00, the novelist. (Before the Press Club.)

September 16—Dr. William T. Hornaday, Director of the New York Zoological Park, "Shall we Increase our Big Game on a Food Supply Basis?"

September 24—Professor J. W. Buckham, of the Pacific Theological Seminary, "Religion as Experience." (Before the Philosophical Union.)

September 28—Dr. Danjo Ebina, Pastor of the Hongo Congregational Church at Tokio, Japan, "Relations between Japan and the United States."

September 29—Alfred Holman, Editor of the Oakland Tribune (before the University of California Press Club).

September 30—Dr. A. Foucher, Professor of Sanskrit in the University of Paris, "Angkor."

October 2—Dr. John Mez, President of the Corda Fratres of the Cosmopolitan Club, and V. S. Karr, Vice-President of the Cosmopolitan Clubs of America, "Cosmopolitanism and the Peace Movement." (Before the Cosmopolitan Club.)

October 10—International Peace Congress, in the Greek Theatre. Rev. Francis J. Van Horn, pastor of the First Congregational Church of Oakland, presided. Speakers: Addresses of welcome by Regent Chester H. Bowell, in behalf of Governor Hiram W. Johnson, and Mayor S. C. Irving of Berkeley; response by Arthur D. Call, Secretary of the American Peace Society; David Starr Jordan, LL.D., Chancellor of Leland Stanford Junior University, "The Way of Lasting Peace;" Rev. Frederick Lynch, D.D., Secretary of the Church Peace Union, New York, "What Makes a Nation

Great?"; James A. McDonald, LL.D., Editor of the "Toronto Globe," Canada, "Internationalism and Democracy"; Rev. Matt S. Hughes, D.D., pastor of the First Methodist Church, Pasadena, "The Patriotism of Peace."

October 13—Dr. F. P. Laney, Geologist of the United States Bureau of Mines, "The Microscope in Chemical and Mineral Technology."

October 20—Ng Poon Chew, Editor of Chung Sai Yat Po, the San Francisco Chinese daily paper. (Before the University of California Press Club.)

October 20—Carlos Morbio, "Experiences as a Law Student at Columbia." (Before the Pre-Legal Association.)

October 27—J. W. Swaren, of the Pelton Water-wheel Company, "Hydraulic Engineering." (Before the student branch of the American Association of Mechanical Engineers.)

October 27—H. T. Carrell, of the Solway Process Company, "A Description of the Alkali Industry; the Retort Coke Oven and its Products." (Before Phi Lambda Upsilon.)

October 29—Clarence Irving Lewis, Assistant Professor of Philosophy, "Religious Feeling and Religious Theory." (Before the Philosophical Union.)

November 3—R. S. Minor, Associate Professor of Physics, "The Nature of Optical Images."

November 3—Alfred Forke, Agassiz Professor of Oriental Languages and Literature, "Chinese Architecture."

November 4—Dr. Saxton T. Pope, Instructor in Surgery, "The Results of Thirty-five Transfusions," and Dr. Frederick P. Gay, Professor of Pathology, "The Treatment of Typhoid Fever by Intravenous Injection of Sensitized Vaccine." (Before the University Hospital Medical Society.)

November 10—David P. Barrows, Professor of Political Science and Dean of the Faculties, "Economic Conditions in Mexico." (Before Tau Beta Pi.)

November 11—Professor Alfred Forke, "Chinese Architecture."

November 17—Charles Coleman, City Editor of the San Francisco Examiner and Kenneth C. Beaton ("K. C. B.") (Before the University of California Press Club.)

November 17—W. P. Roop, Instructor in Physics, "Water Waves."

November 19—Judge William W. Morrow, LL.D., of the United States Circuit Court of Appeals, an address on the legal proceedings in the cases which formed the basis of Rex Beach's novel, "The Spoilers."

November 19—George H. Howison, Professor of Philosophy, Emeritus, "The Knowledge of Other Minds." (Before the Philosophical Union.)

November 23—Dr. Stephen S. Wise, Rabbi of the Free Synagogue, New York.

November 29—Judge William W. Morrow, "The Spoilers."

READINGS FROM GREEK PLAYS

James T. Allen, Associate Professor of Greek, gave a series of public readings from Greek plays, as follows: October 13—The "Agamemnon" of Aeschylus (translation of Dr. Walter Headlam); October 20—The "Libation-bearers" of Aeschylus (translation of Professor John Stuart Blackie); October 27—The "Oedipus the King" of Sophocles (translation of Professor Gilbert Murray); November 3—The "Philoctetes" of Sophocles (translation of Sir George Young); November 10—The "Frogs" of Aristophanes (translation of Professor Gilbert Murray).

LECTURES OF THE MUSEUM OF ANTHROPOLOGY

At the Museum, on Parnassus avenue, San Francisco, on Sunday afternoons.

September 5—Dr. Paul Radin, Secretary of the Southwestern Anthropological Society, "The Main Religious Concepts of the North American Indians."

September 12—Dr. Paul Radin, "Spirits and Deities of the North American Indians."

September 19—Dr. Paul Radin, "The Religion of the North American Indians—Fasting and Guardian Spirits."

September 26—Dr. Paul Radin, "The Religion of the North American Indians—Magical Practices."

October 3—A. J. Eddy, Assistant Professor of Civil Engineering, Assistant in Military Science and Tactics, and Major of the University Cadet Corps, "Military Instruction in Our Schools and Colleges."

October 10—J. Marius Scammell, Teaching Fellow in Anthropology, "Greek Military Tactics."

October 17—J. Marius Scammell, "The Byzantine Army."

October 24—W. D. Wallis, Instructor in Anthropology, "Messianic Religions."

October 31—T. T. Waterman, Assistant Professor of Anthropology, "The Missing Link between Man and the Ape."

November 7—E. W. Gifford, Associate Curator of the Anthropological Museum, "The Prehistory of the San Francisco Bay Region."

November 14—E. W. Gifford, "The Prehistory of the Santa Barbara Islands."

November 21—T. T. Waterman, "The Prehistory of the Humboldt Bay Region."

THE HALF-HOUR OF MUSIC

In the Greek Theatre Sunday afternoons.

September 5—Compositions of Mrs. Alma A. Crowley, presented by Mrs. J. O. Lofquist, soprano; Miss Lucy Van De Mark, contralto; C. H. Oliver, baritone; and Miss Alice Davies: accompanied by Mrs. Crowley.

September 12—Miss Ruth Hayward, soprano, Curtis Armstrong, accompanist; and Mast Wolfsohn, '16, 'cellist, and J. Hal Barker, '18, accompanist.

September 19—Miss Nellie Laura Walker, soprano, Miss Constance Estcourt, accompanist; and Walter Handel Thorley, pianist.

September 26—Compositions of Mr. Arthur Fickenscher, presented by Mrs. Edith Cruzan Fickenscher, soprano; Miss Mary Elizabeth Payne, soprano; Mrs. Jessie Burns Stoll, mezzo-soprano; Mrs. Emma Mesow Fitch, contralto; Miss Ruth Crandall, contralto; Miss Helen Baum, contralto; Mr. Carl Basler, tenor, and a chorus of thirty-five female voices (Arthur Fickenscher, accompanist).

October 3—Mme. Louise Brehany, soprano, Elbert Cowan, accompanist; and Mast Wolfsohn, '17, 'cellist; H. Kenneth Fox, '16, violinist; and J. Hal Barker, '18, pianist.

October 17—Compositions of Count Axel Raoul Wachtmeister, presented by Mrs. Marion Hovey Brower, soprano; Miss Dorothy Pasmore, 'cellist; Lowell Moore Redfield, baritone, and Arthur Gundersen, violinist, accompanied by the composer.

October 24—Compositions by Edward G. Stricklen, Instructor in Music in the University, presented by the composer as piano transcriptions of the orchestral originals.

October 31—Students from the California School for the Deaf and the Blind, including Rolland Harter, pianist; Miss Frances Phillips, Miss Marguerite McAtee, Alfred Kloess, and Rolland Harter, Vocal Quartette; Miss Martha Dean, violinist; Miss Bernice La Flamme, pianist; Miss Marian Shorten, soprano; Alfred Kloess, pianist; and Miss Martha Dean, Miss Anna Schumacher, Rolland Harter, and Alfred Kloess, string quartette.

November 7—"Terpandros," a mandolin orchestra of Greek musicians, in a programme of music by Greek composers, under the leadership of Mr. Spyridon Safrides; Mrs. Fox, accompanist.

November 14—Miss Margaret Browning, violinist, and Miss Berenice Browning, accompanist.

November 21—Miss Roxana Weihe, pianist.

November 28—Mrs. Silas Thomas Westdahl, soprano; Miss Willean Davis, pianist; and Mrs. Cedric Wright, violinist.

OTHER MUSICAL AND DRAMATIC EVENTS

September 4—"Iphigenia in Aulis," by Euripides, presented by Margaret Anglin in the Greek Theatre, the music composed and conducted by Mr. Walter Damrosch.

October 8—Concert in the Greek Theatre by Fritz Kreisler, violinist, and a symphony orchestra under the leadership of Choragus Paul Steindorff.

October 14—"Keeping it Dark," the annual Treble Clef opera, with music and libretto by Theodore Edward Haley, '15.

October 16—"Prunella," by Granville Barker and Laurence Housman, presented in the Greek Theatre by the English Club.

November 26—"Thumbs Down," the Junior Farce, by R. E. B. Bower, '17, and "A Troubled Night," the curtain raiser, by Ruth Kinkead, '17, and Carol Eberts, '17, at the Oakland Civic Auditorium.

November 30—Madame Johanna Gadski, dramatic soprano, of the Metropolitan Opera, New York, accompanied by Mr. Paul Eisler. (Before the Berkeley Musical Association.)



E. W. Hilzorey

UNIVERSITY OF CALIFORNIA CHRONICLE

VOL. XVIII

APRIL, 1916

No. 2

ADDRESSES AT MEMORIAL SERVICES IN HONOR OF DR. E. W. HILGARD, UNIVERSITY OF CALIFORNIA, JANUARY 30, 1916

ADDRESS BY E. J. WICKSON
Professor of Horticulture, Emeritus

We are assembled today not to mourn over a life that was long and good but to be thankful for it; not to be sad that such a life was an environment of our own but to be glad of it; not to stand in inexpressible wonder in what remote and glorious sphere such a life is now continuing, but to lay firmer hold upon that part of it which was the endowment of our own lives, of the lives of this institution, of the State and of the world. For, without yielding aught of the claim to transcendental glories, which both true reason and revelation place in the western horizon of such a life, we may doubt or forget the remoteness of its glorification. For myself it is impossible to think that Hilgard has really departed for a far country. To me he is still here, loving and revering his God, laboring for the good of his fellowmen, enjoying the companionship of his friends and his loved ones—still here, alert and tireless in work; full of strength and grace in thought and speech; cordial, considerate and delightful in associated effort. I still think of Hilgard as many of us have known him for decades and, in this undertaking to lead you in glad admiration and remembrance of him, I shall speak of him as I used to speak to him; for we lived together through times and conditions which made it necessary to discuss frankly, not only the fundamental reasons for positions assumed, but methods of

thought, attitudes, forms of expression, ways to force and ways to win approval and support from a firmament of authority which sometimes frowned and from a constituency which sometimes scowled and swore.

Through all such storms of adversity Hilgard came in due time into the full sunshine of enthusiastic approval and support, by the truth and talent which were in him, by the work that was in him and by the beautiful light of love for his fellowmen which twinkled in his eye and shone, full-orbed, in his smile. As I ask you to remember and honor him, how can I think of him as now remote; how can I think of his earthly life as over when I see that it will always continue in the activities of this institution which will live to the last day of mankind. It is therefore only one phase of an entity which will endure, of which I speak to you and, if I can speak at all truly, that phase will appear to you unique; abounding in gladness of heart but unswerving in tenacity of purpose; unremitting in labor and never depressed or appalled by its requirements; full of learning, both old and new, and fruitful in accomplishments beyond the usual achievement of even those accounted among the most efficient of men.

A BIOGRAPHICAL OUTLINE

Eugene Woldemar Hilgard was born January 5, 1833, at Zweibrücken, in Rhenish Bavaria, the son of Theodore Erasmus and Margarethe Hilgard. His father was a lawyer, holding the position of chief justice of the court of appeals of the province. Judge Hilgard, having been born and educated under the shadow of the French Revolution, and being of pronounced liberal views, stoutly opposed the supercedence of the Code Napoleon by the illiberal laws of the old regime. In 1836, when at the fullness of a successful career, he determined to emigrate to America with his family and settled on a farm at Belleville, Illinois. As the public schools of that day were quite primitive,

Judge Hilgard personally undertook the preparation of his sons for entrance to the universities. Eugene was in readiness in 1849 and in that year returned to Germany to attend the University of Heidelberg—graduating with honors and a doctor's degree in 1853. This degree was re-issued to him in 1903 as a "golden degree" in recognition of half a century's good work for science. He studied also at Zürich, and at Freiberg in Saxony. After graduating in 1853 he visited Spain and met Miss J. Alexandrina Bello, daughter of Colonel Bello of the Spanish army, whom he married several years later. Returning to America, he began geological exploration work in Mississippi in 1855 and was appointed state mineralogist of that State in 1858. In 1860 he revisited Spain, married Miss Bello and resumed his work in Mississippi in November of that year. During the intervention of the Civil War he pursued the chemical work required by the Southern Confederacy. In 1866 he was chosen professor of chemistry in the University of Mississippi—then professor of geology, zoology and botany. In 1872 he left Mississippi to take a position on the faculty of the University of Michigan, but remained there only two years, when he was called by the Regents of the University, to California in 1874. While developing agricultural instruction in the University, he proceeded with research work immediately after his arrival in California and published his first results in 1877. His work in the investigation of soils in connection with their native vegetation, of the influence of climate on the formation of soils and especially of the nature of "alkali soils" and their reclamation, a problem quite new not only in this country but in other arid regions, achieved for him a reputation as wide as the world of science. It brought him recognition on numerous occasions. Mississippi, Columbia and Michigan universities, as well as the University of California, have bestowed the Doctor of Laws degree upon him. The Academy of Sciences of Munich presented him with the Liebig medal for distinguished achievements in the agricultural sciences and

the international exposition at Paris, in 1900, gave him a gold medal as a collaborator in the same research.

Soon after coming to California he directed the agricultural division of the northern transcontinental survey. From 1879 to 1883, in connection with his university work, he assumed charge of the cotton investigation of the census of 1880 which he projected and carried out on a broader plan than ever before been undertaken. During the whole period of his academic career Professor Hilgard was constantly active in authorship. In addition to formal reports and memoirs, he wrote much for agricultural and scientific periodicals. His greatest book is *Soils of the Arid and Humid Regions*. The simpler form of this work is *Agriculture for Schools of the Pacific Slope*, undertaken in collaboration with Professor Osterhout, formerly of the University of California.

In 1892 he revisited Europe and was received with distinguished honor by his colleagues in science in the German universities and experiment stations, and by invitations to deliver public addresses on the subjects in which he had made his chief achievements.

Since 1910 Professor Hilgard's advanced age rendered him unequal to the pursuit of extensive tasks. He maintained, however, his membership in several scientific societies and was vitally interested to the last in investigations connected with his science.

Professor Hilgard met with two great bereavements during the active period of his life—the loss of an only son in 1889, and, in 1893, the loss of his wife. He is survived by two daughters, Marie Louise and Alice Hilgard, who have been to him sources of great joy and delightful companions during his declining years—giving him such care as all good fathers deserve but few perhaps receive. Professor Hilgard's home and social life were exceptionally pleasant and inspiring, and personally he endeared himself to the whole community, which gave him true love and abundant honor.

HOW HILGARD CAME TO CALIFORNIA

Instruction in agriculture in the University began briskly in 1870 with a thorough course on fruit growing in the Garden of Eden, passing spiritedly to grain growing in Egypt and the conditions surrounding the corner in sorghum which Joseph contrived for Ramses II, pausing to look carefully into the dairy practices of the Scythians, and was rapidly approaching the relatively modern cabbage growing of Cincinnatus when, as tradition declares, both instructor and pupils fell asleep while pursuing dry-farming by the encyclopedestrian method of teaching. A situation was created thereby, and a change in point of view of agricultural instruction in this institution was decided upon.

The historical, social, and political aspects of farming, though dear to the farmers of half a century ago because they seemed to minister directly to the advancing social dignity and political power of their occupation, were discerned by far-seeing men not to approach the fundamental needs of farming, in increasing and improving production and the greater prosperity presumably attainable through better understanding of farming materials and methods of their economic relations. It was revealed to many at that time, if not widely recognized by farmers themselves, that science could do more for farming than tradition; that the mainspring of rational farming was natural science; that the way to improve farming was to put more force into the mainspring.

This truth dawned broadly half a century ago, following the streamers of light which had for decades portended its arising. It was a world condition, but I speak only of California's share of it. The enlistment of science as an aid to agriculture was effected by an initiative within the University and not from those then most prominent in the farming industry of the State—in fact, there was some resentment that an earlier instructor who had impressed

them as "practical" should be displaced in the interest of science.

From its own point of view, the University had no difficulty in deciding that Hilgard was the proper choice for Professor of Agriculture in this institution and that he was fully trained and equipped. Was he not a master in the classics and endowed with all the graces and disciplinary forces of the real learning of the world? Had he not received *summa cum laude* from the highest fountain of natural science in Germany? Was he not panoplied by the great Liebig? And had he not demonstrated his personal power in research and exposition by exalting the state of Mississippi into the first rank of states which knew their geology to the very bottom of it and had he not advanced Mississippi even beyond others of its rank by tracing its soils to the rocks whence they came, by ice, wind and water, to the piercing by the plow? Surely all these things were true and their force fully realized by the University faculty. The professors of science of the University demanded Hilgard and the Regents elected him, counting it, from their point of view, a good business stroke, because he could not only teach agriculture but all the sciences underlying it which were not otherwise provided for in the existing faculty. Thus the older sciences held out their hands to agriculture, then the youngest of their group, and Hilgard came to the University in the winter of 1875.

HOW HILGARD BEGAN HIS WORK

Of the many and various problems which faced Hilgard at the beginning of his work in the University of California, I select three which, at this moment, seem to give the best clue to the masterfulness of the man and fullest understanding of the breadth and depth of his success:

First: the conciliation and conquest of his farming constituency, by demonstration of practical and indispensable value in the work he could do.

Second: the enforcement of recognition of agricultural studies as entitled to the dignity of higher learning and as possessed of pedagogic value.

Third: the securing of funds to pursue research, which alone could yield truth about natural conditions affecting California farming, and to increase his working force—without which he could neither get the truth nor teach it, in its several branches and applications.

To present to you even outlines of Hilgard's complete or progressive solution of these three problems would require a volume, so deep did he delve into the underlying facts and causes and so far and high did he pursue effects and influences. As I look back over the forty years of my observation of his work, I see him, arraigned before four bars of public opinion: the farming population, the faculty of the University, the Regents of the University, and the legislature of the state, and I see him pleading soundly, patiently and successfully at all these tribunals: securing, finally, not only the consent but the enthusiastic support of all of them in the pursuit of his undertakings. Let me briefly support that declaration.

Hilgard's conciliation and conquest of his constituency was the first and the easiest of his victories. I have mentioned the resentment caused among the leaders of a farming organization by the retirement of his predecessor. It was not a personal resentment because all knew that Hilgard had neither knowledge nor participation in it, and yet any follower of a favorite must incur some opposition. This favorite whom they called "practical" was displaced by a man called "scientific"—and the word itself was hated, then, as irrationally as it has sometimes been worshiped since that time. But all such opposition to Hilgard was short-lived. There was opposition, through rivalry and self-interest, which gave him good fighting to do later, but his conquest of the early farmers' opposition was by conciliation. I clearly recall an instance of his method. I was present at a farmers' meeting in San Francisco in

1876, apparently called to see just how far the college of Agriculture had fallen. The room was not large and was crowded with men of some prominence in farming and hostile to the University because they really believed that the College of Agriculture ought to be snatched from ruinous association with a so-called "classical institution." It was a stormy assembly but when there came a lull the chairman asked Hilgard to speak. He rose alertly, showing then a slim, graceful figure, and when he had folded and pocketed the blue glasses which a long continued eye trouble forced him to wear, they saw a scholarly face illumined with an eagerness, cordiality and brightness of expression which seemed to say to them: I never was in such a delightful place before in my life. Before he could say a word he had them transfixed with surprise and curiosity, and when he began to speak in a low, conversational voice, with an accent which compelled them to listen closely, every man was at attention. He was saying that he was glad to meet them; that no one could do much for farming unless he had personal knowledge and support of farmers; that he had listened with interest to what they had been saying and much of it doubtless would be helpful to him; that other things they could talk over and agree upon when they became better acquainted; that he had come to California to try, with their help and support, to know California, from the rocks to the sky, and proposed to use all that he had learned in other lands merely as a help to begin to know California, which he had already perceived was different from any other land in which he had lived and worked. He wished to work from California outward; not to try to fit old theories to a new state. He had always been interested in differences and wanted to see what they were and how they worked in farming. On his father's farm in Illinois he learned that the soil was not all alike and had been told that soil differed when it came from different rocks, when it was moved about in different ways and when other things were mixed with it, and since boyhood he had

been studying the rocks, the soils, the plants, to see what was in the soil and in the plant in the hope of matching them up, to get the best crops and the most money in farming—and then followed a charming half-hour with soil formation and movement, tillage, fertilization, etc. etc., without a scientific term, without reference to a chemical formula—all straight farming talk about soils and plants. Finally he said he had come to find out how these things worked in California. He particularly wished to know whether California farmers had anything as hard to handle as the gumbo soil of the Mississippi Valley.

It was a master stroke and all so unconsciously delivered. Before he could regain his seat, questions were fired at him from all over the room and he answered them readily and confidently. At least half-a-dozen had soil which they knew was many times worse than gumbo; would he come to the farm and see it? As the meeting closed after half an hour of such friendly and informal conference, a tall giant from the San Joaquin who was a leader in the opposition and who was known to be able to damn the classics all around a thousand acre grain-farm, leaned down and whispered in my ear: "My God, that man knows something!"

Such experiences were repeated scores of times in different parts of the state during the first few years of Hilgard's administration of the College of Agriculture. His purposes were approved and his personal achievements praised in ways I have not space even to suggest. A single significant token of his victory may be seen in the fact that, within five years after his coming, the State Master of the organization which set itself and its ten thousand members to the task of segregation of the College of Agriculture from the University, presented, in the constitutional convention of 1879, the article which made the organic act of the University a part of the constitution of the state and thus lifted the integrity of the institution above legislative dismemberment. This achievement was profound in its effect upon the development of this institution: it was wide-

reaching, for it has proved a rock upon which efforts for dismemberment of land-grant universities in other states have been dashed to pieces.

I do not, of course, mean to intimate that Hilgard's conciliation of the farmers (and those disposed at that time to train with them in opposition) indicated that there was an adverse majority in the convention to be overcome, for the University had abundant strength to prevail. But the importance of the opposing minority is seen in the fact that those in charge of the University interests deemed it worth while that the conquered leaders in opposition should be given leadership in affirmation, and that was possible through their conciliation and satisfaction by Hilgard.

Though Hilgard's first great and enduring work was done by conciliation, do not think for a moment that he was a pacifist. He was a warrior, bold and confident. It was a wonder to some of us, who knew him best, how a man so genial and so full of love for his fellowmen could fight so hard and mercilessly. Sometimes we thought he fought not wisely but too well. Sometimes the cause of war seemed not worth the time and the munitions. But fighting was recreation for him: it seemed to renew his strength, to deepen his convictions, to freshen his thought. My impression is that on the whole it did no harm—not even to himself. I believe that what he counted his greatest victories were won not by the fighting but by the personal sincerity, ability and capacity which he displayed while doing it, and thus victories, when he attained them for his contentions, were not by arts of war but by attributes of peace.

HILGARD'S EARLY WORK IN THE UNIVERSITY

Hilgard came to the University largely by the initiative and influence of the science branch of the faculty, as stated, and he at once took a leading part in the general effort which the sciences had to make to secure parity of pedagogical position and influence with the old culture-studies which were entrenched in the faculty, the Regents and in the

professional classes which held strongly to the old educational ideals. In this effort for the fuller and fairer recognition of science in educational curricula and policy, Hilgard came as a great reinforcement to the protagonist of science, for he could not be impeached for lack of knowledge of classical point of view and materials. He knew his Latin and his Greek and the literatures of them, and only the distinguished professor of German of that day could surpass him in conversational scope in modern languages. And he loved all this learning and constantly used it familiarly, while, beyond all conscious employment of it, there it was, forming his thought, gracing his style and in every way influencing his action and enriching his life. One can readily see what an influence such a man must have been in winning recognition for applied science from those who held ever so strongly to the old standards. Naturally the fiercest opposition came from those within academic circles—from the shrine-makers of Ephesus. Although in his first report, for the year 1877, Hilgard clearly announced the principles upon which his instruction would be developed, for years he still had difficulty in making his position understood and his fundamental principles recognized as educationally sound. In that report of 1877 he said:

“A knowledge of facts and principles and not the achievement of manual dexterity, must be the leading object of a truly useful course of instruction in agriculture.

Object teaching should be made the pre-eminent method of instruction in natural, and more especially in technical science. Manual exercise should be made the adjunct of the instruction in principles.”

Thus Hilgard announced, at the very beginning, his adoption of the laboratory and field method of instruction and he pursued it as far as he could command the outfit for it. That he was right in his choice of principle and method is attested by the present educational consensus that there is no other way; and it is being lavishly provided for now, even in branches of learning to which at that time it was

not dreamed to be applicable. And yet, though he announced at that remote day his adoption of a policy which is now dominant in educational work and though he demonstrated the practicability of it with pitifully poor equipment, the opposition which he encountered would strike you as incredible even if I could present it most accurately and with faith to the spirit of it. But he went on writing, speaking and fervently praying I doubt not, as Hilgard was a godly man, for the initial recognition of educational truth which is now all pervading—contending for the recognition of agricultural science, adequately known and properly taught, as a respectable branch of higher learning and inferior to none other, in the line of pedagogic material and in its relation to preparedness for life. He made trouble for others, of course, for he was always pushing, prying and crying out for the attainment of what he saw to be educationally true and good for mankind. But no opposition daunted him. When a distinguished logician declared once that agriculture was only handicraft and should have no place in University instruction, his comment was in kind, and to the effect that speculative philosophy never arrived: it was mental gymnastics—always indulged in with the danger of being thrown from the parallel bars of knowledge and faith and breaking one's spiritual neck. But such a comment under stress was not an indication of Hilgard's habitual attitude toward other branches of learning. He was not only charitable and tolerant but he was genuinely interested and fair. However, to be told that agriculture was only handicraft was a serious affront to a man who had lighted his torch at the fires of Liebig and went forth to declare and to demonstrate that agriculture is the greatest of the natural sciences because it requires the fullest work of all of them to reach its own greatest development.

The stand taken by Hilgard with reference to the dignity and pedagogical value of agricultural science, while so many institutions, now great, were in their formative periods, was

recognized as sound throughout this country and beyond. Set forth in his early reports it exercised a profound influence. The proper relation of agricultural practice to agricultural science, as factors in educational effort; the educational distinction between labor performed for enlightenment and labor prescribed to beget a liking for labor; the place of both the art and science of agriculture in a University of higher learning, when both are handled ably for instructional purpose—these were among his fundamental contentions, upholding them through many controversies, and his victory is seen in their entry into the regular curricula of all of the newer institutions of learning and their pursuit by older institutions established upon other standards of learning before the existence of them as educational factors was dreamed of as worthy and capable.

Even the vocational point of view, now so universally prevalent, was clearly occupied in his first report, that of 1877, and the first accession to his staff was an instructor in practical agriculture in 1878. Thus, at the first opportunity, he justified his conception of the relation of facts and principles, when the natural temptation was to exalt his own personal line of research by proper laboratory provision and equipment. But Hilgard was always broader than his own science. He was a real man and a true educational philosopher.

HILGARD'S CREATION OF AGRICULTURAL RESEARCH IN CALIFORNIA

But great as were Hilgard's services to educational science and policy, it is probable that his achievement and influence in agricultural research in the United States will be counted greater. Even if we disregard the incalculable value in his assumption of the agricultural point of view in connection with his geological work in Mississippi and count his services from his beginning in California, he still stands as the founder of American institutional research

in agriculture, including both laboratory and field work. However, as often happens in science, priority can be claimed only by a narrow margin. Fortunately Hilgard opened his laboratory in the spring of 1875 and began an experiment to determine effects of deep and shallow plowing at the same time, and his rival for priority, Professor Atwater of Connecticut, was plowing his legislature at that date, reaped a law in July and opened his laboratory in October, 1875, after Hilgard had his field in fallow. His priority is "not so deep as a well nor so wide as a church door but 'tis enough." The price of that priority seems almost pitiful now. In his report of 1877 Hilgard writes: "The appropriation of \$250 for the beginning of an experiment station has, under advice, been carefully husbanded by me, after the failure of the appropriations asked of the last legislature, in order to insure the continuation of the home work." It is not hard to understand what the words "under advice" really mean. The fact was that Hilgard was told that he could get no more money from the Regents. He must get it from the legislature, the next session of which was two years away. No wonder he "carefully husbanded" his \$250, for surely it would not pay for much experimental husbandry. Fortunately the legislature of 1877 gave him \$5000 for two years and the legislature of 1879 gave \$5000 a year for two years, of which he says, in his report for 1880, "it barely enables us to pay running expenses and farther improvement and increase of scope will be impossible"—for he then had half a dozen field and laboratory assistants to provide for.

The insistent demand of Hilgard for money to carry on his work produced at least two effects.

1. The farmers began to ask pointedly where all the money went which was provided by Congress (through sale of public lands) to conduct an agricultural college such as Hilgard wanted and such as the farmers approved. They liked Hilgard but they hated taxes.

2. The Regents began to wonder whether in the conquest of Hilgard they had not caught a man of Tartaric ancestry. As one of them is reported to have said, "they wondered what was the matter with that man Hilgard: why could he not draw his salary and not make so much trouble about money?" Some of them were quite sure they had embosomed a viper: they would quietly look into the matter. Through a functionary of the secretary's office, whom a regent or two had asked to expert the situation a little, they were told that "Hilgard spent most of his time at home mending his harness." To understand the reference one must remember that, at that day, each professor had to keep a horse and chaise to pull him through the bottomless Berkeley streets and harness-mending was indispensable. But the amateur detective made only one mistake, Hilgard did spend most of his time at home "mending his harness" but it was not for his horse. It was for himself—the harness which he needed to pull through original scientific achievement to results which would establish his standing, with the people and the Regents, and secure the means necessary to properly develop agriculture in the University. Meantime, he fully discharged his University duties and, in addition, held the farming population not only from outbreak but in support, as already cited in connection with the incident of the new constitution of 1879.

As I look back upon it, it seems to me that Hilgard's strategic diversion of 1879 to 1883 was one of the brightest and most effective movements of his career. On the basis of his work in Mississippi he was requested by the Director of the Census of 1880 to take full charge of the cotton investigation for that census and to do something greater for the cotton industry than was ever done before; and he was promised funds for inquiry, investigation, laboratory work and whatever else he deemed necessary to get at the fundamental facts and principles connected with cotton growing in the United States. Hilgard seized what he

recognized as exceptional opportunity to demonstrate his power. He selected assistants and set them at work studying cotton-producing conditions from the soil to the sky and their influence on quantity, quality for various purposes, cultural methods, etc. He reviewed the subject as a whole and in divisions; studied each cotton state and finally produced two volumes illuminated with plates and maps, bristling with tables of analyses, statistics of production and, running through it all, edifying and inviting text. I need not try to characterize it as a whole except to say that the report as printed weighs over ten pounds—every ounce of which was made in California and is emblazoned with the insignia of the University of California, but it cost the state and the University not a cent. More than that, California was presented as a "cotton state" and her natural conditions were so thoroughly studied and so ably set forth that a part of that work entitled "The Physical Features of California" is cited and quoted to this day by those who desire to demonstrate fundamental things about the state. While his local patrons and employers were wondering how Hilgard could use \$2500 for expense money, the United States gave him not less than \$25,000 to spend in his cotton work—one wide-reaching result of which was that it made California famous.

Yes, the amateur detective was literally correct: "Hilgard was spending most of his time at home mending his harness." And what a powerful harness he made of it! It pulled him away from all doubt of the scientific quality and the industrial value of his work in the development of California. It made it easier to get appropriation for all kinds of research work: it made it easier for the University as a whole to get funds for its general purposes. Not that Hilgard nor the University was able to get as much as they needed to realize their beneficent purposes. Good research men and good institutions never did get as much as they need and probably they never will. Perhaps, if they should, they might cease to be good.

But this monumental cotton work, based upon the soil work which was one of its foundation walls, was nation-wide in its influences. It was accepted throughout the country as a demonstration that Hilgard could do the work which his California reports and other publications were urging upon the public mind. It was a force in engrafting original research upon the instructional work, established through the educational land-grant law of Morrill, by the enactment of the Hatch law for experiment stations in all states; and when those institutions were being developed in the latter '80's Hilgard and the research establishment which he had created in California were the accepted prototypes of men, means and methods.

Nor was he simply a national exemplar in his line. When he went abroad for a short year in 1892, after seventeen years of tireless and most productive work in California, he was received with unusual tokens of honor and esteem, and by many learned scientific bodies was prevailed upon to describe his ways of work and the notable differences, which he was first to formulate, of conditions in arid and humid climates in their scientific and economic aspects.

Hilgard resumed his work in the University in 1893—sooner than the regulations required because he could not longer restrain himself from his usual work. For more than a decade after his return he applied himself with his customary vigor, insight and success, upon undertakings which were growing by leaps and bounds because he had started and directed them aright. His last years of administration were his best years: his position of leadership was unquestioned; his physical strength seemed greater than during some of his earlier periods; the demands for instruction and the opportunities for research were multiplied. He labored like one who was realizing the results he had long desired and his heart was light as his time for greatest achievement had come. In the fullest warmth of popular appreciation and with the truest loyalty and devotion from the scores of associates whom he had chosen for particular

purposes, he did his best work for agriculture in the University by making the greatness of its future secure.

Thus, friends and admirers of Hilgard, have I tried to give you simply a few glances at the life which you honor and for which you are thankful. I have chosen to dwell upon remoter phases of his activity because only a few share with me the deep joy of having been with him then. I do not try to measure his achievements in science or technology, nor even to indicate them. It seems to me that we think first of the man, of the purpose that was in him and of the development of that purpose under his environment. Phases of that development which were precedent to your own periods of observation, therefore, have seemed most fitting to present. And yet I may say, confident of your approval, that the results of Hilgard's labors are in the warp of California's first half-century of intellectual and industrial life and upon such enduring work as he achieved will be spread the splendid fabric of the coming advancement and development of our state. He was quick to see his opportunities of public service, to recognize his duty therein and he was masterful and tireless in pursuit of it. He was bold in conquest of truth and fearless in his use of it for the interest of mankind—seizing gladly the smallest fact from research and pressing it to the humblest service but always perceiving and enforcing the relations of both the fact and the service to the broadest interests of his state and of his fellowmen. Thus all came to know him as richly wise, unswervingly true and deeply patriotic and humanistic—a man whose thinking was as clear and whose motives were as unselfish as his service of them was forceful and effective. His achievements were great and diverse and his honors therefore great and widely bestowed.

California has lost a citizen of great achievement and influence, whose monument will be the greatness of his work for California which can never be forgotten because it was so great, so everlastingly sound and true and so closely related to the happiness and prosperity of his fellow-citizens



**Portrait of Professor Hilgard in 1874,
while at the University of Michigan**

and of all who shall come after him. It is most fortunate that he was allowed to approach as near as man ever comes to the completion of his work, and to enjoy the realization of remarkable public advancement along lines which he clearly discerned, forcibly marked out and labored to deeply impress upon this great institution, of whose history his life and accomplishments will always be recognized as an integral part.

THE LIFE-WORK OF PROFESSOR HILGARD

R. H. LOUGHRIDGE

Professor Emeritus of Agricultural Chemistry in the
University of California

Eugene Woldemar Hilgard, the "grand old man" of agricultural science, the youngest of nine children, developed a love for the natural sciences in his boyhood days on his father's farm near Belleville, Illinois. He received instruction in mathematics and the languages from his father, his home library giving ample opportunity for reading and study, found time from his farm work for riding and hunting, botanizing and insect collecting, and during a period of ill-health from malaria, read works on chemistry and botany. At the age of sixteen his eyes failed and for a change he was sent to Washington, D. C., to visit his brother Julius, then assistant in the U. S. Coast Survey. Attending lectures on chemistry in the Homeopathic Medical college and the Franklin Institute of Philadelphia, he soon became lecture assistant in the former. In 1849 he went to Germany and entered the University of Heidelberg, but on account of political troubles then existing, went to the University of Zürich, completed his studies in mining and metallurgy in the royal mining school of Freiberg, and later returned to Heidelberg, where he graduated in 1853, with the degree of Ph.D., at the age of twenty. In his graduating thesis he was the first to distinguish and define the four parts of the candle flame and the processes

occurring in each. While a student his early desire for investigation and research manifested itself in an experiment on himself with a poisonous dose of arsenic to ascertain its effects; it is needless to say that at the critical moment he took the antidote.

He had intended making the practice of medicine his life profession, but after a two-year course of lectures gave up the plan, as he felt that he could not have human life entrusted to his skill and dependent upon the uncertainties of his correct diagnosis and prescription. He then turned to chemistry, geology and botany as giving a broader, more accurate and more interesting field for investigation and research.

On account of continued ill-health, he went to the coast of Spain and spent two years interesting himself in geological observations. He was an intense lover of music and this happily brought him an introduction to Miss J. Alexandrina Bello, daughter of Colonel Bello, of Madrid, who in 1860 became his wife. In 1855 he returned to Washington, D. C., and fitted up a small chemical laboratory in the Smithsonian Institution, but very soon accepted the position of assistant state geologist of Mississippi. Thus at the age of twenty-two years, well trained in the natural sciences especially chemistry, geology, botany, and physics, with a keen mind, quick and accurate in his observations, and with a remarkable memory, he began his life's work and entered upon the survey with enthusiasm, although the field seemed very unpromising from a geologist's standpoint. With a traveling outfit consisting of an old ambulance, two mules, and a negro driver, who also was the cook, he explored portions of the state, making observations and collecting material for study. In 1857 the survey was suspended by the legislature, and Hilgard returned to Washington as chemist in the laboratory of the Smithsonian Institution and lecturer on chemistry in the National Medical College.

In 1858 he was appointed state geologist of Mississippi by the governor and resumed his detailed investigations

on the geology, botany, agriculture, and other economic features of the state. He found, however, that he had strong opposition in the legislature and among the farmers which must be overcome. To do this he wrote his first report to the governor on the condition of the survey, and placed on exhibition at the State Fair a collection of soils and marls which he used in explaining to legislators and farmers the objects of the survey and its importance to them and to the state. From his previous investigations he was enabled to advise regarding soil peculiarities and needs, and thus won the confidence and support of the masses. Hilgard thus in the very beginning of his great career passed through his "baptism of fire" with law-makers and the always suspicious farmer, and showed that same ability, skill, determination and personal magnetism that afterward characterized his numerous fights for what he believed to be right and necessary for the cause of agriculture.

One of the chief characteristics in Hilgard's nature was the extreme care, accuracy and attention to detail that he gave to everything that he undertook, and this is strongly shown in the results of the Mississippi survey, which combined observations on the geology, botany and soils of the state. His field notes taken on his trips have been preserved and are interesting reading.

In his movements from place to place in search of geological outcrops he was quick to note the sharply outlined differences in the native tree and plant growth on the several types of soil, and especially the differences in behavior and durability of soils under continued cultivation. He became deeply interested in these observations and determined to make them the subject of special study, realizing that the farmers themselves should secure some benefit from the survey. Mississippi seems to have been especially favorable for such observations, for it was very largely covered with a growth of native timber and had a great variety of soils, from the poor sandy long-leaf pine

lands of the coast region, the richer loams and black clays of the interior, to the calcareous lands of the bluff region and the remarkably rich alluvial lands of the river. Thus were begun those studies of the chemical, physical and other properties of soils that became his life work and which, extending to others states and countries, have brought him honors and renown over the entire civilized world.

One of his interesting and valuable observations, and one that aided him greatly in his geological work, was that a change in tree growth was an index to changes in geological formations and thus served as a guide to outlines of the latter.

The state university fitted up for him a small chemical laboratory where he made analyses of soils, marls, etc., and here, as he told the writer, he worked all day and far into the night, using one hand in chemical analysis and the other in writing his report, as it was imperative that he should complete the latter and visit Spain. In 1860 was finished and printed his report on the geology and agriculture of Mississippi, an octavo volume of 391 pages in which were given in detail his observations on the geological formations and agricultural features with many chemical analyses of the important soils. This work is still regarded as a standard authority on the geological formations and soils of Mississippi and the southwest. A geological and agricultural map accompanied the report.

During the Civil War the exercises of the University were suspended, and Hilgard as state geologist was placed in charge of the library and equipment by the governor and thus escaped service in the army. He was appointed an agent of the Confederate "Nitre Bureau," and at the siege of Vicksburg was ordered to erect calcium lights on the bluffs for the illumination of the Federal gunboats in their attempt to pass the city. The fleet, however, passed before he could complete the arrangements for adequate light.

When the University was reorganized in 1866, he was elected Professor of Chemistry, which title was changed to that of Professor of Experimental and Agricultural Chemistry in 1871. (It was the writer's good fortune this early to have become a member of his first class, in which a mutual friendship and loyalty began that continued up to the time of his death, a period of fifty years.) In the laboratory he continued his studies into the chemical and physical properties of soils in their relation to crop production, and established a small farm for culture experiments.

Although he relinquished the position of state geologist to another, he continued his interest in the further study of the geology of Mississippi and other southern states, or as he termed it "The Mississippi Embayment." In 1867, at the request of the Smithsonian Institution, he made an examination of the Mississippi river delta, the rock-salt deposit of Petit Anse Island, Louisiana, and the cause of the formation of the great mudlumps that rise in the Passes near the mouths of the river and greatly interfere with navigation. He later made a geological reconnaissance of Louisiana for the New Orleans Academy of Sciences.

Professor Hilgard, in Mississippi as afterward in California, was always full of energy and activity in and out of the laboratory, working in the interest of the University, the state and especially the farmers; with the latter he was in close touch, advising and aiding them as far as possible in their difficulties, and he was regarded by them as a true friend. He was the first to analyze the cotton lint, oil, hulls and seed cake and to point out the loss which the farmer sustained by his habit of putting the whole seed on the land instead of having its valuable oil (which has no fertilizing value) expressed and sold and the cake alone used as a fertilizer. Professor Hilgard displayed quite an inventive genius in the laboratory, as was shown in his elutriator which he designed and made in the Mississippi laboratory for the mechanical separation

of soil particles. In it the flocculation or coherence of the particles suspended in the water column was prevented by a stirrer, the motive power being the works of an old clock to which was attached great weights which had to be wound up every morning by a strong negro janitor; water or electric motors were not to be had in those days.

In 1873 Professor Hilgard accepted the professorship of Geology and Natural History in the University of Michigan, but found no opportunity for research work in his favorite soil studies. While his associations there were delightful, he evidently longed to get in touch again with soil crucibles, beakers, funnels, soil solutions, and soil problems, for when, in 1874, the Regents of the University of California asked him to deliver a course of lectures and to accept the position of Professor of Agriculture in that institution, he visited the state and gave the lectures; and seeing in California a more congenial climate and a splendid opportunity for new achievements in a new field of study, he consented to accept the position, and came to Berkeley early in 1875. He thus entered upon the field of his greatest activity in soil investigation, though greatly handicapped at the beginning by lack of facilities and by absence of interest in the department on the part of farmers and students, as well as by a spirit of "Do sit still, draw your salary and say nothing" on the part of those who should have come to his support. He protested against inactivity, and by the exercise of the same tact and perseverance and by the influence of his own enthusiasm and personal magnetism that won for him in Mississippi in 1858, he broke up the apparent indifference; a class consisting of Messrs. Christy, Edwards, Slate, and Soulé (each of whom afterward became a member of the University faculty) was recruited from other departments, and formed his first California class in agriculture; he also had a class in botany. A small tract of land was given him on which was established, in 1875, the first experiment station in the United States.

By correspondence and by visits to farmers' granges and meetings of farmers where he talked to them freely on farm topics, and by his readiness to respond to calls for information, he won their confidence and secured their co-operation in his work; and thus forty years ago he laid the foundation for the College of Agriculture that now in usefulness and in the scope of its activities is second to none in the United States.

During the thirty years in which he was director of the station he was constantly in receipt of inquiries on all subjects, not only from farmers, but from persons of other professions and even of no profession at all. He was, however, possessed of a remarkable store of information and was always ready to give freely of it to any one, as is shown by the forty or more letter books in which are preserved copies of upwards of 20,000 letters written by him in reply to such inquiries. His replies were always in full, and these forty volumes have a wealth of valuable information stored between the covers.

Prior to 1890 he established several outlying substations for the study of soil and culture problems peculiar to the several agricultural divisions of the state which are marked largely by differences in climatic conditions. The most important of these was the one at Tulare in the San Joaquin Valley, established for the purpose of studying alkali problems, in which he took special interest and pride.

Among his California activities there stands out prominently his studies on humid and arid soils, in which he was the first to point out their differences in depth and in physical and chemical characteristics; he was the first to explain endurance of drouth by culture crops in arid soils and why sandy soils are among the most productive in the arid region and the least so in the humid. He was interested not only in the soils of the United States, but in those of foreign countries and was constantly on the alert for new data.

His successful researches into the cause and occurrence of alkali salts, their effect on vegetation and especially the methods to be used in their neutralization and the reclamation of the land in which they occur, are well known. He was the first to enter this field and the results of his experiments have been extensively quoted and his bulletins published in other countries where alkali lands exist.

His report on cotton production in the United States made for the Tenth United States Census at the request of General Francis A. Walker, Superintendent, is also a valuable contribution to soil literature, comprising as it does a description of the geology, topography, climate, soil regions and soils of each of the cotton-producing states, (including California), as a whole and by counties, also methods of cotton culture, cotton-seed industries, cotton-fibre measurements, etc. Professor Hilgard had the direction of the whole work and wrote the general part and the special descriptions of Mississippi, Louisiana and California; those of Alabama and Florida were written by Dr. E. A. Smith; Virginia and North Carolina by Professor W. C. Kerr; South Carolina by Mr. Harry Hammond; Tennessee and Kentucky by Dr. J. M. Safford; and Georgia, Texas, Arkansas, Indian Territory, and Missouri, by Dr. R. H. Loughridge. Each report was accompanied with colored maps, and by many chemical analyses of soils with discussion of results.

While Professor Hilgard was not the first to make a soil survey or a chemical analysis of the soil, he was the first to interpret the results of analyses in their relation to plant life and productiveness. He was also the first to maintain that the physical properties of a soil are equal in importance to the chemical in determining the cultural value.

In an unpublished manuscript he says: "Soils are, generally speaking, the most complex materials commonly coming under investigation, and the most difficult to interpret in the relations with vegetation; the latter being,

in the end, the final result aimed at. Soil study claiming completeness necessarily involves not only the chemical and physical examination of the material, but also its geological nature, position and derivation; the latter implying the determination of its mineralogical components not only for the sake of indications of its derivation, but also its probable general chemical nature. Moreover, the observer will most commonly find all changes of soil worthy of being shown on the map, indicated by corresponding changes in the character of the native vegetation; and the latter, being the result of secular coadaptation of soils and plants, will when properly interpreted render most important service in indicating certain peculiarities, both physical and chemical, which have a very direct bearing upon the cultural character and value of the lands under investigation. It need hardly be said that all cultural experience actually had on similar land should be gathered and recorded as a specially important part of the information sought in soil survey."

Professor Hilgard tried for many years to secure funds to prosecute a soil survey of California, and his failure was a great disappointment. From information obtained through numerous short trips, from Farmers' Institutes, and from other sources a large map was prepared, showing in colors the chief agricultural regions of the state, thus excellently fulfilling its purpose; it was placed on exhibition at the Paris, Chicago and St. Louis expositions.

In the summers of 1881-83, he conducted the agricultural division of the northern transcontinental survey in the state of Washington.

The mind and hand of Professor Hilgard were never idle and, while engaged in solving old problems in relation to soil fertility and plant life, he was ever on the alert for new ones. The results of his activity are shown in the hundreds of published articles in the experiment station reports, outside journals both foreign and domestic, government publications, etc. In 1906 he published his large

work on *Soils*, comprising about 600 pages, and regarded by him as a summary of his life-work on arid and humid soils. But after its publication he often wished for an opportunity to revise it and to make corrections and additions. Even as it is, it may well be regarded as the highest authority on soils of the humid and arid regions. In 1910 he published with Professor Osterhout a small work *Agriculture for Schools of the Pacific Slope*.

In 1904 he resigned the directorship of the Experiment Station and was retired from active service, as Emeritus Professor of Agriculture.

His broad and thorough scientific knowledge, his great work on soils and his valuable publications brought him not only a world-wide fame, but many honors, among them the degree of LL.D. from the universities of Mississippi, Michigan, Columbia and California, the Liebig gold medal from the Academy of Sciences, Munich, Bavaria, "for important advances in agricultural science," other gold medals from the Expositions at Paris, Rio de Janeiro, and St. Louis, membership in several scientific societies, among them the National Academy of Sciences, and the American Association for the Advancement of Science in which he was made a life member just before his death. In 1883 he received the offer of Assistant Secretary of Agriculture from President Harrison, and leave of absence was granted by the Board of Regents of the University, but much to his regret, health conditions compelled him to decline it. In 1903, the fiftieth year after graduation, he received from the University of Heidelberg the semi-centennial diploma re-conferring the degree of Ph.D. in recognition of distinguished services in the sciences of geology and agriculture. Only one graduate besides himself has ever received this signal honor.

Professor Hilgard was quite a linguist and could converse fluently in German, Spanish, English, and French; he could also easily read Sanscrit, Italian, Greek, Latin, and Portuguese.

Although much reduced in vitality during the last three years of his life as the result of an injury, his interest and desire for serving in the cause of agriculture were keen and virile, and his great regret, daily expressed to the last, lay in his inability to pursue farther his studies of soil and other problems.

HILGARD'S GEOLOGICAL WORK IN MISSISSIPPI

EUGENE A. SMITH

Professor of Geology in the University of Alabama
and State Geologist

In 1855 the position of assistant geologist of Mississippi was offered to Eugene W. Hilgard, then just returned from a European university (Heidelberg) and thus began the career of the most distinguished worker in Gulf Coastal Plain Geology. It is worth recording that Doctor Hilgard accepted this position amid the sincere condolences of his scientific friends on his assignment to so uninteresting a field, where the Paleozoic formations (then occupying almost exclusively the minds of American geologists) were unrepresented.

The fame which Hilgard won for himself in this "uninteresting" field is known to all geologists. He laid the foundation on which most subsequent work in the "Mississippi Embayment," as he had named it, securely rests, and after the lapse of more than fifty years since the publication in 1860 of his report his work is appreciated and referred to as authoritative, not only by the farmers and other citizens of that state, but by the geologists who have succeeded him. He became state geologist early in 1858, which position he held at least nominally until 1872 with the exception of a few years between 1866 and 1870.

From the beginning of his connection with the State Survey Hilgard saw that it could never maintain itself in the public esteem on the basis of mineral discoveries alone, and that it must seek its main support in what services it might render to agriculture. He accordingly made a point of paying particular attention to the surface features—vegetation, soils, water-supply, and marls. In the prosecution of these studies the close connection between the surface vegetation and the underlying formations became so striking that he was largely able to avail himself of this vegetation in tracing out the limits of adjacent formations and in searching for outcrops.

In the 1860 report, about evenly divided between agriculture and geology, chemical analyses of typical soils of the several agricultural regions are given along with discussions of their cultural value as indicated by these analyses considered in connection with the native vegetation. The geological half of the report presents the geology of Mississippi practically as it is known at the present day, except as to the fixing of the age of the Port Hudson beds, the investigation of the geology of the Mississippi bottom and the tracing of the Lower Claiborne formation westward to the border of this bottom. In 1867, under the auspices of the Smithsonian Institution, and in 1869, under the auspices of the New Orleans Academy of Sciences, opportunity was given to Doctor Hilgard to extend his researches down the Mississippi River to the Passes and through Louisiana. The results of these expeditions may be summarized as follows:

1. The outlining of the Mississippi Embayment in Louisiana and Mississippi.
2. The outline geological study and mapping of those two states, Hilgard was the first to give a clear and definite account of the origin and distribution of the surface formation which he called Orange Sand but which later by agreement has received the name of Lafayette. So also he was the first to give a definite account of the great series of river

and estuarine deposits, the Grand Gulf, representing, as he claimed, all geological time between the Vicksburg and the Lafayette.

3. The recognition of the Cretaceous Ridge or backbone of Louisiana, and the determination of the Cretaceous age of the rock-salt and sulphur deposits of Calcasieu parish.

4. Study of the exceptional features of the Lower Mississippi delta and of the mudlumps and their origin, and the definite correlation of the Port Hudson formation.

Probably no work has done more for the correlation of the scattered accounts of the geology of the Southern States than the Cotton Culture reports of the Tenth Census (1880) prepared under the direction of Doctor Hilgard. Besides having general direction of the whole and preparing the general discussions of cotton production in the United States, including soil investigations, the cotton-seed industries, and measurements of cotton fibres, Doctor Hilgard wrote the special description of Mississippi, Louisiana, and California.

In these reports a summary of the physical and geological features of each state is first given. Then follow accounts of the agricultural features and capabilities of the Cotton States, such as should be of interest to immigrants and investors, along with special descriptions of each county, with soil maps and maps showing the relation between the areas cultivated in cotton and the total area of each state.

In a recent letter Doctor Hilgard comments on these reports as follows: "The Census Cotton Report, for all the hard work it cost, has found little appreciation because of the medium of publication, quarto at that. Don't let us do it again." But all was not lost in the quarto volumes, for in Alabama and South Carolina at least the Cotton Culture Reports were republished as State Geological Survey Reports, and have been very thoroughly appreciated and have furnished the meat for numerous subsequent handbooks.

Personally Doctor Hilgard was one of the most lovable of men. His extraordinary fund of general as well as of special information, along with his cheerfulness and vivacity, notwithstanding the handicap of a rather frail constitution, made him a delightful companion, and his letters, even on technical or scientific matters, were always enlivened by humorous and witty remarks, so that they were truly good reading.

A FABLE

LEON J. RICHARDSON

King Croesus, mounted on a snowy steed,
By chance drew rein where round a mountain mead
Of asphodel the cool Meander flow'd.
"My realm" he briefly said, as on he rode.

Presently came a minstrel by—a look!
And straight he fell to marveling nor took
His homeward way till evening's crimson light
Had sunder'd golden day from sable night.

The king that eve, surrounded by his guard,
Was ruler of the feast. The aged bard
Had sung of life—down went the royal gage:
"Pray tell me, ye who turn the labor'd page

Of lore, what boon of life the poor possess."
At last outspoke the sage in bold address:
"This truth, great king, the poor man's smart doth salve:
To see, to know, to be, are greater than to have."

EXPERIENCES WITH THE FORD PEACE EXPEDITION

PAUL L. FUSSELL '16

So much newspaper and magazine publicity has been given to the Ford expedition that it may seem wholly unnecessary to add to what has already been said. And yet, when I returned to America, after the expedition was over, it seemed that the expedition which I read about in the press was a very different one from the expedition which I accompanied. So much was being said about squirrels and squirrel-food, and Ford cranks, and reverend gentlemen playing leap-frog, that it seemed to me that the essential features of the expedition were being neglected. So it may not be wholly without purpose, if I speak very briefly on what seemed to me to be the essentials of the trip.

I remember that when we sailed from New York many misconceptions were current about the expedition's plans. Nearly everyone thought that the expedition expected to bring the war to an immediate conclusion. The public took that unfortunate slogan, "Out of the trenches by Christmas," as the literal expectation of the party. As to just how we intended to accomplish this impossible task, opinion was divided. Some thought that Ford expected to call a strike of the soldiers in the trenches. Others thought that there was no plan at all, but that we would do as the Pilgrims did on the Mayflower: draw up a scheme of action before reaching the farther shore.

None of these conceptions had any basis in fact. The party did not expect to bring the war to an immediate close; no strike of the soldiers was ever dreamed of; and far from having no plan at all, the scheme of action, though hastily and imperfectly executed, was the result of long planning and careful thought.

The plan, in brief, was as follows. We were to travel through the four accessible neutral nations of Europe—Norway, Sweden, Denmark and the Netherlands—enlisting the support of prominent citizens from each country, and adding them to our party. When the conclusion of the “peace pilgrimage” was reached at The Hague, the delegates from each nation were to elect five representatives of their own nationality to sit as an unofficial neutral conference until the close of the war. The establishment of this unofficial, permanent, neutral conference was the sole purpose and the end of the expedition. In spite of ridicule and mistakes, in spite of dissension and desertion, in spite of disease and death, the expedition traveled from Norway to Sweden, from Sweden to Denmark, from Denmark through Germany to Holland, and before the party disbanded at The Hague it fulfilled its sole purpose by the creation of this permanent, unofficial, neutral conference.

This neutral conference, made up of twenty-five well-known citizens of the five most prominent neutral states, is now meeting in Stockholm, the capital of Sweden. The conference is being advised by experts in international law and current European conditions from the belligerent states. When the members of this conference have studied the problems of the war, they expect to frame and to submit simultaneously to all belligerents a possible basis for peace. It is the hope of the conference that a solution may be proposed which will recognize international justice, and which will at the same time prove acceptable to the belligerent states.

Personally, it seems incredible to me that twenty-five private individuals, unknown in international affairs, should

bring to an end so tremendous a conflict. Yet I realize that there were men and women accompanying the expedition far better versed in European affairs than I—men and women who have talked, since the war began, with the foreign and prime ministers of every belligerent country, who believe that this unofficial neutral conference can accomplish a great work. They believe that after nineteen months of fighting the belligerent governments are coming to realize that neither side can win a sweeping military victory. They believe that every nation is tired of fighting and would welcome peace, if peace could be thought of without implying defeat and impossible treaty terms. It is the hope of the conference that when the way is pointed to peace without dishonor or disaster it will prove acceptable.

So much for the work of the Ford expedition as a peace expedition. I would like to relate a few details of our trip through Germany, for since I have returned to the campus no phase of the expedition has appeared to excite so much interest as our brief trip through Germany. I believe that the American newspapers reported that we made the trip behind barred windows and locked doors, but such was not the case. It is true that we made the trip at night, but wherever it was light enough to see, as at the stations, we had a view as unimpeded as from an American train.

Some of the most interesting incidents of that trip occurred in the dining car, for there we saw some suggestive circumstances in connection with the German food situation. The first thing which I noticed as I entered the diner was the extreme youth of the waiters. None were more than seventeen, and most seemed two or even three years younger. Apparently, Germany has more important work for her able-bodied adult males than to serve food to wandering pacifists.

The next thing which caught my attention was a large sign, printed in two colors and posted in a conspicuous position. I learned afterwards that this sign appears not only in all dining cars, but in all other public dining-places

as well. It bears Germany's "Ten Commandments" on the use of food. I can't remember all of them, but two which I remember seem typical. One read (I give the English approximation) "Don't peel your potatoes before boiling them: boiling with the skins on saves the nourishment." Another read, "Save old crusts of bread and make soup of them." Germany, you see, is neglecting no opportunity to prevent a food-famine.

The meal seemed typical of the German food situation. It was Friday, one of the two days in the week when no flesh can be sold, and so we had no meat. Butter tickets are required in Germany now, and as we had made no application for tickets, we had no butter. Germany is short of wheat flour, and so we had no wheat bread, but instead three slices of potato bread were doled out to us—slices as thick as a wafer and as large as a gentleman's calling card. Potatoes were not only much in evidence in the bread, but in the rest of the meal as well. The first course was potato soup; the second, potato salad; the third, potatoes and fish; and the fourth, potatoes and omelette. Perhaps since that evening some German scientist has discovered a desert made of potatoes, and they may serve desert in German dining cars now. But at any rate a desert was unknown then, and we passed it by for that meal.

About a week after this, I was talking to a British marine at Dover, and he told me with what valor the Irish soldiers had fought for King and Empire. I thought as he spoke, "The Irish soldiers will be brave indeed, if they help England as much as Irish potatoes are helping Germany."

That one meal confirmed all reports which I had heard from Scandinavian travelers with regard to the German food situation. Germany is very short of certain particular foods, such as meat, fats, and wheat, so that some deprivation occurs. But Germany has an abundance of other food-stuffs, such as potatoes and fish, so that no actual suffering is present. Nothing short of an unprecedented crop failure can starve Germany.

Dinner was scarcely over when our train rolled into the great railroad station at Hamburg, the second city in the empire. A suburban train entered and discharged its passengers. Although it was late in the evening, at a time when one would naturally expect to see far many more men than women traveling, at least eighty per cent of the crowd, I should judge, were women. The German government, while it does not actually forbid mourning, discourages its use as tending towards unnecessary depression. Not a single woman wore the traditional mourning dress, yet there was scarcely one but was dressed in sombre attire in honor of husband, or father, or son. In all that crowd of women there was not a single gay gown or bright ribbon.

On a siding near us was a bare, unfurnished military train, ready to depart for the front. The windows were thronged with silver-helmeted soldiers, many of them off for the front for the first time. They were laughing and talking among themselves, apparently in high spirits at the thought of the excitement they would soon see.

There came a rumble of a train passing us on the other side. Turning, we saw a Red-Cross special, straight from the trenches, bearing the wounded to shelter and attention. Through the open windows we caught a fleeting glimpse of white-robed nurses bending over their suffering patients. The war seemed very near and very, very real. The laughter of the soldiers in the troop train was stilled. It seemed to us that the whole story of war lay about us. On one side, the soldiers went forth into battle, laughing and unafraid; on the other side, they returned from the trenches maimed and defeated. On one hand was all the loyalty and the heroism and the patriotism which war engenders; on the other, was all the waste and despair and agony which war entails.

After the Red-Cross special sped away in the night, the stillness lingered in the station. We thought of the words which the German lieutenant in charge of our expedition had spoken only a few minutes before. We had asked him

if the German soldiers had heard of the Ford expedition, and what they thought of it. He had paused for a moment, and then had spoken slowly, weighing each word, "There is not a soldier in the trenches but is thinking of your expedition as it passes through Germany. There is not a soldier but is hoping that somehow, something good may come from it."

As we sat thoughtfully in the stillness as the Red-Cross train departed—as we thought of the tense faces of the men in the troop train and the agonized faces of the men in the hospital train, the most dissentions and cynical critics of the expedition repeated in their hearts the prayer of the German soldiers, that somehow, something good might come from the expedition.

SHAKESPEARE

LEONARD BACON

From you the noblest of the sons of light
Seek their illumination. As they turn
Your pages, they permissively discern
Radiant humanity, courage and the right
Stature intellectual, and heroic height,
Equal to all decisions of the soul,
To the quest of whatsoever hardest goal,
And the great utterance of yet great greater sight.

We give our tittle of imperfect praise
Humbly, like men who see far off the shore
Of a new land in oceans they explore,
And hush their murmur and their mutiny,
Because their chief, dauntless for many days
Has kept his course through the mysterious sea.

THE MONKEY AND THE CROCODILE
 INTRODUCTION TO PANCHATANTRA, BOOK FOUR

ARTHUR W. RYDER

Here, then, begins the fourth book, called the Loss of Property. The first verse runs:

Blind folly always has to pay
 For giving property away
 Because of blandishments and guile—
 The monkey tricked the crocodile.

“How was that?” asked the princess. And Vishnusharman told this story.

On the shore of the sea was a great rose-apple tree that was never without fruit. In it lived a monkey named Redface.

Now one day a crocodile named Uglymug crawled out of the ocean under the tree and burrowed in the soft sand. Then Redface said: “You are my guest, sir. Pray eat these rose-apples which I throw you. You will find them like nectar. You know the proverb:

A fool or scholar let him be,
 Pleasant or hideous to see,
 A guest, when offerings are given,
 Is useful as a bridge to heaven.

Ask not his home or education,
 His family or reputation,
 But offer thanks and sacrifice:
 For so prescribes the law-book wise.

And again:

By honoring the guests who come
Wayworn from some far-distant home
To share the sacrifice, you go
The noblest way that mortals know.

And once again:

If guests unhonored leave your door,
And sadly sighing come no more,
Your fathers and the gods above
Turn from you and forget their love."

So he spoke and offered rose-apples. And the crocodile ate them and enjoyed a long and pleasant conversation with the monkey before returning to his home. So the monkey and the crocodile rested every day in the shade of the rose-apple tree. They spent the time in cheerful conversation on various matters, and were happy.

Now the crocodile went home and gave his wife the rose-apples which he had not eaten. And one day she asked him: "My dear husband, where do you get such fruits? They are like nectar."

And he said: "My dear, I have an awfully good friend, a monkey named Redface. He gives me these fruits in the most courteous manner."

Then she said: "If anyone eats such nectar fruit every day, his heart must be turned to nectar. So, if you value your wife, give me his heart, and I will eat it. Then I shall never grow old or sick, but will be a delightful companion for you."

But he said: "In the first place, he is our adopted brother. Secondly, he gives us fruit. I cannot kill him. Please do not insist. Besides, there is a proverb:

To give us birth, we need a mother;
For second birth we need another:
And friendship's brothers seem by far
More dear than natural brothers are."

But she said: "You have never refused me before. So I am sure it is a she-monkey. You love her and spend the whole day with her. That is why you will not give me what I want. And when you meet me at night, your sighs are hot as a flame of fire. And when you embrace me and kiss me, you do not hug me tight. I know some other woman has stolen into your heart."

Then the crocodile was quite dejected, and said to his wife:

"When I am at your feet
And at your service, sweet,
Why do you look at me
With peevish jealousy?"

But her face swam in tears when she heard him, and she said:

"You love her, you deceiver;
Your wishes never leave her;
Her pretty tricks have crept into your heart.
My rivalry is vain, sir;
And so I pray abstain, sir,
From service that is only tricky art.

Besides, if you do not love her, why not kill her when I ask you? And if it is really a he-monkey, why should you love him? Enough! Unless I eat his heart, I shall starve myself to death in your house."

Now when he saw how determined she was, he was distracted with anxiety, and said: "Ah, the proverb is right:

Remember that a single grab
Suffices for a fish or crab,
For fool or woman; and 'tis so
For sot, cement, or indigo.

Oh, what shall I do? How can I kill him?" With these thoughts in mind, he visited the monkey.

Now the monkey had missed his friend, and when he saw that he was afflicted, he said: "My friend, why have you not been here this long time? Why don't you speak cheerfully, and repeat something witty?"

The crocodile replied: "My friend and brother, my wife scolded me today. She said: 'You ungrateful wretch! Do not show me your face. You are living on a friend every day, and make him no return. You do not even show him the door of your house. You cannot possibly make amends for this. There is a saying:

The Brahman-murderer or thief,
Drunkard or liar, finds relief;
While for ingratitude alone
No expiation will atone.

I regard this monkey as my brother-in-law. So bring him home, and we will make some return for his kindness. If you refuse, I will see you later in heaven.' Now I could not come to you until she had finished her scolding. And this long time has passed because I was quarrelling with her about you. So please come home with me. Your brother's wife has set up an awning. She has arranged her garments and gems and rubies and all that, to pay you a fitting welcome. She has hung holiday garlands on the door-posts. And she is waiting impatiently."

The monkey said: "My friend and brother, your lady is very kind. It is quite according to the proverb:

Six things are done by friends:
To take, and give again;
To listen, and to talk;
To dine, to entertain.

But we monkeys live in trees, and your home is in the water. How can I go there? Rather bring your lady here, brother, that I may bow down and receive her blessing."

The crocodile said: "My friend, our home is on a lovely sand-bank under the water. So climb on my back and travel comfortably with nothing to fear."

When the monkey heard this, he was delighted and said: "If that is possible, my friend, then hasten. Why delay? Here I am on your back."

But when he was there and saw the crocodile swimming in the bottomless ocean, the monkey was terribly frightened, and said: "Go slow, brother. My whole body is drenched by the great waves."

And the crocodile thought when he heard this: "If he fell from my back, he could not move an inch, the water is so deep. He is in my power. So I will tell him my purpose, and then he can pray to his favorite god."

And he said: "Sir, I have deceived you and brought you to your death, because my wife told me to. So pray to your favorite god."

The monkey said: "Brother, what harm have I done her or you? Why have you planned to kill me?"

The crocodile said: "Well, those nectar fruits tasted so sweet that she began to long to eat your heart. That is why I have done this."

Then the quick-witted monkey said: "If this is so, sir, why didn't you tell me on shore? Then I might have stuffed my heart into a rose-apple and brought it along as something really sweet. As it is, I am quite forlorn at being taken to her in vain, without having my heart sweetened."

When he heard this, the crocodile was delighted, and said: "If you feel so, then give me your heart. And my cross wife will eat it and give up starving herself. And I will take you back to the rose-apple tree."

So he turned back and swam toward the rose-apple tree, while the monkey murmured a hundred prayers to every kind of a god. And when at last he came to shore, he hopped and jumped farther and farther, climbed up the rose-apple tree, and thought: "Ah, my life is saved. Surely, the saying is a good one:

We dare not trust a rogue; nor must
We trust in those deserving trust:
For danger follows, and we fall
Destroyed and ruined, roots and all.

So today has proved a second birthday for me."

The crocodile said: "My friend and brother, give me your heart, so that my wife may eat it and give up starving herself."

Then the monkey laughed, and scolded him, and said: "You fool! You traitor! How can anyone get a second heart? Go home, and never come back under the rose-apple tree. You know the proverb:

"Whoever trusts a faithless friend
And twice in him believes,
Lays hold on death as willingly
As when a mule conceives."

Now the crocodile was embarrassed when he heard this, and he thought: "Oh, why was I such a fool as to tell him my plan? If I can possibly win his confidence again, I will do it." So he said: "My friend, she has no use for your heart. What I said was just a joke to test your sentiments. Please come to our house as a guest. Your brother's wife is most eager for you."

The monkey said: "Rascal! Go away this moment. I will not come. For

The hungry man at nothing sticks;
The poor man has his heartless tricks.
Tell Handsome, madam, if he should
Inquire, I've left the well for good.

"How was that?" asked the crocodile. And the monkey told this story.

ON THE UNIVERSALITY OF THE LAW OF
GRAVITATION*

A. O. LEUSCHNER

Newton deduced his law of gravitation from the previously known laws of falling bodies and from astronomical observations. According to his law, every particle of matter in the universe attracts every other particle of matter with a force which is proportional to the product of their masses and inversely proportional to the square of the distance between them. It is not my purpose to review the fascinating history of science leading to the discovery of this fundamental law, nor is it my object to examine the law in the light of the remarkable new theories advanced in recent years in physics and physical chemistry. Newton did not prove the universality of the law of gravitation, but by a happy stroke of genius generalized a fact which he had found to be true in the case of the mutual attraction of the moon and the earth. The characterization of the law as universal implies that it should hold not only here on our earth, but also in our solar system, including the major and minor planets, comets, meteors, et cetera; and furthermore that it should hold beyond our solar system, among the stars surrounding us and forming our stellar system, and in fact in other stellar systems beyond our own, if there be such.

* Read February 7, 1916, before the Cosmos Club of the University of California, and March 25, before the Astronomical Society of the Pacific.

The remarkable confirmation which the law of gravitation has received since it was first pronounced by Newton in 1682, through the explanation of many previously unaccounted-for phenomena and the accurate prediction of the motion of the planets and other objects in our solar system, leaves no doubt of its general applicability in the sense in which it was pronounced by Newton; and yet, if we should investigate how far the astronomer can go in establishing the universality of the law of gravitation on the basis of observational evidence, we should find that, while we can go much farther than Newton did himself, the evidence available from astronomical science has its tremendous limitations. Furthermore, it is a remarkable fact that, although for over two centuries the law has been applied successfully to the explanation of the most intricate problems of motion, in and beyond our solar system, yet much confusion exists in the published works of some competent astronomers as to its complete demonstrability in regard to double stars, as evidenced in their attempts at a proof of the universality of the law. It therefore seems profitable to correct this confusion by setting forth, step by step, the manner in which astronomical science may serve to establish the law of gravitation and to point out the limitations which are imposed upon the astronomer in proving its universality. Fortunately, we can dispense with the complicated geometrical processes employed by Newton, mathematical methods of great elegance having become available since his time for the establishment of the law. Actual mathematical proofs, however, capable of verification by any mathematician, will be omitted here, in order to simplify the sequence of our conclusions.

The first result easy of demonstration is that if a particle is subject to a central force, the areas which are swept over by the line joining it with the center are proportional to the intervals of time in which they are described. The line joining the particle with the center is called the radius vector. Conversely, it can be shown that if the areas swept

over by the radius vector are proportional to the intervals of time, the attracting force acting on the particle is constantly directed towards the center. These results depend upon three laws, or axioms, of Newton, stated by him for the first time in 1686 in his *Principia*, though partly known to Galileo and Huyghens. These axioms are as follows:

(1) Every body continues in a fixed state of rest or of uniform motion in a straight line unless it is compelled to change that state by a force impressed upon it.

(2) The rate of change of motion is proportional to the force impressed and takes place in the direction of the straight line in which the force acts.

(3) To every action there is an equal and opposite reaction, or the mutual actions of two bodies are always equally and oppositely directed.

At the beginning of the seventeenth century the famous Kepler had deduced three laws of motion from the observations of Tycho Brahe. These laws are:

(1) The radius vector of each planet with respect to the sun as the origin sweeps over equal areas in equal times.

(2) The orbit of each planet is an ellipse with the sun at one of its foci.

(3) The squares of the periods of the planets are to each other as the cubes of the semi-major axes of their respective orbits.

An ellipse is a curve which may readily be drawn by fastening two pins firmly on a piece of paper, attaching the ends of a string to the pins, then drawing the string taut with a pencil and carrying the pencil completely around the two pins, always keeping the string taut. The two points marked by the pins on the paper are called the foci of the ellipse. The straight line drawn through the two foci from one end of the ellipse to the other is called the major axis of the ellipse, its length being designated by $2a$. The point midway between the two foci is the center of the ellipse. The distance of either focus from the center, in terms of the semi-major axis as unity, is called the eccen-

tricity and is denoted by e . It signifies the amount that the focus is out of center. Ellipses of different size or shape may be drawn by varying the length of the string, or the eccentricity. The period of revolution of a planet is the time it takes the planet to move completely around the ellipse from a given point back to the same point. Kepler's laws, then, signify that each planet of the solar system moves in an ellipse of its own, around the sun, the sun being the common focus of all ellipses; that the radius vector, the line drawn from the sun to the position of a planet on its ellipse, describes equal areas in equal intervals of time; finally, that the square of the period of a planet divided by the cube of the semi major-axis gives the same quotient for every planet, or, expressed mathematically, is a constant. This is written:

$$\frac{T^2}{a^3} = c.$$

Kepler's laws are the result of a lifetime of empirical investigations or guesses, based on the observations of Tycho Brahe, particularly on his observations of Mars. These laws are by no means rigidly correct, but they represented the observations of Tycho Brahe within the accuracy with which he was able to make them. If Kepler had had at his disposal observations of the precision obtainable with present-day instruments, it is very doubtful whether he would have been satisfied to announce them. Their inexactness arises from the fact that they take no account of the interaction of the planets, but only of the action of the sun on each planet separately, so that the mass or weight of each planet is disregarded.

In any ellipse the radius vector drawn from the sun at the focus S to the planet at the point M shall be designated by r , and the angle formed by the radius vector r with the major axis by θ . From the converse of the law of areas, referred to above, it is evident that the planets of the solar system, according to Kepler's laws, are subject to a central force, but so far we have no indication as to

what the nature of that force may be. All we know is that the planets describe plane curves, namely ellipses about the sun, with the sun in a focus, under the action of a force which is constantly directed towards the sun. In a given ellipse, r can always be calculated when θ is known, by a formula which is called the polar equation of the ellipse.

We may now make use of the following established fact in mathematics: If the equation of the curve or orbit described by a body about its center of attraction is known, then it is possible to determine by mathematical processes involving the use of the differential and integral calculus, an expression which gives information about the nature of the central force. Let us now designate the sector or area described in the unit of time by $\frac{h}{2}$. In the case of the planets of the solar system, the resulting expression of the force is:

$$f = \frac{h^2}{a(1-e^2)} \cdot \frac{1}{r^2}$$

It will be remembered that, for a given planet, h (double the areal velocity), a (the semi-major axis), and e (the eccentricity), are fixed numbers. Therefore, any expression depending on them must also be a fixed number. Let that part of f which depends upon h , a , and e be designated by k_1^2 ; then our expression reduces to:

$$f_1 = \frac{k_1^2}{r^2}$$

We have used the designations f_1 and k_1 to indicate that our result has been derived for the first planet of the solar system. If we should apply the same demonstration to another planet of the solar system, we would arrive at a different value, k_2^2 , because for the second planet the values of h , a , and e would be different. We have thus learned that for particular planets the nature of the force varies in inverse proportion to the square of the radius vector and

in direct proportion to a constant k_1^2 , k_2^2 , or k_s^2 , as the case may be.

It is at this point that considerable confusion is introduced by some prominent writers. As our results stand so far, the law of force is quantitatively different for every planet of the solar system, even if they all be taken at the same distance r from the sun, for as yet we have no evidence that $k_1^2 = k_2^2 = k_s^2$, et cetera. Some writers introduce the angle θ in place of r in the expression for the force f , by means of the polar equation of the ellipse, and then discuss at length whether in fact the form of the law which involves solely a constant and r or the form of the law which involves a constant and θ is the correct one. Transformations may also be made which involve a constant and both r and θ , and the decision as to which form of the law, which are all mathematically correct, shall be chosen, becomes all the more complicated. It is reasoned that since all of these laws are equally consistent with the motion of the planets in question, as expressed by Kepler's laws, and since the laws of Kepler hold for each of the planets and of the known satellites of the solar system, as well as for the hundreds of small planets which have so far been discovered, *it is natural to impose the condition, if possible, that the force shall vary according to the same law for each body.* Since the eccentricities, et cetera, of their orbits are all different, the law of force is the same for all these bodies only when it has the form

$$f = \frac{k^2}{r^2}$$

Another reason advanced for adopting this expression for f is that in the case of all the other expressions the attraction *would depend upon the direction of the attracted body, and this seems improbable.*

The foregoing reasoning for adopting the form $f = \frac{k^2}{r^2}$ as the common law of force in the solar system is not only unscientific but unnecessary.

We have arrived at the conclusion that the law has the *same form* for different planets in the solar system, but that the results for the law derived from the different planets differ only in the numerical value of the constant k^2 , which in itself depends on h , a , e , which are different for different planets. But all of these results f_1, f_2, f_3 are evidently independent of θ , the orientation, that is, the direction which the planet has with reference to the sun. It is therefore necessary to consider further only the relation of the constants k_1^2, k_2^2, \dots et cetera, to each other.

This may be done on the basis of Kepler's third law, which, as may have been observed, has not as yet been considered in connection with the study of the law of force. If a indicates, as before, the semi-major axis of a planet and P its period, then Kepler's third law teaches us that

$$\frac{P_1^2}{a_1^3} = \frac{P_2^2}{a_2^3} = \dots = c$$

The area $\frac{h}{2}$ described per day may be obtained by dividing the whole area A of the ellipse by the period of revolution in days. Hence $\frac{h}{2} = \frac{A}{P}$. From mathematics we know

the area A in terms of a , e , and π , the well-known ratio of the circumference to the diameter in any circle. For the first planet h_1^2 then becomes

$$h_1^2 = \frac{4\pi^2 a_1^4 (1 - e_1^2)}{P_1^2}$$

Introducing this expression for h_1^2 in the expression for f_1 , and a similar expression for h_2^2 into f_2 , we obtain:

$$f_1 = \frac{4\pi^2 a_1^3}{P_1^2} \cdot \frac{1}{r^2} = \frac{k_1^2}{r^2}; \quad f_2 = \frac{4\pi^2 a_2^3}{P_2^2} \cdot \frac{1}{r^2} = \frac{k_2^2}{r^2}$$

But since, according to Kepler's third law, $\frac{a_1^3}{P_1^2} = \frac{a_2^3}{P_2^2} = \dots$ therefore, finally $k_1^2 = k_2^2 = k_3^2 \dots$, that is, the constant is numerically the same for all planets of the solar system.

This makes $f_1 = f_2 = \dots = f = \frac{k^2}{r^2}$, where k^2 stands for the now common constant $k_1^2 = k_2^2 \dots$

The rigorous demonstration just accomplished disposes entirely of the necessity of *imposing the condition that the force shall vary according to the same law for each planet* or of *considering improbable that the attraction depends upon the direction of the attracted body*. The demonstration given establishes the law to be common for all planets of the solar system.

The fact that Kepler's laws are inexact does not invalidate the correctness of our conclusions, if we consider for the present only the force of the sun acting on a planet and neglect the action of the planet on the sun. In his ingenious generalization, Newton took account of the action of a planet on the sun and of their interaction and was thereby enabled to explain astronomical observations with far greater exactness than Kepler's laws could describe them. For it must be borne in mind that, like the older systems of Ptolemy and Galileo, Kepler's laws are *merely descriptive* of the motions of bodies in the solar system, while Newton's more general law has been found to *account for* not only the motions as described by Kepler but also practically every irregularity of these motions.

Let us now consider a center of attraction other than the sun, as, for instance, the planet Jupiter.

Certain small bodies called moons or satellites are observed to move about Jupiter, for which Kepler's laws may by observation be found to hold. We can therefore apply the same process of deducing a common law of force for the moons of the Jupiter system as was applied for the planets in the solar system, resulting in the same *form* of law.

But these demonstrations prove only that the same form of law obtains and that there is a common constant k^2 for all the bodies moving about a particular center, but tell us nothing in regard to whether the constant is the same for the two centers.

The numerical value of k^2 for any center of force was seen to depend, in addition to the fixed number π , only on the values of a and P belonging to any one body moving

about that center. These values of a and P may be obtained by observation, for instance for the earth, and if we choose a itself as the unit of distance, so that the value of a for the ellipse which the earth describes about the sun becomes the unit of length, and also introduce into k^2 the value of P for the earth, in terms of days, we obtain a certain numerical value for k^2 which is peculiar to the sun as center of force. The same value would result, as shown before, if the a and P of any other planet moving around the sun had been used. We shall call the numerical value of k^2 peculiar to the sun as center the "force index" of the sun and shall denote it by K^2 .

If we apply the same method of computation to obtain the value of k^2 peculiar to Jupiter, by using the a and P of any one of its moons, expressed in the adopted units, we shall obtain an entirely different numerical value of k^2 ; similarly for Saturn as center, or any other center.

In fact the values of K^2 and k^2 (Jupiter) are to each other as about 1050 is to 1. Consequently the force-indices of different centers are different and therefore the constants k^2 are not the same for different centers, although the form of the law remains the same.

There is therefore something physically characteristic in regard to each center of force, which determines the numerical value of its force-index. This physical characteristic Newton has defined as the mass or quantity of matter contained in the body. Mass may ordinarily be conceived of in terms of weight. Thus the relative masses of two weights, such as a piece of wood or a piece of iron, may be expressed as the ratio of their weights.

Since the law of force for any center is proportional to its k^2 and since its k^2 has been found proportional to its force-index, or, according to Newton, to its mass, the law of force prevailing for all centers of the solar system is of the same form and the force itself is proportional to the mass of the central body.

If we now consider two attracting centers in the solar

system in relation to each other and call the mass of the one m_1 and of the other m_2 , and the distance separating them r , then we have found that the force acting between these bodies must be proportional to these masses and inversely proportional to r^2 .

This is Newton's law of gravitation. Although deduced from slightly faulty premises, it has been strengthened almost to full substantiation by the very remarkable results achieved with it in accounting for most complicated phenomena of motion in the solar system.

It should be observed, however, that the definition of mass introduced in the statement of the law is entirely arbitrary. But to this point we shall return later.

Having studied the law of force in the solar system, we shall take up the question of the law of force prevailing outside of our solar system in the case of double stars.

Observation has shown that when stars revolve about one another they describe ellipses. But as their motion, as seen from the earth, is projected on a plane perpendicular to the line of vision, it is not possible to say whether or not the observed ellipse is the real orbit. Since the law of areas is found to be satisfied, by observation, by one star with reference to the other as primary, double stars move under the action of central forces. The position of the primary star, however, is in general not found to be at the focus or at the center of the ellipse, but lies anywhere within it.

Applying under these conditions the usual mathematical test for the nature of the law, mathematical difficulties are encountered in establishing a law of force which is independent of the angle θ , the orientation. When the law is arbitrarily assumed to be independent of the orientation, as was found to be the case in the solar system, then two possibilities arise, namely, either that the force is in direct proportion to the distance r or that the Newtonian law applies. It can be shown, however, that when, in the case of an elliptic orbit, the force is proportional to r , then the

primary star must be in the center of the ellipse. As this has never been found to be the case, the only alternative is the Newtonian law.

It should be observed that all demonstrations regarding the law of gravitation depend upon observational material which is imperfect in accuracy and completeness. But with every advance in observation which has indicated a possible departure from the rigor of the law of gravitation, there has come a more precise mathematical application of the law which removed apparent discrepancies. The law has been applied to account for past and to predict future motions of hundreds of comets and asteroids, and has not been found wanting. Experience has shown that the solution for such differences of observed motion as still remain to be accounted for, as in the case of the moon and the planet Mercury, will be found in some form under the law of gravitation. The exceptions existing are of two classes. One class concerns bodies of finite mass. The other class of exceptions includes the motions of small particles, as in the case of the motion of particles in comets' tails. Possibly the irregularities in the motion of Encke's comet may fall in this class.

On the other hand, remarkable verification has come from the study of spectroscopic binary stars. In a visual binary system, by the application of the law of gravitation, it is possible to determine the mass of the system and the actual linear dimensions of the orbit, including the component of the velocity in the line of vision, provided the distance of the system from the sun has been independently derived by observation. By the application of the spectroscope, the component of velocity in the line of vision may be directly measured on the basis of the wave theory of light. When this has been done for a visual binary, then the distance of the binary system from the sun may be calculated and in the few cases where this has been attempted, a complete agreement has been found between the values of the distance of the system derived directly

from instrumental measures of position and those derived from the spectroscopic observations. This indicates that the mathematical formulation of the theory of gravitation and of the wave theory of light is sufficient to account for the phenomena to which reference has been made.

If we disregard the defects in our demonstration that arise from the imperfection and the incompleteness of our observational material, then we may accept Newton's law as universal for finite masses, however small. The principal difficulty lies in its application to very small particles, as the particles in comets' tails. In spite of many theories, the correctness of which is established, such as involve light pressure, electrical phenomena, et cetera, which have been rigorously applied in connection with Newton's law, no wholly satisfactory representation of the observed motions of particles in comets' tails has been accomplished.

The difficulties frequently referred to, which concern the representation of the motion of a number of bodies of finite mass acting on each other, are purely mathematical and arise from the imperfection of our present mathematical methods.

With reference to the law as applying to small particles, the suggestion presents itself that the identification by Newton of what we have chosen to call the force-index of a central body, solely with the quantity of matter or mass, may be too specific, particularly in the light of recent physical investigations of electricity as affecting the mass of particles. The suggestion has been advanced by Kapteyn that the force acting between the particles of nebulae in their earliest stages is solely electrical and that the Newtonian law of force develops with the mass as the particles combine in later stages of development.

JOHN MORTON ESHLEMAN—A TRIBUTE*

GUY C. EARL

Mr. President, Members of the Faculty, and Students of the University:

Upon this occasion I desire to avoid undue eulogy, I wish to preserve the true perspective and to indulge in no extravagance of commendation in speaking of Jack Eshleman. He was my friend. I knew him intimately and I knew that extravagant indulgence in the language of adulation and unrestrained eulogy would be most offensive to him. It seemed, therefore, the most fitting thing for me at this time to tell you the story in brief of Jack Eshleman's heroic life, and let the facts themselves speak his eulogy.

A year or two ago, in a conversation that took a most intimate turn, Jack, as we loved to call him, briefly told me of some of the difficulties with which he had had to contend. While telling me, his face was at times very sad and his voice husky. I am going to tell you the story, even if in doing so I am shaken by the pathos of it all. He told me that his father was a soldier in the Northern army in the Civil War, and, shot to pieces, was taken in an almost dying condition to a Northern hospital. There, through the tender nursing of the daughter of the clergyman who was in charge of the hospital, the father of John Morton Eshleman was made to live. He fell in love with this gracious lady who had kept off the king of terrors and the two were married. They lived in Southern Illinois. Several children were born, the youngest of whom we are thinking of today. Jack told me of the limitations and poverty of his home. His

* Address delivered by Guy C. Earl, March 17, 1916, at the Memorial Meeting at the University of California.

father never fully recovered of his wounds and was incapacitated thereby from labor. The mother, on the small compensation of twenty or thirty dollars a month, taught school for a few months each year in her various struggles to provide the food supply, all insufficient for the children. During the last five years of his life, the father was utterly bedridden. Jack told me that frequently the cupboard was absolutely bare, and that there was not a mouthful of food in the house, and that often as a child he had hunger days. Many a time he had seen the neighbors bring in the food necessary to keep the family from starving.

When the father died, Jack was given a home for one year with an uncle in New York. He spent the year as a freshman in the high school. Returning to Illinois, he went to work. But that frail body, born into a house of privation, insufficiently cared for and nourished from the very beginning, became a prey to dread disease, and this youth found himself, at an age when other youths are in the full blossom of buoyant and vigorous bodily health, suddenly companioned by the White Plague that began to gnaw at his vitals. The County Clerk of the county where Jack lived had been similarly afflicted and had gone to Colton, California. Jack thought of but one word—Colton—and getting enough money to pay the poorest passage by train to that place, he fled to it. He sat up on the car all the way because he did not have money to buy a bed. Arriving at Colton, he went to work in a fruit orchard during the harvest, and then, with pick and shovel, he went to work for the Southern Pacific Company as a railroad track hand. After a while he became a dishwasher and scullion to a gang of railroad men who lived in one of the maintenance-of-the-way cars. He then became steward on this car and for two years he lived in the car in that capacity, at a salary of thirty or forty dollars a month, in the roughest environment, in railroad building. Did he yield to these obstacles and settle down to the life of those about him?

Frail and diseased of body, given to long hours of employment, amid rude and ignorant men who did not even know that there was an intellectual life, this pale youth made up his mind to go through the University of California, and with true instinct he set his course for the law and politics. Without the advantages of instruction of any kind, but with splendid will and high ambition, Jack Eshleman addressed himself to the task of preparing for the University. The rough men who were his companions loved him, but they could not understand the motive of this laborious young man, who after a long day of work, sat up far into the night studying mysterious books on history, on mathematics and the humanities. But Jack Eshleman understood the motive. He dreamed of the larger life of man and determined to live as much of it as God would permit.

He told me that it was most difficult at times to make any progress in his studies. He had in the one year of high school received a slight smattering of Latin and by virtue of that he was enabled to complete the Latin required for entrance into the classical course of the University. But when he undertook the study of Greek, he found the utmost difficulty. However, he struggled forward up to Homer. The simpler Greek of Xenophon was hard enough, but when he took up the archaic Greek of Homer, he was almost mastered. Finally, in desperation, he took a note book and for weeks entered therein every word on every line in the first book or two of Homer, setting down the principal parts of speech and giving the declension and conjugation, etc., of the respective words. By such unflagging and persistent effort and will, in an environment most forbidding, he mastered the tongue of Homer. He did more—he attuned his ear to the eternal song of that poet. He not only became familiar with the grammatical construction and the words of that mighty genius, but he learned from him of heroic lives, of the story of Helen and the brave deeds of heroes at the Siege of Troy, and of the wanderings of Ulysses.

He saw, in that great epic-story of the race, the story of his own life. By it he was encouraged to go on. He highly resolved to be as undaunted by trouble and obstacle as were the Greeks of old.

After two years, Jack Eshleman came to the University and took what he said were called the entrance examinations, but, he said, no one of them was as difficult for him as his daily tasks had been. Penniless, he maintained himself during his freshman year by taking care of the grounds of a resident of Berkeley, and the next year by doing some other honorable work, and then by becoming a reader of examination papers in the third, and so on, for the world always had something for his willing hands to do. His record in college was a strong one in and out of the classroom. No language was difficult to *him*, after his struggles with Homer. No mathematics daunted *his* powerful will, which was used to calculation, and had solved more problems than Euclid contains. He ranged over the curriculum of the University, a brilliant student. Philosophy became his favorite study, and, by our eminent and beloved Professor Howison, he was led out to the ultimate confines of human knowledge and human thought, and was made familiar with the great thinkers of the past and with their philosophic systems, from Plato and Jesus down to Kant and Spencer. Jack's eager mind also seized upon the materials in the courses of economics and government and history, and assimilated them. He took his Bachelor's degree. He took his Master's degree. He was admitted to the Bar. He was sent to the Legislature as a representative of the Berkeley district, and there he strove to advance the interests of the University by legislation.

But there, alas! the White Plague again smote him down, and on a stretcher he was taken into the Imperial Valley desert, where he was slowly nursed back to life by his heroic wife, a college-mate of his. Imperial County soon after was created, and Jack Eshleman became its first District Attorney. He arose from the pallid couch of his own

troubles and proceeded to the halls of justice, there to solve the problems and troubles of others. From the desert solitudes he looked off into the whirling life of the State and saw its great political needs. This man, born in utter poverty, a child of misery baptized with tears, had come through the agony of suffering into a most intimate knowledge and realization of the lives and hopes and aspirations of the common people. Through his studies he had become familiar with the past and the present. So aided, he looked into the future. With a fine, philosophic intellect correlated with human sympathy and human knowledge, he was becoming a statesman. A time soon came when he was called from his retired life in the desert to start and to take a prominent part in the political revolution that has taken place in this State in the last few years. In leaving the desert he well knew he was bidding farewell to length of life, but he longed for action, as he had longed for knowledge. "As the hart panteth after the water brooks," so panted his soul for the conflict. He preferred to live a briefer, but a fuller life, where opportunity was greater for service to the State. Literally he sacrificed his life on the altar of the State.

Jack Eshleman became the head of the reorganized Railroad Commission of California, and through his constructive ability and supreme courage the great work of that body was begun and given its impulse, and he became widely known throughout the country. In due time Jack Eshleman became the Lieutenant Governor of the State and presided over the Senate with dignity and power. By virtue of his office he was also a Regent of this University. Had he lived, there can be doubt that he would have been Governor of the State and then United States Senator; for the people delighted to do *him* honor.

He was no iconoclast and extreme radical. He had poise and sanity. He indeed was a true conservative, designing to preserve and conserve all that is good in our political system and to introduce certain principles of action which

he believed were imperatively necessary to promote the well-being of the State. He loved democracy with all his heart, and he showed it in all his life. He hated autocracy in all its forms. His heart was with the common man, to give him freedom and therefore happiness.

Jack Eshleman was bravely and energetically engaged in most strenuous endeavors when, in an instant, at the height of his fortune, he passed away from the scene, not of his weakness, but of his glory. Such was the end of this man. He was worthy of the University, and the living need not desire to have a spirit more heroic, although they may pray for a less fatal issue. The value of such a spirit is not to be given in words.

Graduated from this University in 1902, in less than fourteen years, before he was forty years old, Jack Eshleman, a child of misery, hampered by great physical weakness but possessed of fine mind and splendid will, did more than almost any other man that ever lived in the State to leave the impress of his life forever upon California. He showed elements of statesmanship, and had he lived we must believe that his abilities would have continued to evolve and would have shown to us a man of almost limitless powers and growth.

He had a most winsome and childlike simplicity of character. Though he knew he lived dangerously, being ever under the imminent menace of sudden Death, yet he did not let it embitter him, for he was exceedingly sweet in disposition. Perhaps the outstanding features of his personality were courage, sympathy and high idealism. He was a devoted husband and loving father. His capacity for friendship is attested by the genuine sorrow that has been shown by so many who knew him. His Alma Mater mourns today for her worthy son, who, though he be dead, yet *still* lives!

I have told you the simple story of the life of John Morton Eshleman. I *have* spoken his highest praise, for in telling the facts of his heroic life, I have magnified the man himself, and my tribute is complete.

THE CONTRIBUTION OF MEDICAL SCIENCE TO
MEDICAL ART AS SHOWN IN THE STUDY
OF TYPHOID FEVER*

FREDERICK P. GAY

I interpret the gratifying invitation of the Academic Senate to appear before you as Faculty Research Lecturer for the current year not only as an opportunity of assembling and correlating a group of facts that I have been studying, but also as allowing me to attempt an explanation of the method by which such facts are obtained. I wish in particular to suggest how one of the more theoretic or so-called scientific branches of medicine is utilized in the practical problem of preventing and curing disease.

There is little reason why many of you should have attempted to differentiate between medicine as an Art and medicine as a Science. Public interest and concern in medicine deals largely as it is applied to the individual or community and little with the scientific and more theoretic investigations on which the progress of applied medicine depends. Medicine to the layman is typified in the physician who attends him, and it is the noble and satisfactory function of this individual to ease the mind and body of his patient and frequently so to apply his knowledge of human structure and function in health and disease as to avert death and hasten recovery. The practitioner employs the art of medicine, that is to say he combines, modifies,

*The annual Faculty Research Lecture at the University of California, delivered on Charter Day, March 23, 1916, on invitation of the Academic Senate.

and adapts certain recognized means to effect a given end. There exists, however, a type of work in medicine with which the public comes less in contact and which concerns itself primarily with the fundamental understanding and elaboration of those very means of prevention, relief, and cure which the physician applies.

It would naturally occur to you that the individual best fitted to discover means of understanding and thereby of combating disease, would be one fully conversant with its manifestations and results through constant and persistent contact with the sick. Such indeed was the development of medical science through many centuries. I need only mention categorically a few of the great discoveries that have been made during the centuries by practicing physicians. Galen, in the second century of our era, showed that control of the muscles depends on integrity of the nerves that run to them, by the simple experiment of cutting certain of them in animals. In the sixteenth century Vesalius not only founded the science of anatomy but described the mechanism of breathing and introduced artificial respiration. Harvey in the seventeenth century experimentally demonstrated the mode of circulation of the blood in the animal body. Thomas Young laid the foundation of physiological optics and explained the principle of color differentiation. Jenner showed conclusively that inoculation with cow-pox will protect against small-pox, and thereby laid the foundations of vaccination as a preventive of many infectious, parasitic diseases. Morton, in the last century discovered the principle of anesthesia which has made surgery painless.

You will notice that these examples consist entirely of contributions which may be regarded as fundamental principles rather than adaptations of such principles however practically valuable; in other words it is a list of discoveries rather than of inventions; on such a basis I have omitted Lister's great application of Pasteur's principles of bacterial contamination in aseptic and antiseptic surgery. You

may further observe that the contributors cited have worked on experimental rather than purely deductive lines; I have not, for instance, mentioned the important work of Auenbrugger who associated certain percussion notes over the chest wall with disease conditions in the lungs and heart. I trust I shall be able to convince you that essential advance in medicine as in other biological sciences, lies in the development of principles through inductive experimentation.

In the popular mind and in popular fiction it is still the well known practitioner who is the great contributor to medical science. As a matter of fact today, and for many years, the progress has been largely due to a group of workers who are concerned little, or often not at all, with the care of the sick. Many major discoveries have been made by men with no medical training at all. I may simply mention among the latter Pasteur and Metchnikoff, whose contributions we shall later consider in more detail. This differentiation in medicine of a group of medical or even non-medical men from medical practitioners, is a specialization or division of labor unknown to the general public or else misunderstood. Even the medical profession itself is frequently ignorant of this division. Its development is, however, quite logical and tending toward greater efficiency.

Progress in medical treatment a hundred years ago, and to a great extent fifty years ago, depended almost entirely on deductions that were ingeniously made from personal experience with the sick. The greater such an experience was, the greater and more complete the series of facts obtained, the more valuable the deductions from them. Nothing approaching a complete series of facts, and particularly of facts in their chronological order, was possible until experimental methods were employed. As Neuberger has stated, collection and observation of fact constitute the first step in science but not science itself. With the application of the methods that had already been utilized in the sciences of physics and chemistry to biology and medicine, it has often

been possible not only to reproduce in animals some particular stage of a disease that has been met with in man, but to study the preceding and succeeding stages in such a process with a completeness that could be afforded in the sick room only through unlimited experience. Any deductions from the haphazard data of spontaneous disease requires moreover unlimited skill in fitting each stage as it irregularly occurs, into its proper place. Deductions from a relatively complete and orderly series of experimental facts are at once more rapidly arrived at and more reliable than empirical methods. They have the further advantage of suggesting in their genesis other questions that have perhaps never arisen in clinical experience, the answers to which may, however, greatly simplify the problems of medicine.

When once the fruitfulness of the study of medical problems by methods already employed in the exact sciences became evident to the thoughtful physician, innumerable questions arose in his mind which he felt sure could now be answered. He felt, let us say, that animal experiments could tell him the exact relation between a shrunken and diseased kidney, a thickening of the arteries and an enlargement of the heart, a combination frequently found associated, and once the exact relation was known, particularly as to which came first, he felt some method of arresting or preventing the process might finally be obtained. At first the more ambitious and able practitioners endeavored to answer these questions for themselves, working in their laboratories into the still hours of a morning that ushered in another day spent at the bedside and the operating table. These giants exist even today and it is owing to their example, enthusiasm, and aid that some of us are now able to carry on the work with greater single-mindedness and under less heroic conditions of existence. As the facts have accumulated and the methods of these newer sciences have been elaborated, it has become increasingly more difficult for one with divided interest to understand and particularly

to add to them. Twenty-five years ago the Professor of Anatomy was a surgeon; the Professor of Pathology a practitioner of medicine. These men were often able and brilliant teachers of subjects which were their avocations rather than their true professions. They were even contributors to sciences which in their incompleteness made the finding of new facts easy. As the mass of acquired facts became larger, the gaps between them shorter and more difficult to fill and the stimulus to further discovery greater, men one after another slipped from the beaten track of practice to become laboratory workers, usually at a financial sacrifice, because the work appealed to them.

It became evident that the medical sciences require whole-souled devotion. As Dietl expressed it in 1851, "As long as medicine remains an art it will not be a science. As long as there are only successful physicians there will be no scientific physicians." It is the practitioner, however, who has created the field for this latter type of worker and who, to a large extent, has made his existence possible.

We have had then for a number of years, two types of workers in medicine—the laboratory man and the practitioner; the boundaries between them are by no means fast and one crosses readily from one into the other field, but with less and less frequency does one attempt to do both types of work at once. The relations between these workers are highly co-operative, and usually mutually appreciative. The practitioner, as the original patron of the medical sciences, was at first inclined to regard his laboratory colleague as a high grade technical assistant, and being closer to the source of human disease problems he still at times assumes a somewhat *ex cathedra* attitude as to what problems the medical scientist shall investigate. Concerning the actual method of investigation he has, through lack of experience, become tacitly acquiescent. The relation of these workers in regard to the problems themselves is an interesting one and worthy of fuller elaboration.

It is obvious that the practitioner, through constant contact with the sick, knows of more problems that need solution, but through failure to appreciate the limitations of scientific method, he does not usually appreciate those problems which can be solved. The clinician is constantly asking the laboratory man for explanations or help that cannot as yet be given, and is often surprised when he asks whether A and B in conjunction will produce a condition C to be answered evasively, or told that D equals E. The clinician has had the tables reversed on him and must perforce content himself with what is given him to apply and not ask for what he would like. A slight misunderstanding the other's point of view must arise when we consider the difference in the material with which each man has to deal. The clinician is interested primarily with the needs of individuals, with the problem of a case; the scientist with disease entities, with a complex composed of all the cases of a particular malady that have existed, or that may exist, or frequently with some more abstract line of investigation arising from them. In the first instance the problem, through acute, is a personal and passing one that in the particular case will disappear before the question that has arisen can possibly be answered; in the latter case the solution is acceptable however long it may be in coming. It is easy to understand the impatience of the clinician who wishes results in order that he may apply them to Mr. A, and on the other hand it is reasonable to appreciate the refusal of the laboratory man to be dragged from a promising problem of fundamental import to investigate superficially an ephemeral individual symptom. While it is still possible for the laboratory man to be influenced in choosing his problems, he travels fastest by following attentively those problems which his own work has suggested. It is often more profitable in the end to follow what appear to be irrelevant ramifications rather than to attempt direct determination, let us say of the cause of cancer, or a specific cure for tuberculosis. I venture to say that these questions

will not be answered by what we consider direct attack, for it is the habit of nature to respond to our interrogations with apparent indirectness. The real indirectness of course lies in the way we put our questions and not in Nature's response. We plan an experiment and await a result which shall be firmly yes or no; the answer is neither of these but something that throws no light on the original inquiry. Blessed is the man who sees in this incomprehensible reply the starting point of a new line of inquiry which may take him far afield from the goal he had first in mind. We scientists are like rag-pickers, some fumble through masses of rubbish looking for a certain coin, while the true investigator takes up each object that is turned over and asks himself what use he can make of it.

Let me illustrate the stages in the evolution of modern medical science from medical art by an outline of the development of our useful knowledge in respect to a single disease, namely, typhoid fever.

Typhoid fever has been, and still remains, one of the significant causes of death and disability. So far as can be shown from the necessarily incomplete statistics of the Public Health Service, there were over 17,000 deaths from this disease in the United States in 1913, which means there were over 170,000 cases, since the mortality averages ten per cent. It is a malady particularly prevalent in crowded groups of men, such as armies and asylums. Sixty per cent of all the deaths in the Franco-Prussian War were due to typhoid, and in the Spanish-American War one-fifth of all the enlisted men contracted the disease, and there were seven times as many deaths from it as from implements of war. And typhoid fever is important not only as a cause of death, but particularly owing to its economic waste; for an acute disease it has a particularly lengthened course and is followed by frequent sequels. It has recently been estimated that the economic loss in this country from typhoid is \$50,000,000 annually. The disease ranks in this respect second only to tuberculosis.

Our interest in typhoid fever is heightened by the fact that it is not only an important disease, but one which can and will eventually be obliterated. Recent reports from the Surgeon General of the United States Public Health Service show that the incidence of this disease is probably not more than half what it was thirty years ago, owing in large part, to improved sanitation alone.

Perhaps the one most significant line of advance in medicine has been the gradual recognition of disease entities. On the recognition of separate diseases depends all measures of quarantine, prevention, and rational therapy. Diagnosis, the recognition of a disease entity, depends on the patient's symptoms and these symptoms are of two classes; subjective, or those the patient himself experiences as pain, chilliness, and the like; and objective symptoms which the physician can detect. Among the latter may be mentioned rapidity of the heart beat, fever, eruptions, changes in blood pressure; changes in the blood and urine, and the like. Medical progress has been dependent on the methods of recognizing such constant variations from the normal as are found characteristic of a given type of disease. Such variations were detected at first by the unaided powers of observation, and later by the employment of instruments and methods of precision introduced in the evolution of the medical sciences.

One of the most important symptoms of the parasitic or infectious diseases is a rise in bodily temperature, or fever. A fever is a disease characterized by such a rise in temperature and some fevers continue over a period of days or weeks. The disease we now recognize as typhoid or enteric fever is one of these continued fevers and although probably seen by Hippocrates, was for centuries confused with other lasting fevers of somewhat similar appearance. Recurrent fever, septic infectious, and typhus fever in particular, present pictures which even today in their beginnings and in their purely clinical aspects may be confused with typhoid.

We owe our first full description of what was probably typhoid fever to an English physician, Thomas Willis, who in 1643 described an epidemic of the disease that occurred among the parliamentary troops. Early in the eighteenth century Strother, another Englishman, described ulcerations in the intestine and enlargement of the spleen in that slow nervous fever which we now recognize as typhoid. The effect of this disease in producing a cloudiness or aberration of the mind is what has given it its name, which is derived from the Greek *τύφος* or cloud. Its particular nervous or mental effect was further observed by Huxham, who in 1737, on a purely symptomatic basis, separated cases of "putrid malignant fever" (or typhus) from the "slow nervous fever." The final separation of these two confused diseases did not come, however, until a century later and was dependent not only on the recognized differences in the contagiousness and course of the two diseases, but on the recognition of the characteristic and almost inevitable lesions or anatomical changes which are found in fatal cases of typhoid but never in typhus fever. These lesions, ulceration of the intestine and swelling of the spleen, liver, and lymph nodes, mentioned by Strother, were described by Riedel in Germany (1748), Baillie in England (1761) and in particular by Roerer and Wagler (1762). We owe further descriptions of the clinical characteristics of typhoid fever to Bretonneau (1826) who called it "dothienenteritis," or abscess of the small intestine, a name which it frequently bears in French literature, and to Louis (1829) who gave the name "fièvre typhoïde" to the malady.

It is to the great credit of a Philadelphian, William Gerhard, to have given in 1839, a convincing basis of separation between typhus and typhoid fevers. He based this differential diagnosis on accurate descriptions of the greater contagiousness of typhus, the presence of characteristic lesions in typhoid, and on careful comparison of symptomatic differences between the two maladies. His observations, later confirmed in Germany and England, gave us

the first basis on which to regard typhoid fever as a separate and distinct disease entity.

The final chapter in the clinical or purely observational study of typhoid fever is represented by two important observations in reference to its transmissions from one human being to another. The disease as contrasted with typhus fever was regarded, and properly so, as only slightly contagious, that is, directly transmissible from one patient to another. In 1856 Budd pointed out that the danger of transmission in typhoid, the poison of the disease as he expressed it, lies in the patient's excreta, and in 1873 Murchison actually traced an epidemic to a contaminated milk supply, and showed that the stools of typhoid patients are the principal source of danger in spreading the disease.

The brief statement then outlines the significant advances that were made over a period of centuries in the differentiation and recognition of typhoid fever by purely observational methods, confined to the patients themselves and made by practitioners of medicine. In so far as alleviation of the disease is concerned, there is little or nothing to report beyond purely symptomatic and palliative treatment, the most significant point in which was the introduction of hydrotherapy by James Currie in 1770 and its rediscovery by Brand a century later. The recognition of the danger of spreading the disease through contamination with typhoid excreta must be regarded as a great contribution to preventive medicine.

We come now to a period, which may be roughly defined as the year 1880, which ushered in the two most productive of the medical sciences, bacteriology and its twin sister, immunology. Whereas the experimental sciences of chemistry, physiology, and some aspects of experimental pathology, were already established and had made, and continued to make, valuable contributions to human welfare, bacteriology was destined to explain the causation of a series of diseases known as infectious, and immunology to utilize these discoveries in the specific prevention and cure of many of them.

The infectious diseases are not only important in themselves, but are recognized as indirectly the cause of many of the chronic diseases, so called, which are slower in their course, but none the less health destroying and fatal in their outcome. The growth of bacteriology has been coincident with the filling of the ranks of our present army of laboratory workers, many of whom have been primarily concerned in advancing this science. Bacteriology owes its stable beginnings to two men, Louis Pasteur, a chemist, and Robert Koch, for a brief time a country physician and later Professor of Hygiene in Berlin. Immunology, the science which explains natural protection to infectious disease and utilizes this knowledge in creating such conditions artificially, we owe first after Pasteur to Metchnikoff, a Polish biologist with no exact medical training. It is characteristic of these sciences that their problems, although arising in cases of human and animal disease, have been developed, in large part, away from the bedside, under the conditions of greater accuracy and completeness afforded by the experimental reproduction of the disease in animals. Such an experimental disease may be interrupted and attentively studied in its successive stages and its course may often be followed outside the animal body under conditions of greatest clearness.

It was the great service of Pasteur, and particularly of Koch, to show that each one of an increasing number of infectious diseases is caused by a separate and identifiable type of micro-organism. Such a micro-organism is always found in each case of the disease in question, but in no other instance, and will give rise again to the same disease when re-introduced in a healthy animal of the same species. The first instances of infectious diseases studied, anthrax, typhoid, chicken cholera, tuberculosis, and others, were found to be due to minute plants called bacteria. Later observers have described similar infectious diseases due to equally lowly animal parasites, particularly to those known as protozoa.

Typhoid fever was one of the first of the human infectious diseases to yield the secret of its parasitic cause. The typhoid bacillus, *B. Typhosus*, was first described by Carl Joseph Eberth in 1880, who found it microscopically in tissues from a patient that had died of typhoid fever. It was grown outside the body in pure culture four years later by George Gaffky. This organism was soon recognized as the cause of typhoid fever, although the final postulate necessary to prove the etiological relationship to the disease was not fulfilled until 1900 when Metchnikoff and Besredka succeeded in producing the disease experimentally with pure cultures in anthropoid apes. Of great corroborative importance in proving the causative relationship of the typhoid bacillus, was its presence in the stools and urine of cases of typhoid fever, which was demonstrated in 1885. In the same year Fraenkel and Simmonds found the microorganism in the circulating blood of a case of typhoid fever, a condition which was later shown by the work of Kühnan (1897), Castellani, and Schottmüller to be fairly constant during early stages of the malady. This observation not only proved finally and conclusively the etiological relation of the typhoid bacillus to typhoid fever, but led to a gradual reconstruction of our conception of the disease itself so that we have finally come to regard it primarily as a septicemia or blood infection rather than an intestinal disease *per se*, as the striking lesions in the small bowel had led us to assume.

A scientific discovery may be considered worth while if it merely gratifies intellectual curiosity and adds an apparently insignificant support to a structure, the totality of which makes for human knowledge and welfare. It is a characteristic of the medical sciences in general, and of bacteriology in particular, that the discovery of new principles has led very rapidly to practical results of the greatest significance to mankind. In no instance is this characteristic more strikingly true than in the study of typhoid fever. The study of *B. typhosus* as a single and essential

cause of typhoid fever led rather rapidly to important advances in the prevention and cure of the disease.

I have already referred to the valuable suggestions of Budd and Murchison that the potential danger of contagion in typhoid fever lies in the excreta from the patients. In common with all empirical results arrived at by retroactive judgment between cause and effect, these suggestions were only partly convincing and led to only partial avoidance of the danger. Witness for example the obstinate assertion of Pettenkoffer, the great hygienist, who insisted that the contagion in this disease must pass through a ripening stage in the earth, and that its spread is dependent on the level of ground water. The demonstration that the typhoid bacillus was not only the cause of the disease, but that it is present in the stools and urine of typhoid patients, at once led to more logical and far reaching avoidance of these sources of contagion. It was accepted not only that typhoid patients are a source of possible danger, but it was soon suggested that even after their recovery they might continue to retain the germs of the disease in their bladders or intestines (Horton-Smith 1900; Koch, 1902). This led, at Koch's suggestion, to a systematic investigation of the stools of recovered cases of typhoid fever in certain parts of Germany where the disease was particularly prevalent, and showed that four per cent of all recovered cases remain "carriers" of *B. typhosus* for varying lengths of time, some of them for years. In connection with this study Drigalski made the important observation that a few individuals may harbor the typhoid bacillus in their intestines without ever having suffered from the disease, "healthy carriers" as they are called. Repeated observations in all parts of the world have shown that through contamination of food stuffs, these carriers may produce not only a chronologically extended series of cases, but actual acute epidemics. The obvious remedy consists in detecting the innocent but dangerous individual and isolating or curing him.

Food contamination occurs not only in its preparation by carriers, but sometimes through transfer of the bacteria by flies as has been shown to be the case particularly in asylums and prisons where excreta have been left exposed in the neighborhood of kitchens. Reed, Vaughan, and Shakespeare have particularly emphasized this danger of fly transmission in their careful study of the devastating effect of the disease among our troops in the Spanish-American war. Evidence of this sort has led to an appreciation of the necessity of proper, protected latrines which can be rapidly built even in temporary camps.

These and other real contributions toward the prevention of the spread of typhoid fever have been made by pure bacteriology. Let us now consider what the sister science of Immunology has accomplished. I have only suggested how much the demonstration of the typhoid bacillus in the blood or stools of a suspected case of typhoid may aid in diagnosis of the disease. As a matter of fact no diagnosis is complete or indeed certain without such examination. An even simpler and almost as reliable method of laboratory diagnosis has been devised by Widal and by Grüber, depending on a principle that had been previously discovered in laboratory experiments. Bordet in particular is responsible for having shown that the blood serum of animals that have been given injections of a micro-organism may be distinguished from the serum of normal animals by the fact that it clumps the micro-organism in question. This fact was applied by Widal in his now famous test for typhoid fever, which depends on the presence of this agglutinating substance in the serum of those that are suffering from typhoid fever. This sign occurs in nearly all cases of the disease, although more frequently in its latter stages.

Our present methods of protective vaccination against typhoid fever depend on principles that have been dimly appreciated but at times successfully used by very primitive peoples throughout the centuries. It had been observed that

those who recover from certain of the infectious diseases are thereafter protected from them. With this fact in mind the Orientals practiced arm to arm inoculation with small pox virus which usually produced only local evidence of the dreaded disease and was followed by protection from it. Jenner made this haphazard and dangerous method of prophylaxis a safe one by utilizing virus from a modified form of small pox, namely cow-pox, which is not only harmless but gives equally good protection. Full understanding of the principle involved and its application to other infections, however, was dependent on the advent of bacteriology a century later. Pasteur not only separated out the causative agents of a number of diseases, but found that he could so modify their virulence that they no longer produced fatal or serious effects when re-inoculated into animals. Those that had been treated with these modified germ cultures were found, however, to be protected against fully virulent original growths of the micro-organism.

Facts such as these were early discovered in respect to the infections produced by the typhoid bacillus in small animals. Beumer and Peiper in 1887 found that mice that had recovered from a non-fatal dose of this organism would subsequently withstand doses that were fatal to their untreated brothers. Shortly after, following a very important discovery by two American scientists, Salmon and Smith, it was found that this same protection could be effected in animals by the previous injection of cultures of the typhoid bacillus that had actually been killed by heat.

In 1894 two German scientists, Pfeiffer and Kolle, on the basis of further theoretical studies, were led to try the effect of giving human beings small hypodermic injections of dead typhoid bacilli. They found that the doses they used produced certain uncomfortable but transitory symptoms, but that the blood of such treated individuals when subsequently examined, contain antibodies which indicated that they were protected against typhoid fever. At the

same time, and independently, A. E. Wright began similar inoculations on British soldiers who volunteered for the purpose. The inoculations did them no harm, and as larger and larger groups of these vaccinated men came into being and were subjected in war to the same dangers of typhoid infection as were untreated men in the same regiment, it became evident that they were much less likely to contract the disease than the uninoculated, and when such vaccinated men did at times come down with typhoid fever, the disease almost invariably ran a milder course than in the unvaccinated and the mortality among them was distinctly lower.

It took something over ten years to convince the thinking world that preventive inoculation against typhoid fever is harmless and that to a striking extent it does protect. The results attained in the German and English Armies and among the personnel of hospitals, have assured us that these classes of people, who are the most exposed to typhoid fever, become, when vaccinated, only one-half to one-sixth as liable to contract the disease as the untreated. The protection, then, under these unfavorable conditions, is not absolute, but very evident. Much better results have been obtained in the last few years in the United States Army where, in spite of objection, typhoid vaccination has been made compulsory since 1910 for all men under forty-five years of age. Whereas in the preceding nine years there were on the average 351 cases of typhoid annually, since compulsory vaccination the cases have sharply diminished until in 1913 and 1914 there were only four and seven cases respectively, a truly remarkable showing. These last results have been enough to convince the most skeptical, and have led to wide spread adoption of the method, not only in armies but in civil communities. These results in our Army, life-saving, convincing, and valuable as they have been, are open to a very slight objection in my opinion; they have led the public, and particularly the medical profession, to a slight over-confidence in the efficacy of the method

itself. These Army results are essentially perfect, at least far nearer perfection than has ever been reached by any similar type of biological preventive or curative treatment, a fact which leads us to suspect that they are exceptional and due to the operation of a set of conditions which in spite of their existence over a considerable period of time, are not to be counted on.

Among the conditions that have operated in making these conditions more perfect, is the vaccine employed and the method used in its administration. Army officials are, in my opinion, inclined to attribute an undue importance to this factor. They use a certain strain or race of the typhoid bacillus derived from England, to which they are inclined to attribute particular properties of immunization. Results elsewhere have indicated, and we believe we have strong evidence from unpublished work in our own laboratory, to prove that a vaccine compounded of a number of strains of the organism is better. The Army has introduced three instead of the two injections which were formerly used in England, and this is an undoubted advance.

The fact remains, however, that the Army vaccine, or at least vaccines prepared by commercial firms from the Army bacillus under identical and simple conditions, do not invariably protect in civil life. Recent reports from the Continental Armies, each employing a different method, show that in none of them is the protection afforded nearly absolute, in spite of the fact that in parts of the French Army four or five injections have been given. I am inclined to believe with Sawyer that the superior results in our Army are largely due to the fact that the entire body has been protected, that there has been no single unprotected spot for an epidemic to get a start and gain in violence, to use a vague and perhaps not wholly accurate metaphor. Some recent results in France certainly indicate that antityphoid vaccination is more effective in those groups with the higher percentages of assuredly vaccinated men.

I have gone somewhat fully into this discussion of the

Army typhoid vaccine for the purpose of indicating that their results, although exceptional, have by no means convinced other authorities that the methods they employ are in detail the best. Let me emphasize again that we are not now considering whether typhoid vaccination is of value, *that* you must accept as proved beyond peradventure, but just how valuable it is and in what way it may be further perfected. In other words I am leading you into those intricacies of detail which any scientific problem attentively considered must present, and from the unravelling of which new and important issues may arise.

Our former beloved Professor of Hygiene, George Reinhardt, came to me some three years ago and asked if I did not agree with him that the student body in this University should be offered the opportunity of being vaccinated against typhoid fever. With no hesitancy at all I answered "Yes." When he pressed me further as to the best method of preparing and administering the vaccine I felt unwilling to decide so important a matter on the basis of literary knowledge alone. In association with the late Dr. Edith J. Claypole we undertook to arrive at some conclusions on the subject. We found that nearly twenty different preparations of typhoid vaccine had been suggested, each regarded by its author as the best. Data, however, on which to compare one vaccine with another were almost entirely lacking, that is to say a vaccine was approved because it had worked well under a given set of conditions with a more or less considerable number of men without any direct comparison with other vaccines.

Three distinct improvements in the vaccines in vogue seemed possible.

First: All vaccines were admitted to protect, at best, for only relatively short periods of time, say about two years.

Second: Many of the vaccines advocated were admitted to give rise, on administration, to rather uncomfortable transitory symptoms.

Third: The current method of administration, three injections over a period of three weeks or more, seemed to involve an unnecessarily long period of waiting for protection.

It was with these questions particularly in mind that we began our experiments. Out of them have arisen innumerable further questions, some of which have given rise to investigations of theoretical and practical interest. In the first place there had been no convincing experimental method of comparing the relative protective values of various vaccines. The only results of value seemed to be statistics from inoculated men obtained only after years and under most uneven conditions. Certain experiments of Metchnikoff and Besredka with anthropoid apes were suggestive but impossible to carry further owing to the expense of these animals. We finally adopted an experimental procedure in rabbits that had been used for other purposes and which, with our modification of it, led us to conclusions that were rapidly obtained and apparently valid. It was found possible to compare several of the best typhoid vaccines in respect to the length of time they protected rabbits against infection with living typhoid bacilli. As a result of many experiments of this sort we came to the conclusion that a new type of "sensitized" vaccine, as it is called, gives rise to the most durable immunity. The word "sensitized" simply means that the bacteria in the vaccine have been treated with the serum of animals that have been highly immunized against them. It was furthermore found possible to remove certain toxic elements (endotoxins) from these vaccines with a further increase in immunizing property. The final product then, a "sensitized vaccine sediment," as we call it, not only protects animals longer from infection than other vaccines, but is found when injected into human beings to produce little or no reaction.

Another improvement we have suggested is the administration of the customary three doses of vaccine within a week instead of the three weeks usually regarded as neces-

sary. Here again careful experiments in rabbits showed us that this rapid method produces an equally efficient and lasting protection.

The final proof of the value of a preparation is of course in practice, that is to say, its actual protective value for human beings. The State Board of Health has been supplying our vaccine for free distribution to physicians for the past two years. Dr. Sawyer of this Board, undertook to find out the results of typhoid vaccination in this State about a year ago. He obtained records from over 5000 cases that had been treated with our vaccine, and something over half that number that had been treated with various other vaccines, mostly of the Army type, as dispensed by commercial houses. There were about the same actual number of failures to protect in both series, that is, there were twice as many cases of typhoid fever per thousand among those vaccinated with other vaccines as with our own.

It is evident, then, from these results and from what I have said, that typhoid vaccination, at least in the general community, is relatively, but not absolutely protective. It remains for future investigation to determine in what way the percentages of failures can be decreased.

It seemed to us very important in our investigations, to devise a method by which the duration of protection could be determined in individual cases. It is all very well to know that on the average vaccination will protect for about two years, but what of the exceptional individual, who from sad experience we have learned is not protected even for two months? Dr. Force and I think we have a method for determining the actual presence or absence of protection in the individual at any given time. This test consists in rubbing a small amount of material from killed typhoid bacilli on the skin. We have found that nearly all those who have had typhoid fever in the past, and who are known to be usually protected from it, react to this test with the formation of a slight reddish blush about the abrasion. Most people who have been vaccinated within the last two

years also react positively. Normal people do not react. We feel justified in assuming that the presence of a positive reaction of this sort is evidence of protection. So far it has not failed us in practice, that is to say, no vaccinated person who has given a positive test has shortly thereafter had typhoid, and conversely in two vaccinated cases where the tests were negative and doubtful respectively, the individuals have shortly thereafter contracted typhoid fever. It is too early to speak authoritatively about the absolute value of this "typhoidin test" at it is called, but at least we feel justified in urging our vaccinated students to be re-vaccinated when we find the test negative.

I hope I have somewhere in my remarks suggested to you that results of direct practical bearing are by no means always arrived at directly. In fact the experienced investigator comes to reply more and more on Pasteur's adage of, "Chance and the Prepared Mind," and learns to seize chance happenings and turn them to his own ends. I think the evolution of a practical point out of theoretical studies may well be illustrated by some of our recent work. The efficacy of various typhoid vaccines has been tested, as already mentioned, by the ability of each to protect rabbits in a given dose for a given number of weeks against infection with a large dose of living typhoid bacilli. In unprotected animals, or in animals insufficiently protected, these injected bacilli go on increasing in numbers, and although the animal may live for a considerable period, the typhoid organisms persist in his blood; he has become, in other words, a permanent carrier. In perfectly protected rabbits the bacilli disappear from the circulation within a few hours. It interested us to trace the method by which the bacteria disappear in the protected animals, and we found that coincidentally with the disappearance of the infecting bacteria there occurs a sharp rise in the number of white blood cells in the peripheral circulation. These white cells, leucocytes, or phagocytes, as they are called, are known through the work of Metchnikoff and others to be

associated with defense of the body against invading bacteria. This leucocytic crisis then, would seem reasonably to be associated with protection in these immunized animals. A moderate grade of leucocytosis occurs in the normal unprotected animal, but is apparently insufficient for the purpose. In tracing further the cause of the extreme grade of leucocytosis in the immunized animal, we found it to occur only under specific conditions, that is, only when typhoid bacilli are injected in typhoid immune animals, and not when typhoid bacilli are introduced in normal animals, or other bacteria in our immunized animals. It seemed reasonable, then, to think it might be due to the action of the specific immune bodies which circulate in immune animals and are known to increase phagocytosis by their action on the bacteria with which they unite and which they render more attractive to the leucocytes. This hypothesis we were able to verify by injecting bacteria that had been previously treated with typhoid immune serum into the circulation of normal animals. The same phenomenon of specific hyperleucocytosis also occurred under these conditions.

Since this hyperleucocytosis is coincident with, and apparently the cause of, the body's ridding itself of bacteria, it seemed possible that the artificial production of it in typhoid fever might cure, or beneficially affect this condition, which is so characteristically accompanied by a proliferation of bacteria in the blood stream. We tried out this possibility in our carrier rabbits, those animals in which we had produced a septicemia by injecting living typhoid bacteria. In some cases we cured these animals of their septicemia, and then after testing the harmlessness of large doses of our sensitized vaccine in rabbits and monkeys, even when injected directly into the blood stream, looked forward to a cautious adaptation of our results in cases of human typhoid fever.

It was nearly a year before we had an opportunity to try this method on human beings. In the meantime the

results of other writers in essentially the same direction came to our attention, and further encouraged our hope in the proposed method. It will be necessary at this point to go back a step and consider preceding work that had been done in attempts at a specific cure in typhoid fever, that is to say, a cure attempted in full recognition of the cause of this disease, namely, the typhoid bacillus. Striking success in combating bacterial infections has been met with in certain cases by the application of one or more of three pretty definite methods. Some bacteria, like the diphtheria bacillus, produce their harmful effect in the body by the liberation of poisonous substances known as toxins. In the case mentioned, the disease, when taken in time, can be cured in a really miraculous manner by injecting diphtheria antitoxin, which is simply the serum of horses that have been treated with repeated doses of diphtheria toxin and thereby made to produce antitoxins that neutralize the toxin. Other diseases produce their harmful results largely by multiplication of the invading micro-organisms. Such diseases, for example, epidemic meningitis, can be cured by inoculating serum from animals immunized against its causative agent, the meningococcus. Still other diseases, principally local affections, as for example, carbuncles, may be treated with considerable success by injecting the causative agent itself; in the example mentioned, staphylococcus. This latter form of treatment, or vaccine therapy, as it is called, builds up an active immunity and leads the animal so as to muster his reactive protecting forces as to expel the invader.

It is this latter method of vaccine therapy which alone has been used with any success in the treatment of typhoid fever. I have already referred to the hopelessness of affecting the course of typhoid fever in any but a palliative way by the other methods of treatment that have been suggested; the fever may be favorably influenced by the continued use of cold baths, but the duration of the disease is little, if at all, affected by such means. In 1893 Fraenkel began

the use of small doses of killed typhoid bacilli injected hypodermically in typhoid fever. For twenty years this treatment has been tried with varying success by many physicians, some of whom have published their results. These results, although at times encouraging, have never convinced the medical world that the method is strikingly successful. The best that may be said of it is that it does no harm, and in the hands of some physicians apparently shortens the disease and prevents some of the unpleasant sequels by which typhoid is so apt to be followed.

During the past two years two innovations have been made which, from the results attained by several observers, and in view of the theoretical studies on hyperleucocytosis to which I made reference, have thrown an entirely new light on the possibilities of vaccine therapy in typhoid fever. These two innovations are, briefly, as follows: First, the administration of the vaccine directly into the circulation and secondly, the use of the sensitized or serum-treated vaccine instead of the plain bacterial growth hitherto used. These procedures, introduced into practice by Thiroloix and Bardon, and by Ichikawa, respectively, carried out the precise method of treatment that we had already suggested from our experimental results, and fully justified our expectations.

During the past year it has been possible for us to carry out the intended treatment in a number of cases in this vicinity, through the great courtesy of physicians who have allowed us to see their patients and have been willing to accept our suggestions in relation to their treatment. This confidence and co-operation has resulted not only in rapid amelioration in the majority of cases, but through comparative study of the successful with the unsuccessful cases has suggested improvements which may increase the percentage of favorable results.

Let us consider what happens when a killed preparation of sensitized typhoid bacilli is given intravenously in a case of typhoid fever. The introduction of something like

one-twenty-fifth of a milligram of the vaccine into the circulation is followed in a few minutes by a distinct shaking chill, which is accompanied by a rise of the fever of from one to two degrees. This shaking and fever, which is seldom extreme enough to be very uncomfortable, is accompanied by a fall in the number of white blood corpuscles. Following this reaction the fever rapidly falls so that in from six to twelve hours the temperature has reached normal, or even subnormal. This fall in the fever is accompanied by a rise in the leucocytes, profuse sweating, and a feeling of well-being. The severe headaches, beginning delirium and other symptoms characteristic of typhoid, disappear, or are markedly ameliorated. Perhaps the most important result produced is that the blood usually becomes free from bacteria following a single injection. In forty per cent of the cases, this return of temperature to normal is permanent, and the patient remains symptomatically, and to all intents and purposes, well. The temperature may fluctuate for a day or two and then become normal. This forty per cent of aborted cases, as we call them, actually over twenty-five in our series, were restored to a permanent normal condition within a week after beginning treatment. About twenty-five per cent more are markedly bettered, but not so rapidly cured; the course of these ameliorated cases is characterized by a permanent drop of say a degree in temperature following each injection, and the average duration of the disease in this category is distinctly shorter than is usual. There remain, however, a third of our cases, which total seventy-five, in which the intravenous vaccine treatment has produced no demonstrable effect. These cases are usually severe ones from the onset and it is impossible to say that the treatment did not prevent an even more serious course than the one observed. At least it may be said that the treatment does no harm in these cases, and is followed by temporary abatements of fever and symptomatic benefit. There is a significant blood picture in this class of unaffected cases; they are found to differ from those

that are benefited by the treatment in the weakness of antibodies present in the serum. Mention has already been made as to the occurrence and diagnostic value of certain of these antibodies or agglutinins in typhoid fever. We believe from our study that a certain concentration of these antibodies is necessary to assure recovery or benefit after the vaccine injection, which as has been mentioned, produces an increase in the leucocytes. Our present conception of the mechanism of the rapid cure that is frequently produced is that it is due to the combination of these two factors, increased leucocytes and antibodies already present in the body. In other words, when the patient is fighting the infection successfully, a sudden call on his reserves, the phagocytes, finally routs the invader. It may be possible to supply these antibodies when they are lacking by serum from immune animals, and this is one of the many problems connected with this disease on which we are now engaged.

I have tried to lead you into full view of the firing line of the forces attacking typhoid fever. You will perceive that much remains to be done both in the line of prevention and cure, but you will not fail, I am sure, to share my belief that here is one of the major diseases which will eventually disappear. I have endeavored to show you the vulnerable points in its cycle of development. If individual cases be rapidly cured, much suffering and death will be prevented and great economic loss avoided; the period of dissemination of the disease germs will also be greatly shortened. Again, if comprehensive sanitary regulations safe-guard the disposal of excreta from typhoid fever cases, detect and eliminate the carrier, and prevent the contamination of food and drink, the continuity of the disease will also be interrupted. Thorough prophylactic immunization of large or entire communities will not only protect most of the vaccinated individuals, but prevent foci for further spread of the disease.

You will appreciate the inequality in the utilizable knowledge of typhoid fever that has been acquired through

the two different types of medical advance. The purely observational, bedside, clinical progress resulted, after the lapse of centuries, in criteria on which a differential diagnosis could be made with considerable accuracy; in certain observations from which not wholly convincing conclusions were drawn as to the spread of the disease, and certain methods of palliative symptomatic treatment like hydrotherapy, and more recently, increased feeding. Contrast with this the advances during the last thirty-five years, which marks the era of Bacteriology. The parasitic cause of the disease was determined. The demonstration of this micro-organism gave us a means of certain diagnosis of the disease; threw light on the nature of the disease process itself; conclusively settled its method of spreading; and has given the only efficient means for specific prevention and therapy.

You will be convinced from this example that advances in applied medicine lie through laboratory investigation rather than through observations made at the bedside, at least in so far as the infectious or parasitic diseases are concerned. Equally persuasive data, from the laboratory standpoint, could be given in relation to the diseases of disturbed metabolism which involves the sciences of chemistry and physiology. You will further readily believe from the complexities of this one problem that I have tried to suggest, that successful prosecution of work of this sort may well monopolize the attention of a large group of workers. The number of these workers is limited only by the opportunities that are available, a reserve supply of eager and potentially productive minds is always at hand. The work itself is, however, not self supporting, such advances as we may be able to make in the prevention and cure of disease bringing no pecuniary reward. It is fortunate indeed for our welfare that the contributions to human health are not patented as are contributions to human comfort and luxury.

The opportunities for advances in the medical sciences come, in part through private benefaction, in part through public funds wisely administered, when, as in this University, opportunities are given not only for the dissemination of acquired knowledge, but also for its advancement. This utilization of public funds for any particular research is justified, apart from any preconceived notion as to its promise of practical reward.

UNIVERSITY RECORD

VICTOR H. HENDERSON

On January 8, 1916, died Eugene Woldemar Hilgard, since 1905 Professor of Agriculture, Emeritus, and for thirty-one years before that head of the Department of Agriculture, as Professor, Dean of the College of Agriculture, and Director of the United States Agricultural Experiment Station.

Creative-minded, he had not only laid foundations for soil geology, soil chemistry, and soil physics, but he had developed the fecundating idea of making the University contribute to the everyday happiness and well-being of all mankind. Of rich culture, of kindly soul, of noble ideals of service to mankind, his career is a precious part of the spiritual endowment of the University. An account of his life-work is printed in other pages of this number of the University Chronicle.

DEATH OF JOHN M. ESHLEMAN

Regent John Morton Eshleman, '02, one of the most distinguished graduates of the University of California, died on February 28.

With a father who for the last five years of his life was bed-ridden, as the eventual result of injuries received during the Civil War, his childhood was one of privation and hunger. After but a single year in the high school, he taught himself the Greek, Latin, and mathematics he needed for admission to the University by studying at night after a hard day's work as helper to a Chinese cook on a Southern Pacific work-car. He worked his way through the University, was President of the Associated Students, achieved Phi Beta Kappa, was an effective member of many societies, and a leader in everything that was good in student life. Throughout his University course he continued the study of Greek, Latin, mathematics, and philosophy, then returned for a graduate year,

as LeConte Fellow, devoted to studying philosophy and serving as assistant in English.

To make himself more serviceable in the first position which he held after leaving the University—assistant in the State Bureau of Labor Statistics—he obtained admission to the bar, and in the courts established the validity of the child-labor law. He went to the Legislature, introduced an anti-racetrack law—then regarded by most people as about the most fatal step one desirous of a political career could make—and after a complete physical breakdown from tuberculosis, left Sacramento to go to the desert. There, against all the possibilities, his faithful wife nursed him back to life. He took up the practice of the law, served as District Attorney of the new Imperial County, became State Railroad Commissioner, and as president of that Commission did an extraordinary work of constructive statesmanship which gave him national reputation and laid the people of California under the profoundest debt of gratitude.

Having established firmly his new policies of regulation of public utilities in the interest of the public welfare and with honest justice to private right as well, and having obtained from the people approval of constitutional amendments enormously increasing the public powers of the Railroad Commission over corporate enterprises, Mr. Eshleman then retired from the presidency of the Railroad Commission and became lieutenant-governor of California, which made him a regent of the University *ex officio*. A journey to Washington with the purpose of obtaining just dealing from Congress for the oil industry of California proved too great a tax upon his powers of physical resistance, through many years unselfishly sacrificed in the service of the people of California, and death resulted, on his way to the desert which once before had given him back his life.

As noble example of University opportunities used to the full, of personal culture ardently sought, and of service to the common good as richly effective as it was loyal and high-minded, his memory should be cherished as part of the noblest traditions of the University.

PRESIDENT WHEELER'S REPORT

An account of the way in which student self-government really works in the University of California, and a description of the reconstruction of the system of "colleges" and "schools" which constitute the interior organization of the University, these are outstanding features of President Wheeler's annual report, issued by the University in January.

As special needs of the University President Wheeler points out: Additions to endowment, the income to be available for such needs as are most urgently felt.

Endowments for professorships.

An adequate auditorium.

A building for the Department of Music, containing a concert-room or small theatre.

Alumni Hall (the students' union).

Dormitories for Freshmen and Sophomores.

\$100,000 to complete and equip the new University Hospital in San Francisco.

An Out-patient Building adjoining the University Hospital, to cost \$100,000.

A new laboratory building adjoining the University Hospital, to house Anatomy and Pathology, to cost \$150,000.

A nurses' home for the University Hospital, to accommodate a hundred nurses and to cost \$100,000.

Endowment for medicine and surgery and for the University Hospital.

A new building for the College of Dentistry.

A great reflecting telescope of not less than 100 inches for the Lick Observatory.

A permanent fireproof museum building to house the collections in anthropology, archaeology, and art, now worth several million dollars, given to the University by Mrs. Hearst.

An endowment for the University Press, the income to provide for the publication of scientific writings of members of the faculty.

An armory.

A new Infirmary for the students and the use of the present Infirmary for the faculty, who are not as yet admitted to Infirmary privileges.

HOW THE UNIVERSITY GROWS

Here are some of the facts concerning enrollment November 1, 1915, in the University of California brought out by the statistics published by John C. Burg of Northwestern University in *Science* for January 21, 1916:

In total attendance, including graduate, undergraduate, professional, and Summer Session students, but excluding from the figures for California all University Extension, University Farm, Art, Wilmerding School, correspondence, and "night-school" students, California is exceeded in size only by Columbia and in number of undergraduates by no American university.

California has the second largest Summer Session, Columbia enrolling last year 5961 and California 5364.

California has the most "college" (excluding scientific schools, agriculture, commerce, etc.) undergraduates—3317 as compared with 3169 at Harvard.

California is seventh in engineering students, having 712 and being exceeded by Michigan with 1498 and also by Cornell, Illinois, Yale, Ohio, and Wisconsin.

In non-professional graduate students, California is fourth, being exceeded by Columbia, Chicago, and Harvard.

In agricultural students California is sixth, being exceeded by Cornell, Illinois, Wisconsin, Ohio State University, and Minnesota.

In architecture California is second, having 188 to Pennsylvania's 254.

In rapidity of growth for the decade from 1905 to 1915, California, with a growth of 6924, was exceeded only by Columbia, with a growth of 7133.

California apparently scored a more rapid growth in the past year than any other American university, but the abnormal expansion of the Summer Session, because of the Exposition, is in chief part responsible.

Omitting the Summer Session, California grew by 363 students, being exceeded in growth for the year by Pennsylvania, Minnesota, Pittsburgh, Ohio State University, New York University, Chicago, and Illinois.

THIRTY UNIVERSITIES COMPARED

The comparative enrollment for thirty of the largest American universities on November 1, 1915 (including the Summer Session of 1915, and deducting duplicates), is reported by Mr. Burg as follows: Columbia 11,888, California 10,555, Chicago 7968, Pennsylvania 7404, Wisconsin 6810, Michigan 6684, New York University 6656, Harvard 6351, Cornell 6351, Illinois 6150, Ohio State 5451, Minnesota 5376, Northwestern 4408, Syracuse 4012, Missouri 3868, Texas 3572, Pittsburgh 3569, Nebraska 3356, Yale 3303, Iowa State 3138, Kansas 2806, Cincinnati 2524, Indiana 2347, Tulane 2160, Stanford 2061, Western Reserve 1825, Princeton 1615, Johns Hopkins 1586, Washington University 1264, Virginia 1008.

Omitting Summer Session students, the enrollment figures on November 1, 1915, were as follow: Columbia 7042, Pennsylvania 6655, California 5977, New York University 5853, Michigan 5821, Illinois 5511, Harvard 5435, Cornell 5392, Ohio State 4897, Wisconsin 4868, Minnesota 4679, Chicago 4324, Northwestern 4153, Syracuse 3830, Pittsburgh 3569, Yale 3303, Nebraska 3067, Missouri 3043, Iowa State 2704, Texas 2611, Cincinnati 2524, Kansas 2470, Stanford

2048, Indiana 1771, Princeton 1615, Western Reserve 1469, Tulane 1321, Washington University 1264, Johns Hopkins 1173, Virginia 1008.

Pennsylvania appears in Mr. Burg's figures as second in enrollment, excluding Summer Session students. However, the apparent size of Pennsylvania is somewhat misleading, owing to the including in this figure (6655) of large numbers of students who are taking teachers' classes or night courses in business subjects and who, because of the terms of admission or the nature of their work, are not comparable with regular college students, but instead with many of the thousands of students in University Extension classes, the University Farm School, etc., whom the University of California omits from its own enrollment figures.

REGISTRATION IS 11,188

Up to February 1, 1916, the total registration in the University of California for the year ending June 30, 1916, was 11,188. Of these 1000 were graduate students, 5286 undergraduates; this means 6286 students at Berkeley; there were 5,364 in the Summer Session of 1915; 100 of University grade at the University Farm; 76 in the Hastings College of the Law; 114 in the Medical School; 26 in the Los Angeles Medical Department; 139 in the College of Dentistry; 97 in the College of Pharmacy; or, after deducting duplicates, 11,188, while officers of instruction and administration numbered 988.

SOME STUDENT STATISTICS

From August, 1915, to January 20, 1916, just 1940 new undergraduates were admitted, as compared with 1796 for the preceding year and 1814 for 1913-14. Of these, 246 were admitted in January, 1916, as compared with 1694 during the fall term. The January admissions of undergraduates, 246, were seven more than in January, 1915, and twenty-nine more than in January, 1914. Of the 246 new undergraduates, 175 were Freshmen and 71 were admitted to advanced standing.

Scholarship mortality is four times as great among special as among regular students. Among the 4832 undergraduates at Berkeley during the half-year ending in December, 1915, there were 214 special students, yet of these 34 were disqualified for scholarship in December, or 15.8 per cent, as compared with only 4.2 per cent of the regular students. Of the 113 special students admitted in August, 1915, 22 or 19.5 per cent were disqualified for scholarship as compared with only 4.8 per cent of new regular students disqualified. The December examinations resulted in disqualifying

205 students. Of these 88 were Freshmen who had been at the University for only half a year.

The College of Commerce this year has 347 students as compared with 158 ten years ago or eight times as many as it had fifteen years ago.

DEAN RIEBER LEAVES SUMMER SESSION

After administering most successfully nine succeeding Summer Sessions, Professor Charles H. Rieber has resigned this added task, on account of his health, to continue his work as Professor of Logic (on the Mills Foundation).

There were but 522 students in the Summer Session of which he was Dean in 1907, as compared with 5364 in the Summer Session for 1915. The faculty for the Summer Session of 1907 numbered 60; for 1915 it numbered 250. In 1907 thirty departments offered seventy-eight courses in the Summer Session, while in the Summer Session of 1915 thirty-three departments offered 435 courses. Under Professor Rieber's leadership the Summer Session has come to enroll practically as many students as are gathered for the fall or spring terms. The testimony of members of its faculty is wellnigh unanimous that the seriousness of purpose and the quality of work of the Summer students are in no way inferior to those of students in the fall or spring sessions.

The Summer Session has shown a hospitable attitude toward new ideas in educational method, new subjects of study, and new community needs, such as preparation for vocational training, for vocational guidance, for playground and public recreation work, for education of the subnormal, for sex hygiene, for preventive medicine, for the outdoor school, for training in the fine and applied arts. Its faculty list has been adorned with the names of many visitors of great distinction. It has been of immense stimulating value to the University in the flow of fresh sap which it has sent throughout the branches of the University. The Summer Session has proved an institution of inestimable value to the State—not to California alone, for of last summer's students forty per cent were from outside the State. Only two states of the union were unrepresented and there were students from seventeen foreign countries.

As the Dean of the Summer Session, has been appointed Walter Morris Hart, Associate Professor of English Philology.

BRANCH SUMMER SESSION REQUESTED

A request for the establishment of a branch Summer Session in Southern California was presented to the Regents on February 8. On careful investigation of the situation, however, the members

of the faculty delegated to examine into the plan decided against it, believing it would be far more useful for those who wish summer instruction to come to Berkeley, where the full resources of laboratories, libraries, museums, and university atmosphere are available, than to attend a branch Summer Session elsewhere; that the coolness of a Berkeley summer is particularly conducive to successful work; and—deciding factor—that there seemed no real desire on the part of the teachers to attend a branch Summer Session in Southern California as a substitute for going to Berkeley. In short, it was concluded that the request presented to the Regents did not represent a wide community conviction and desire.

SUMMER ASSEMBLY AT SCRIPPS INSTITUTION

There will, however, be an outpost of the Summer Session in Southern California this year, for a "Summer Assembly in Science" will for the first time be held at the Scripps Institution for Biological Research, at La Jolla, near San Diego, from June 25 to August 5, 1916.

"Endowed research in pure science is absolutely essential to continued progress in civilization," declares Director William E. Ritter in his announcement of this assembly. "In a democratic country like ours there must be provision for investigation and also definite measures to disseminate the fruits of investigation as widely as possible among the people."

Hence the plan of a Summer Assembly in Science, through which it is hoped to disseminate among teachers of biology and physical geography and others interested in modern science the discoveries and new points of view which are resulting from the investigations of the Scripps Institution. There will be lectures, conferences, and demonstrations by members of the staff, on the following subjects (each once each week):

"The Relation of Biology to the Sciences of Man," Professor William E. Ritter, Fridays; "Heredity, Environment, and Adaptation," F. V. Sumner, Thursdays; "Some of the Messages of Marine Biology to Student and Teacher," E. L. Michael, Wednesdays; "Physical Oceanography, Including Some of its Relations to Meteorology," G. F. McEwen, Tuesdays. "Local Coastal Physical Geography," will be a course to be conducted Monday, Wednesday, and Friday mornings, at 10 o'clock, by W. C. Crandall, who as master of the "Alexander Agassiz," the Institution's sea-going collecting vessel, has wide familiarity with the California coast. The rest of the mornings of every day except Saturday will be devoted to lectures, laboratory, museum, and field work for small

groups of students, on the characteristic animal and plant life of the ocean waters along the shore of Southern California, conducted by W. C. Crandall and P. S. Barnhart.

Through the generosity of Miss Ellen B. Scripps and Mr. E. W. Scripps, the Scripps Institution now possesses not only an income but also on its half-mile of ocean frontage, a commodious laboratory building, containing twelve private laboratories for investigators, a large aquarium room, a two-story concrete museum and library building, now in course of construction; and a concrete pier a thousand feet in length, at which the eighty-five-foot collecting vessel, the "Alexander Agassiz," can dock and from the end of which, far out beyond the surf zone, pure sea-water is pumped in to supply nineteen tanks in the public aquarium and also the scientific laboratories. The Institution possesses an excellent biological library of over 5000 bound volumes and 8000 pamphlets and the principal scientific journals in its field, and a museum is being assembled rich in its representation of the marine fauna of the California coast.

NEW DEGREE: GRADUATE IN EDUCATION

That a new professional degree of "Graduate in Education" be established has been recommended to the Regents by the Academic Senate, this degree to be conferred upon the successful completion of not less than four years of successful professional experience, two full years of graduate study, one of these at the University of California, and a minimum of 36 units of upper division and graduate work, distributed as follows:

- (a) A minimum of twelve units of courses in Education based on a "group elective" in Education, or its equivalent, and including at least four units of seminar work during the second year, this twelve units, together with professional experience and a professional thesis, to constitute the candidate's "major."
- (b) A minimum of twelve units of advanced work in a minor.
- (c) A professional thesis and an examination, both under the direction of the School of Education and both subject to the rules of the Committee on Higher Degrees.

SPORTS FOR EVERYBODY

Desire to develop manly vigor, agility, courage, and the joy of struggle and contest in athletic sports—appeal to these motives is making exceedingly successful the work of the Department of Physical Education for Men.

The 1009 men enrolled on February 29 in courses in Physical Education had been told that they could choose for themselves some form of sport to replace the traditional gymnasium work if they could show satisfactory results in a physical test. This test was not based on size of muscle or ability to register a certain number of foot-pounds of energy, but on agility, as shown by skill in running, jumping, and tumbling, strength, ability to swim, and ability to defend oneself and "take punishment" courageously.

More than half the Freshmen proved able to meet all the tests. Those who lacked agility were given opportunity to develop it in the gymnasium or on the track. Those who showed lack of skill in self-defense were given opportunity to do gymnasium work or to join classes in boxing, wrestling, or fencing.

This is how the 1009 students enrolled February 29, 1916, in the Department of Physical Education were scattered among various activities: Gymnasium classes, 315; special exercises in the gymnasium, 20; track and field sports, 167; baseball, 60; basketball, 71; crew, 50; swimming, 38; elementary boxing, 183; elementary wrestling, 62; fencing, 14; advanced gymnastics, 9; advanced wrestling, 12; special and extra, 8; total 1009.

It was formerly required that Freshmen should devote four hours a week to gymnasium work. Hereafter two hours a week for two years will be required, instead, with the aim of making enjoyable participation in healthful sports a habit for life. The students who substitute some sport for gymnasium classes of the traditional type are held to full accountability for regularity of participation.

AID TO HIGH SCHOOL DEBATERS

Seventy-five high schools are participating in the Interscholastic Public Speaking League of California, organized by the University Extension Division, and forty-eight in the Extemporaneous Speaking League.

DEVELOPMENT OF THE MEDICAL SCHOOL

Private generosity having provided over \$600,000 for the erection of the new 216-bed teaching hospital for the University of California Medical School, the Regents are now earnestly endeavoring to raise funds for the following further purposes of the Medical School:

\$100,000 to equip and complete the University Hospital.

\$150,000 for a building to house the Departments of Anatomy and Pathology, this building to be erected back of the new University Hospital and near the building occupied by the Hooper Foundation for Medical Research.

\$100,000 for an Out-patient Building, to be built in front of the present hospital building and to provide accommodations for the patients, now averaging more than seventy thousand a year, who come to the University clinics.

\$100,000 for a nurses' home, where suitable quarters, recreation rooms, dining-rooms, kitchen, etc., may be provided for a hundred nurses and thus the proper development of the nurses' training school be made possible.

Once these most pressing needs are met the problem will then be to find funds for alterations in the present hospital building to meet the needs of the Departments of Physiology and Physiological Chemistry (estimated at \$30,000) to equip quarters for the administrative offices, the medical library, etc., and to erect a central heating and power plant on Fourth avenue sufficient to provide for the needs of the whole medical group. Developments which would then be looked forward to would be the erection of a private clinic of at least a hundred beds as a part of the University Hospital, the erection of a psychopathic pavilion, of a pavilion for contagious and infectious diseases, and of a dormitory for the medical students, with provision for a commons and for recreation grounds.

The Medical School and the University Hospital are growing so rapidly that the present accommodations have long since been outgrown. Excellent as is their work, it has been sorely handicapped by the inadequacy of the present buildings and equipment. It is the hope of the University to put the new University Hospital into actual use by January, 1917, and that private generosity will respond to the other great and pressing needs of medical education.

RULES FOR THE UNIVERSITY HOSPITAL

Rules for the administration of the University Hospital in San Francisco were adopted by the Regents on February 8, 1916. They provide that the Regents' Committee on University Hospital shall be the governing board. There will be also a Medical Board, advisory in character, consisting of the men who fill the following positions: The chiefs of the Departments of Surgery, Medicine, Gynecology and Obstetrics, and Pediatrics, the Director of the Hooper Foundation for Medical Research, the Professor of Pathology, and the Superintendent of the University Hospital. This

Medical Board is to make such recommendations to the University Hospital Committee of the Regents as would, in its opinion, add to the comfort of the patients and the welfare of the institution.

The Superintendent of the University Hospital is to be the executive officer of the Hospital Committee of the Regents, reporting through the Comptroller. The Superintendent is to have control of all departments, subordinate officers, nurses, employees, and patients, except in so far as concerns the medical treatment. Resident and house officers are to be appointed or dismissed by the Superintendent following the recommendation of the Hospital Medical Board and all other officers and employees are to be engaged and dismissed by the Superintendent. The Superintendent is to have charge of the admission of patients and the administration of the hospital.

EXTENSION FOR THE DENTAL INFIRMARY

Despite its increase in entrance requirements, the College of Dentistry is growing so rapidly that its students have been seriously overcrowded. The Regents therefore have voted to advance \$30,000 to the College of Dentistry for building an extension to the Dental Infirmary, large enough to accommodate approximately sixty more students than at present. So excellent is the work of the College of Dentistry that for the past four years not a single one of its graduates who has presented himself for examination for a license to practice dentistry in California, Oregon, Washington, or Arizona has failed to pass the examinations—a record equalled in those four states by no other dental college in America.

The increase in first-year dental students for the past four years was three, nine, twenty-two, and forty-one per cent, respectively.

DENTAL INSTITUTE AIDS "RHEUMATISM"

Of late it has been realized that "rheumatism," heart-disease, and all manner of obscure ills are frequently due to diseased teeth. To aid in acquainting the dental profession of California with new methods for preventing and curing such lesions in tissues about the teeth, an annual Dental Institute was conducted by the College of Dentistry and the University Extension Division during the first week in January, attended by eighty-five practicing dentists. A five-day session held in Los Angeles the previous week was attended by more than eighty. In both cities lectures, clinics, and demonstrations were conducted by Dr. Arthur D. Black of Chicago, Professor of Operative Dentistry and Dental Pathology in Northwestern University. In San Francisco courses were given also by

Dr. James D. McCoy of the College of Dentistry of the University of Southern California on radiography in diagnosis and treatment of abscesses of the teeth, and by Dr. George L. Bean, Professor of Dental Porcelain in the College of Dentistry, on porcelain shell crowns and amalgam model technique.

UNIVERSITY BUILDING BONDS PROJECTS

The highly favorable terms on which the contracts were let for Benjamin Ide Wheeler Hall, the great new classroom building of the University, will make it possible to complete the building at a total cost of \$700,000, instead of the \$800,000 originally allotted for it from the proceeds of the University Building Bonds. The Regents have now voted a new distribution of the funds available for the buildings to be erected under the University Building Bonds projects.

The funds available for expenditure include \$1,800,000, the par value of the University Building Bonds; \$51,552 premium on the bonds; and \$86,000, the unexpended balance (including interest) of the bequest of Charles Franklin Doe available for use toward the completion and equipment of the University Library, or a total now available of \$1,937,552. The new schedule for the expenditure of these funds as adopted by the Regents February 8, 1916, is as follows:

Benjamin Ide Wheeler Hall	\$700,000
Completion of the Library, including bookstacks....	525,000
Chemistry Building (in concrete)	160,000
Agriculture Building (in concrete)	350,000
New unit of the Power Plant	70,000
Furnishings and equipment for:	
Benjamin Ide Wheeler Hall	27,000
Library	22,000
Chemistry	60,000
Agriculture	25,000
Total	\$1,939,000

ARCHITECTURAL UNDERTAKINGS

Benjamin Ide Wheeler Hall will be devoted to classrooms, the chemistry building to laboratories, while the new unit for agriculture is to contain accommodations for the departments of pomology, horticulture, viticulture, citriculture, soil technology, the soil survey of California, agronomy, field crop investigations, forestry, farm

management, and rural institutions, and in the basement, a refrigeration plant for experimental work in the matter of the best methods of refrigerating fruit for shipment.

Among the permanent improvements the Regents will make during 1916 will be the provision of an additional press and one more linotype to be installed in the new building recently erected for the University Printing Office, a new storehouse, to cost \$7500, adjoining the new printing office; \$3000 for nursery propagation and for planting on the campus, and the removal to a new site of the little Philosophy Building, which now blockades the region of the Hearst Memorial Mining Building.

A contract has been let for the new library and museum building for the Scripps Institution for Biological Research, at La Jolla. It will cost \$18,000. Fireproof in construction, this reinforced concrete building will contain book-stacks with a capacity of about 20,000 volumes, a reading-room, offices, a seismograph room, museum quarters, etc. It will be completed in time for use for the Summer Assembly in Science at the Scripps Institution from June 25 to August 5, 1916.

Clinton Day, '68, LL.D., '10, one of the earliest graduates of the University, architect of the Chemistry Building on the Berkeley Campus, of the Stanford Church, and of many other notable structures, died at his home in Berkeley on January 11. His last service at the University was the designing of the marble sundial recently installed just south of the Sather Campanile, through the gift of the class of '76.

PLANS FOR THE RIVERSIDE STATION

Plans have been completed by Lester H. Hibbard, '09, (one of the first graduates of the School of Architecture) for the new buildings for the Citrus Experiment Station and the Graduate School of Tropical Agriculture, to be erected on the new 471-acre site at Riverside at a cost of \$125,000. In their exterior the buildings will suggest the Spanish inheritance of California, through their graceful lines, tiled roofs, plastered walls, arched Spanish doorways, pilastered façade and picturesque open arcades from building to building. Everything is planned as part of a group capable of expansion by future generations.

In the main laboratory building will be offices for Director H. J. Webber and for University Extension in Agriculture, the library, laboratories for plant breeding and insect work, the entomological collections, offices for Government investigators of soil and orchard

management, and private laboratories for the scientific staff. In a separate building on the north, reached by an open arcade, will be the chemical laboratories, and on the south, laboratories for study of abnormal physiological conditions or infectious diseases of plants. A most livable dwelling for the Director, with sleeping porches, open loggia, and sun-room, and various station appurtenances such as barn, stable, sheds, and shops, are also to be erected.

SOME AGRICULTURAL ACTIVITIES

A "State Dairy Cow Competition" will be launched on November 1, 1916, by the College of Agriculture. This competition will continue for sixteen months. It will be open not only to pure-bred but also to grade and common cows. A number of different prizes will be awarded for butter-fat production during any ten consecutive months of the sixteen. Prizes aggregating several thousand dollars have already been offered. The prize list, however, will be held open until July 1 so that any other persons or firms who wish to contribute may subscribe. The list of premiums and the definite rules will be announced by the University about August 1, 1916.

"California King," the Hereford-Angus cross-bred steer, bred and fed at the University Farm, broke all records for a California steer by being sold to the Western Meat Company of San Francisco for 17½ cents a pound—the highest price ever paid in the San Francisco market or for a California steer.

The Farm Advisers, who are doing so much to introduce into use among the farmers of California not only better scientific methods but the habit of community co-operation, held a "traveling conference" for two weeks during February. They visited five counties in order to witness one another's methods and results, spent some days at the University, and wound up their journey with several days of practical demonstrations and conferences at the University Farm at Davis.

THE BEAR GULCH WATER COMPANY

Through the great endowment given to the University by Miss Cora Jane Flood, for instruction in commerce, the University became the possessor of four-fifths of the stock of the Bear Gulch Water Company which supplies water to Menlo Park. Recently Regent Guy C. Earl has become President of the company and Comptroller Ralph P. Merritt its General Manager. The result of the introduction of modern scientific management of this water property has been that the water-users have been greatly pleased

by the improvement in the quality of the water supplied. The Railroad Commission has officially declared the quality of the water good and has authorized readjustment of rates by which the income of the Bear Gulch Water Company is increased about 25 per cent per annum.

TWO REGENTS RE-APPOINTED

Regent A. W. Foster and Regent Rudolph J. Taussig on February 29 were re-appointed, by Governor Johnson, Regents of the University, each for the full term of sixteen years. Regent Foster first became a member of the Board in 1900, as successor to Regent R. S. Foote. Regent Taussig first became a member of the Board, as President of the Mechanics' Institute, in 1902; he was appointed Regent in 1906 and again appointed Regent in 1913, as successor to Regent John E. Budd. Both have been members of the Finance Committee for a dozen years.

GIFTS TO THE UNIVERSITY

Miss Annie M. Alexander has approved a budget for 1916 for the California Museum of Vertebrate Zoology which means a gift from herself of \$12,191.50 as a year's maintenance fund of these researches, biological surveys, and museum activities.

The City of Berkeley has now given 7500 bulbs of selected varieties of Darwin tulips, and they have been planted in front of Bacon Hall and in the region about the Sather Campanile. These bulbs were presented to the University through the efforts of Mrs. Allen G. Freeman of Berkeley and were sent to the city by Messrs. E. H. Krelage and Sons, of Haarlem, Holland.

Albert Bonnheim has given \$160 for the Bonnheim Essay Prizes and for the Bonnheim Discussion Prize for the Upper Division Bonnheim contest.

Regent P. E. Bowles has given \$500 toward the cost of planting trees on the hill lands of the University, a work which is making a remarkable transformation in the watershed of Strawberry Creek.

The Class of '96 has given a fund for the installation in the Greek Theatre of a marble chair. There are now marble chairs in the Greek Theatre in honor of Mrs. Hearst, Professor Joseph Le Conte, President Benjamin Ide Wheeler, Professor Henry Morse Stephens, Frank Norris, Dean William M. Searby, Professor Eugene Woldemar Hilgard, etc.

Some 500 members of the Class of 1916 have pledged themselves to sign a note each, for \$100, payable twenty years after grad-

uation, to be presented to the University as a class memorial endowment. It is planned that each subscriber shall pay \$2.85 per annum, collections being made through the Alumni Secretary. Payments so made, accumulating through compound interest, will meet the \$100 note by an actual cash gift of \$57.

Regent William H. Crocker has given \$1000 for a scientific expedition to the jungles of India and Java by Professor Charles A. Kofoid. There Professor Kofoid will investigate protozoa of parasites found in the digestive tract of the higher mammals, a field of research of much importance in medicine and of fundamental scientific interest as regards problems of the evolution of some of the smaller forms of life.

A friend of the University has offered a gift of \$200 a month for five years from January 1, 1916, as a fund for palaeontological research, this being in continuation of a like annual gift which in recent years has made possible the great activity of the University in original research as to the history of past geological ages on the Pacific coast.

A friend of the University of California Medical School has given funds to maintain an Instructorship in Neurology in the Medical School until June 30, 1916, at the rate of \$1800 per annum.

The General Gas Light Company of San Francisco, through the courtesy of Mr. C. B. Babcock, manager of the company and vice-president of the Pacific Coast Gas Association, has given to the Department of Electrical Engineering a new type of indoor gas arc lamp.

The Golden-Anderson Valve Specialty Company, through Mr. F. W. Hatch, has given to the Department of Mechanical Engineering the collection of blue-print drawings of valve specialties which were exhibited at the Panama-Pacific International Exposition.

John Rutledge Chapter of the G. A. R. has offered to maintain a scholarship for descendants of veterans.

Regent Phoebe A. Hearst has given a collection of twenty sets of samples of ores from the Cerro de Pasco Mine in Peru. The collection will be installed in the Hearst Memorial Mining Building.

Mrs. Hearst has added to the Museum of Anthropology four valuable Indian baskets.

The Imperial Japanese Commission to the Panama-Pacific International Exposition, in behalf of the Japanese Government, presented to the University at the close of the Exposition a large number of valuable objects from the Japanese exhibit. The Japanese Commissioners very generously offered to the University also

the building at the Exposition occupied as office quarters by the Commission, an interesting and admirable example of the building arts of Japan. Unfortunately, however, it was found impracticable, on account of the size and character of the structure, to remove it to the University.

Mr. and Mrs. Max Levy of Stockton have founded at the Stockton High School the Jerome C. Levy Scholarship, in memory of their departed son. The award will be made yearly to a member of the graduating class of the Stockton High School who wishes to enter the University of California. The choice will be made by the faculty of the High School on the basis of character, scholarship, and need.

The Massachusetts Commission for the Panama-Pacific International Exposition through Mr. Charles L. Whitcomb has presented to the School of Education a collection of reports of the State of Massachusetts on Vocational Education.

The Oriental Institute has given to the University a piece of land at Sacramento and Cedar streets, Berkeley, with a frontage of 143 feet on the east side of Sacramento street and of 111.5 feet on the north side of Cedar street, valued at approximately \$5,000. The income from this property or from the investment of the proceeds of its sale is to be devoted to aiding students in the University who are of Oriental race.

The Pacific Coast Gas Association has transmitted through its President, Regent John A. Britton, a check for \$5000 in accordance with its generous provision of support, at the rate of \$2700 per annum, for instruction in the University in gas engineering. The Association consists of the chief gas-producing companies of the Pacific Coast.

Dr. Herman Partsch of Berkeley has given \$100 toward the loan fund of the Class of '81.

The Pennsylvania Railroad Company (through Mr. H. T. Wilkins, its special agent) has presented to the University a fine model of the Union Station at Washington, D. C.

W. J. Pettingell of the Santa Barbara Nursery Company at Goleta, California, has given 150 evergreen shrubs of nearly sixty ornamental varieties to be planted at the University Farm at Davis and in the gardens of the Faculty Club on the Berkeley campus.

The Philippine Commission for the Panama-Pacific International Exposition has given to the Department of Botany a collection of 209 sheets of botanical specimens.

The San Francisco Girls' Union has given \$5000 as an endowment for the San Francisco Girls' Union Scholarship, the income

to be applied toward the support at the University of California of some worthy and needy woman student, these scholars to be appointed annually by the faculty or by some committee thereof to whom such duty has been delegated by the President of the University.

Perry M. Scott, '08, who died recently, left in care of Dr. Carrie Goss Haskell of Burlingame a number of books, and these books Dr. Haskell has now placed in the University of California Library.

Ignatius Steinhart of San Francisco has given \$250 toward the fund for the protozoological researches to be undertaken by Professor Charles A. Kofoid in India and Java.

The Swedish Commission for the Panama-Pacific International Exposition has presented several pieces of electrical apparatus from the Swedish Exhibit at the Exposition, including a starting-box, a direct-current motor, and an alternating-current motor.

The Thordarson Electric and Manufacturing Company, through the courtesy of Mr. A. S. Lindstrom, its Pacific coast representative, has given a replica of the section of the million-volt transformer used in connection with the high voltage research conducted at the Panama-Pacific International Exposition, by engineers representing the Smithsonian Institution and the Research Corporation of New York City, regarding the problem of dispersing fog by electricity.

The United States Bureau of Fisheries has given to the Department of Zoology thirteen specimens of sharks, of four different species, from the California coast.

The United States Geological Survey through Mr. R. W. Stone has given four maps of San Francisco and its vicinity which formed a part of the exhibit made at the Panama-Pacific International Exposition by the Department of the Interior.

The United States Department of the Interior has given to the University a set of maps of public lands of the United States, exhibited by the Government at the Panama-Pacific International Exposition.

The United States, through the courtesy of the United States Government Exhibit Board at the Panama-Pacific International Exposition, has deposited in the Museum of Anthropology of the University the model of the Lincoln Memorial now in process of erection in Washington.

SOME FACULTY MATTERS

Director W. W. Campbell of the Lick Observatory presided at the recent annual convention of the American Association for the Advancement of Science, as its President. He was one of the twenty-one distinguished citizens selected by the United States as its official delegates to the second Pan-American Congress at Washington from December 27 to January 8. Among other members of the faculty who have served this year as vice-presidents and heads of sections of the American Association for the Advancement of Science are Professors A. O. Leuschner, Mathematics and Astronomy; Frederick Slate, Physics; W. A. Setchell, Botany; George M. Stratton, Anthropology and Psychology; and F. P. Gay, Physiology and Experimental Medicine.

Dr. Frederick Parker Gay, Professor of Pathology, has been selected by the Academic Senate as the Annual Faculty Research lecturer for 1916. His three predecessors are Dr. W. W. Campbell, Director of the Lick Observatory; Dr. J. C. Merriam, Professor of Palaeontology, and Professor A. O. Leuschner, Director of the Students' Observatory. Dr. Gay's appointment is in recognition of his valuable researches in immunology, which have resulted in such achievements as his new method for treating typhoid fever with an immune serum, refinements in the methods of immunization against typhoid, a skin-reaction test for immunity against typhoid, worked out in collaboration with Professor J. N. Force, new methods for the serum treatment of pneumonia, etc.

Charles Mills Gayley, Professor of the English Language and Literature, has been invited to speak at the Shakespearean Tercentenary to be held on April 26 under the joint auspices of the Universities of Chicago, Michigan, Minnesota, and Wisconsin.

Rufus M. Grant, Instructor in Carpentry in the Wilmerding School of Industrial Arts and a pioneer member of its faculty, died on January 29. He had been in charge of the Department of Carpentry since the establishment of the Wilmerding School and had served as superintendent of construction during the erection of its first building.

Memorial services in honor of Professor Hilgard were held in the main assembly room of Agriculture Hall on January 30, President Wheeler presiding and speaking in behalf of the faculty and the memorial address being delivered by Edward J. Wickson, Professor of Horticulture, Emeritus.

Professor Hilgard received word a few days before his death that he had been chosen as one of the two hundred and fifty Life

Members of the American Association for the Advancement of Science.

Lincoln Hutchinson, now absent on leave as Associate Professor of Commerce (on the Flood Foundation), in order to do service of the greatest value to the United States as commercial attaché for Brazil, has been asked to serve on a commission appointed by Commissioner of Education P. P. Claxton, to report on the problem of provision in American universities and colleges for the training of young men for foreign service.

Andrew C. Lawson, Professor of Mineralogy and Geology and Acting Dean of the College of Mining, has recently visited Philadelphia for service to the government as a member of the National Assaying Commission.

Professor D. T. Mason of the Division of Forestry attended a conference in Washington in January of officers of the United States Forest Service, for discussion of what the government can do to improve the present situation as regards stumpage supplies, operating profits, etc., and problems of lumber transportation, use of low-grade materials, the saving of waste, substitutes for lumber, etc.

The notable Hitchcock lectures delivered at the University of California in February, 1915, by Henry Fairfield Osborn, Research Professor of Zoology in Columbia University and President of the American Museum of Natural History, have now been published as a book, *Men of the Old Stone Age: Their Environment, Life and Art* (with Illustrations by Upper Palaeolithic Artists).

George Herbert Palmer, for the past forty-five years a member of the Harvard faculty, is spending the present half-year at the University of California as Lecturer in Philosophy on the Mills Foundation, addressing large audiences on "Problems of Duty," and conducting also a seminar in ethics open to graduate students.

Henry Morse Stephens, Sather Professor of History, as President of the American Historical Association delivered a notable President's Address on "Nationality and History" at Washington, D. C., on December 28, 1915. It has since been published in the *American Historical Review* for January, 1916.

Harold R. Wilson has been appointed Boy Scout Commissioner for Berkeley. As Instructor in Physical Education he will continue to have charge of the Sports Division of the department, that is, of the students who substitute participation in some twenty different outdoor sports for indoor gymnasium work. He is now conducting a Tuesday-evening class for the special training of those who show special aptitude for leadership and wish special

training for work as gymnasium teachers, playground leaders, or experts in boys' club work, and these students will be placed in charge of various branches of Boy Scout work throughout Berkeley. Formerly captain of the Pomona College football team, he spent two summers on the staff of the George Junior Republic at Pasadena.

WHO ARE THE MOST DISTINGUISHED ALUMNI?

"Who are the ten most distinguished alumni of the University of California?"

Many newspapers sought an answer to this question after the appearance of a list purporting to be President Wilbur's selection of the ten most distinguished alumni of Stanford University. President Wheeler replied to such inquiries that the careers of men are incommensurable, that from the host of alumni of the University of California who have won distinction and done eminent service to the world it would be impossible to pick out ten as foremost and best, and that for every name one might mention as typical of success in some field of activity, there would be many other names of men equally worthy of commemoration.

A freshman reporter on the *Californian*, however, from various shreds and patches of suggestion put together a list of "The Ten Most Distinguished Graduates" of the University of California and this list (with four of the names misspelled) was given to the world in the *Californian*, and thence widely copied in other publications as the University's own selection of her most distinguished sons.

THE ALUMNI FORTNIGHTLY

The Alumni Association has changed its publication from the *California Alumni Weekly* to the *Alumni Fortnightly*, published in magazine form and devoted to comment, rather than, as in the past, to news. Harvey Roney, '15, Secretary of the Alumni Association, is Editor, with the assistance of an alumni advisory board.

STUDENT CONSTITUTIONAL REVISION

A student committee has been at work under the chairmanship of George E. Osborne, '16, on a proposed revision of the constitution of the Associated Students. The principal change under consideration is an increase of the membership of the Executive Committee from seven to nine. The committee would be composed of a faculty member appointed by the President of the University, an alumnus elected annually by the Alumni Association, the Presi-

dent of the Association, the vice-president, a Senior elected by the Senior class, a Senior elected at large, a Junior elected at large, and two additional Juniors elected in January to serve until the next January. The principal changes in the remainder of the constitution are that the Graduate Manager's vote has been abolished, that the secretary will be some member of the committee chosen as secretary by the committee itself, and that for the election of a Graduate Manager the Executive Committee will be augmented every second April by three alumni chosen for the purpose by the Alumni Association.

GRADUATED WITH HONORS

Of the 165 who received the bachelor's degree on December 20, 1915, twenty-six received "Honors" as follows: Anatomy, Alverda Elva Reische; Astronomy, Charles Donald Shane; Drawing, Elva Britomarte Spencer; English, Samuel Francis Batdorf, Sidney Coe Howard, Isabelle Elizabeth de Meyer, Nell Louise Long; French, Belle Elliott Bickford; German, Jennie Schwab; Hygiene, Florence Harriett Cadman; Latin, Mildred Goyette; Mathematics, Maryly Ida Krusi, Chan Chan Tsoo; Philosophy, Ruth Eloise Beckwith, Ada Rebecca Bray Fike; Physical Education, Frederick Warren Cozens; Zoology, Ebba Olga Hilda Braese, Pirie Davidson, Dorothy Sherman Rogers, Katherine Badeau Rogers, Frances Ansley Torrey; College of Mining, Omar Allen Cavins; College of Agriculture, Laurence Wood Fowler, Amram Khazanoff, William E. Gilfillan, Edith Henrietta Phillips.

FRATERNITY SCHOLARSHIP HONOR ROLL

Of the forty-two men's fraternities and clubs, seventeen have won a place on the "honor roll" by making an average scholarship for the half-year ending December 31, 1915, superior to that of the male undergraduates as a whole. The list, arranged not in order of rank but alphabetically, is as follows:

Alpha Kappa Lambda, Beta Theta Pi, Chi Psi, Delta Chi, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Kappa Sigma, Pi Kappa Alpha, Psi Upsilon, Sigma Nu, Sigma Pi, Theta Xi, Abracadabra, Casimir, Dahlonga. The Acacia fraternity and Alphi Chi Sigma, which had no Freshmen, were also of honor rank in scholarship.

The male undergraduates as a whole averaged 2.46 for the half-year ending December 31, 1915; fraternity men as a whole, 2.48 and the members of the men's house clubs 2.58; as compared with 2.5 for the men's organization for the corresponding half-

year in 1914. Since 1 is the highest possible mark, the lower the figure the better the record.

Without exception each of the twelve women's fraternities and the seven women's house clubs exceeded in average of scholarship for the past half-year the average for the male undergraduates. The average scholarship for the nineteen women's organizations for the half-year ending December 31 was 2.111 as compared with 2.460 for the male undergraduates as a whole. For the corresponding half-year in 1914, the women's organizations averaged 2.082.

LEAP YEAR LABOR DAY

True to the tradition that each college generation shall hold a "Leap Year Labor Day" when February 29 comes around, the men students on February 29 sallied forth 2700 strong and built a fine trail from the Greek Theatre 2010 feet up around the shoulder of the hills and back again, on a 20 per cent grade, to the "Big C." The morning's toil was followed by an outdoor lunch served to 4000 by the women students, on California Field, and in the afternoon by a "Roman Circus" on California Field. In the evening there was a smoker in the Harmon Gymnasium and an entertainment for the women in Hearst Hall, followed by dancing in the Harmon Gymnasium and Hearst Hall.

The new trail is well built, surfaced with screenings, provided with well-anchored culverts, and flanked by drainage ditches. It is a successful and complete achievement, and will yield a constant harvest of pleasure to hill climbers, as well as standing forth as a symbol of service and affection.

The highly efficient organization for the day was due to a committee of which the chairman was Lloyd Nelson Hamilton, '16, while the women's committee in charge of the lunch was headed by Miss Marjorie-John Armour, '16.

Each of the ten colleges or schools had its distinctive costume, from the painted studio blouses of the Architects to the straw hats and corneob pipes of the Agricultural students, who were reinforced by a throng of 125 from the University Farm. And each college had its particular share of the path to build, the keen competition for doing the best and quickest work being won by the School of Jurisprudence, which resulted in their particular one of the ten memorial benches being assigned to the summit of the trail, hard by the "Big C."

The men's Executive Committee included Frank Shy Hodge, '16, in charge of Engineering; John Stewart Brown, '16, implements; Cecil Hoke Straub, '16, organization; Howard French Fletcher, '16,

entertainment; Robert Byron MacFadyen, '16; publicity; Stephen Sears Barrows, '17, commissary; and George Edward Osborne, '16, secretary.

SOME OTHER UNDERGRADUATE MATTERS

The Golden Bear, the Senior Order, in December initiated Oscar Sutro, '94, President of the Alumni Association, and John Stewart Brown, James Samuel Preston Hotchkis, William Taylor Igleheart, Robert Ritchie Lockhart, George Edward Osborne, Carl Gordon Shafor, Herman Adolph Spindt, and John Boardman Whitton, all members of the Class of 1916.

Winged Helmet, the Junior honor society, initiated on January 10, Wilson Brown, J. R. Bruce, L. R. Byington, A. L. Dunn, E. M. Elam, Jr., F. T. Elliott, C. D. Lane, A. L. Maguire, L. H. Penney, W. A. Russell, Leroy Sharp, J. H. Smith, and J. S. Weeks.

Alpha Nu, a new honor society of students who are specializing in nutrition, on December 17 initiated Elizabeth Bridge, Delphine Ferrier, Margaret Mills, Mabel Nelson, and Ella Rau. Miss Josephine Davis and Dr. Fay Morgan are honorary faculty members.

Alpha Zeta, the agricultural honor society, on February 26 initiated Paul Carle, C. V. Castle, G. W. Kretsinger, C. E. O'Hara, J. A. Neuhaus, John E. Porter, M. H. Ray, and H. F. Trunk of the Senior Class; and G. D. Allen, F. C. Corey, R. D. Gibbs, V. W. Hoffman, C. T. Lund, M. E. McCollam, J. M. Mills, R. M. Walker, F. E. Weidenmueller, Frank Wood, and C. W. Wright, of the Junior Class.

The Chi Omega fraternity has established a prize of \$25 per annum to be given to the Senior who in the Junior year has completed with the greatest distinction twelve units of major courses concerned with the problems of social economy. The first award will be made in September, 1916.

The English Club on January 10 initiated as honorary members Miss Katherine Jewell Everts, Mrs. Aurelia Henry Reinhardt, Mr. Porter Garnett, and Mr. Perham W. Nahl, and as active members, J. N. James, Paul L. Fussell, Marion Hook, Osgood Murdock, Jean Queenie Watson, Anna Barrows, Robert Blake, R. E. Bower, J. R. Bruce, Dorothy Epping, L. R. Krusi, Maud Meagher, and P. D. Smith.

Mu of Eta Kappa Nu, an electrical engineering honor society founded at the University of Illinois in 1904, was installed here on December 18 with the initiation of Victor H. Doyle, R. J.

Heffner, J. V. Johnson, J. L. Lillenthal, O. R. Marston, A. G. Smith, E. C. Woodruff, T. C. McFarland, H. D. Partsch, B. H. Pratt, H. N. Pratt, and R. S. Quick.

"Istye," the womens' journalistic honor society, on February 17 initiated the following: Grace Bird, '14; Louise Sheppa, '16; Anita Wales, '16; Doris Brown, '17; Helen Campbell, '17; and Dorothy Epping, '17.

Nu Sigma Psi, the women's physical education honor society, on February 2 initiated Jane Young, Helen Wright, Ruth Goodsell, Margaret McDermed, Alberta McNeely, Helen Rosenberg, Edith Stark, Margaret Wilson, Mildred Adams, Eska Gerry, Edith Harshberger, Naomi Keller, Ida Muller, Marion Sanderson, Emma Skaale, and Helen Wirt.

Sigma Iota Phi, the civil engineering honor society, has initiated R. L. Ryan, L. F. Krusi, A. P. Saph, J. J. Vandenburg, and Professor B. A. Etcheverry.

President M. E. Hazeltine of the Class of 1916 has appointed Jean C. Witter general chairman for Senior Week, J. S. Brown chairman of the committee for the Senior Ball, C. H. Straub for finance, W. T. McFie for the Senior Banquet, Edna Taber for the Senior Women's Banquet, W. T. Igleheart for permanent organization, Osgood Murdock for reunions, T. E. Gay for the Senior Pilgrimage, and Lloyd N. Hamilton for the Senior Extravaganza.

Another tradition has been rescued from obliteration. The Committee for the Senior Extravaganza wanted to have rehearsals of the dances and choruses in Senior Hall, but at Senior Singing the men overwhelmingly voted to continue the tradition of a dozen years that Senior Hall is sacred to the men of the Senior Class, Alumni, and the men of the faculty.

"Women's Day," celebrated on February 22 by the women students for many years past, was this year abandoned, as a feminist declaration that every day is women's day in the University of California.

Osgood Murdock, Editor of the *Californian*, has appointed as Managing Editor Robert Blake, '17; Jean Queenie Watson, '16, as Women's Editor; and as Women's Managing Editor, Anna Barrows, '17.

The yearly honor of designation as the wittiest student in the University of California has this year gone to Edwin Marshall Maslin, '17, through the conferring upon him of the Irving Prize for Wit and Humor (endowed by Mayor Samuel C. Irving, '79), for his Baconian essay "On the Futility of Twitching up One's Trousers to Prevent Bagging at the Knees" and his group of poems, "So Ngsons Erio Ussu Bjects (in the Cubist Way)."

The Associated Students' Store (the "Co-op") has made a report showing that during 1915 it made sales of \$119,530.63; that it distributed \$4110.07 in rebates on purchases; that after thirty-one years of business it has assets of \$79,440.96 and a surplus of \$55,713.89; and that it has accumulated a cash surplus of \$28,000 available for expenditure on the equipment of new quarters when the Students' Union is built or new quarters provided elsewhere. Of this \$28,000, \$18,000 has been loaned temporarily to the Associated Students as part of the financing of the new track.

The Associated Students' Store is to establish a branch at the University Farm, the students there by vote of 153 to 0 having requested such action.

The Armenian students have organized the "University of California Society of Armenian Students."

RELATIONS RESUMED WITH STANFORD

Peaceful relations in athletic affairs have been re-established between the students of the neighbor universities, after half a year of interruption. Stanford and California have entered into a new agreement by which intercollegiate contests will be resumed, save in football, since Stanford holds to Rugby and California to the American game. Freshmen are to be excluded from all 'varsity teams. No students are to be eligible who have not succeeded in passing in at least ten units of work during the previous term. Students in such a department as the Wilmerding Trades School or the University Farm School, where the entrance requirements are less than the standard for the American college, are of course not to be eligible for teams. The adoption of the new agreement was voted February 25 and was approved by the students of Stanford on February 2 by 404 to 95. On the same day Stanford adopted by 486 to 8 the plan proposed by President Wilbur of the establishment of a committee consisting of two members of the faculty two members of the alumni, and three undergraduates to deal with athletic problems such as the selection of coaches.

With the acceptance by Stanford of the California proposal that Freshmen shall be excluded from 'varsity teams, over which the break had occurred, Stanford entered the Pacific Coast Conference organized through the initiative of the University of California for athletic contests between California, the University of Washington, Oregon Agricultural College, and the University of Oregon, all members having agreed to the exclusion of Freshmen from 'varsity teams.

A NEW FOOTBALL COACH

The students have decided that with American football resumed, after many years of Rugby, it behooves them to get the best possible teaching of a game which saw much evolution in the years it was banished from the California campus; so this spring, that staunch Californian, James Garfield Schaeffer, '09, having resigned last fall, they called Andrew Smith, Pennsylvania, '06, as head coach. As an undergraduate he was a star full-back, and for the past ten years he has had remarkable success as a coach. After playing two years at Pennsylvania State College and then two years at Pennsylvania, he was assistant coach at Pennsylvania from 1906 to 1908, and head coach from 1909 to 1912. For the past three years he has been coach at Purdue. In the last three years, the teams which he has coached have lost only five games. His salary is to be \$4500 a year.

BASKET-BALL A MAJOR SPORT

California had a most successful basket-ball season, winning ten out of thirteen college games played, and tying Oregon Agricultural College for the Pacific Coast Conference championship.

The basket-ball season opened with a journey into the Northwest in which California won four games out of seven played. The results were as follows: January 4, Dallas, Oregon 30, California 23; January 5, Multnomah Athletic Club 17, California 15; January 7, Oregon Athletic Club 26, California 17; January 8, California 26, Oregon Agricultural College 14; January 9, California 35, Willamette University 20; January 11, California 25, Washington 20; January 12, California 30, Washington 24.

Of the seven games of basket-ball played at Berkeley, California won five. The results with individual competitors were as follows: January 31, Washington 35, California 27; February 2, California 35, Washington 33; February 12, California 38, College of Pacific 34; February 17, California 27, Nevada 25; February 18, California 27, Oregon Agricultural College 22; February 19, Oregon Agricultural College 29, California 20; February 25, California 32, Stanford 28.

Stirred by the enthusiasm of the basket-ball invasion of the Northwest, the "Big C" Society petitioned the Executive Committee of the Associated Students to recognize basket-ball as a "major sport." The committee then voted to grant the "Big C" to members of the 'varsity basket-ball team.

The "Big C" Society also recommended that tennis, for many student generations past a "major sport," be reduced to the rank of a "minor sport" and its champions be no longer entitled to receive a "Big C." The champions of tennis came forward with vigorous protests and excellent argument as to the real values in college sports, and the Executive Committee voted to refer the matter for decision to a vote of the Associated Students.

OTHER ATHLETIC AFFAIRS

On February 22 the Stanford 'varsity soccer team defeated California by 3 to 0, this giving Stanford the championship of the college and club leagues. On the same day, and also at Stanford, the Stanford "All Grays" were defeated by the California Freshmen by 1 to 0.

The greatest half-mile swimmer in the world is not without honor at home. In special recognition of "distinguished athletic service to the University" a "Big C" has been conferred by the Executive Committee of the Associated Students upon Ludwig Frank Ernest Langer, '16, who in the Mid-Pacific Carnival at Honolulu reduced the world's 880-yard swimming record to 12 minutes, 1-1.5 seconds.

The boathouse has been moved to a new site at the foot of Washington street in Oakland.

The intercollegiate meet on March 8 and 14 was won by the College of Agriculture, with a score of 54½. The College of Letters and Science followed with a score of 54; School of Jurisprudence, 38; College of Commerce, 26½; and the College of Civil Engineering, 19.

W. R. Montgomery, captain-elect of the football team, has been chosen President of the "Big C" Society.

APPOINTMENTS

(Unless otherwise specified the following appointments are from January 1, 1916.)

Lecturer in Philosophy on the Mills Foundation, George Herbert Palmer, Professor of Philosophy, Emeritus, in Harvard University.

Hitchcock Lecturer for 1916, Thomas Hunt Morgan, Professor of Experimental Zoology in Columbia University.

Lecturers: Payson Jackson Treat (Associate Professor of History in Stanford University), Political Science; William Leslie, Actuary for the California State Compensation Insurance Fund, Social Insurance in Practice; Charles H. Victor, Economics.

Instructors: Frank J. Smiley, Botany (also Assistant Curator in the Herbarium); Lloyd Nash Robinson, Electrical Engineering.

Secretary of the Bureau of Visual Instruction of the University Extension Division, Wallace Hatch, from December 1, 1915.

Assistant Curator of Mammals in the California Museum of Vertebrate Zoology, Joseph Dixon, from November 15, 1915.

Drainage Expert in the Department of Agriculture, Walter W. Weir.

Assistant in Agricultural Extension, to act as agent in Boys' Club work in California, Russell Ray Ingalls, from February 1, 1916.

Assistant in Agricultural Extension, to act as Assistant State Leader of Boys' Clubs, William Robertson Ralston, from February 1, 1916.

Assistants: Ennis Rogers Utter, Astronomy; Lore Weber, Bacteriology; E. A. Brock, Chemistry; H. N. Cooper, Chemistry; G. A. Linhart, Chemistry; Ida May Stevens, Hygiene; Walter C. Alvarez, in the George Williams Hooper Foundation for Medical Research; Ralph Hinsdale Coon, Physics, from February 8, 1916; F. A. Postnikov, Russian.

Teaching Fellows: Ferdinand John Neubauer, Astronomy; George Cleveland Kyte, Geography.

Instructor in Carpentry in the Wilmerding School, Gerhard T. Wendering, from February 1, 1916.

Helper in Physiology, N. T. Daniells, from November 11, 1915.

PROMOTIONS AND CHANGES IN TITLE

(Unless otherwise specified, the following promotions and changes in title are from January 1, 1916.)

To be Dean of the Faculties as well as Professor of Accounting (on the Flood Foundation) and Secretary of the College of Commerce, Henry Rand Hatfield, from December 20, 1915.

To be Professor of Logic, Charles H. Rieber (Professor Rieber having resigned, as of date February 29, 1916, the Deanship of the Summer Session.)

To be Dean of the Summer Session as well as Associate Professor of English Philology, Walter Morris Hart, from March 1, 1916.

To be Secretary to the President, Newton Bishop Drury, from December 1, 1915, to June 30, 1916.

LEAVES OF ABSENCE

(Unless otherwise specified, the following leaves of absence are from January 1 to June 30, 1916.)

David P. Barrows, Professor of Political Science and Dean of the Academic Faculties.

William Watt Kerr, Clinical Professor of Medicine.

Willis Linn Jepson, Associate Professor of Dendrology.

Clare Morse Torrey, Secretary to the President, from December 1, 1915, to June 30, 1916.

Newton Bishop Drury, as Instructor in Public Speaking, from December 1, 1915, to June 30, 1916.

Dr. Dudley Tait, Assistant in Surgery, from February 1 to April 30, 1916.

RESIGNATIONS

(Unless otherwise indicated the following resignations are from December 31, 1915.)

Assistant Professor of Electrical Engineering, H. F. Fisher.

Instructors: W. F. Meyer, Astronomy (in the Berkeley Astronomical Department); Clyde I. Blanchard, Business Economy (in the University Extension Division).

Assistants: G. Howard Allen, Agricultural Extension; C. P. Clausen, Entomology, from December 1, 1915; Helen Beckwith, Hygiene; R. J. Piersol, Physics, from February 7, 1916; F. N. Marquis, Veterinary Science (in charge of the Hog Serum Laboratory), from December 4, 1915.

Helper in Physiology, Paul E. Brinstad, from November 9, 1915.

Teaching Fellow in Geography, Edwin S. Thomas.

UNIVERSITY MEETINGS

December 3—James G. Schaeffer, football and baseball coach, and Farnham P. Griffiths, formerly Secretary to the President.

January 21—George Herbert Palmer, Professor of Philosophy, Emeritus, in Harvard University and Lecturer in Philosophy on the Mills Foundation in the University of California, and Rev. Benwell Hinson, of the Baptist Church.

February 4—Dr. Ray Lyman Wilbur, President of Leland Stanford, Jr., University.

February 18—Paul L. Fussell, '16, who represented the students of the University of California with the Ford Peace Expedition, and Professor Vernon L. Kellogg of Stanford University, of late in charge of the work in Northern France of the American Commission for Relief in Belgium.

LECTURES AT THE UNIVERSITY

December 1—Dr. L. T. Jones, Instructor in Physics, "Electric Discharges through Gases."

December 3—E. P. Lewis, Professor of Physics, "Phosphorescence and Electrical Conductivity at the Temperature of Liquid Helium."

December 6—F. E. Scotford, formerly Manager of the Pacific Railway Advertising Company, "The Theory and Practice of Advertising."

December 8—Dr. L. T. Jones, Instructor in Physics, "The Cathode Ray."

December 9—Dr. Thomas Addison, Pacific Coast Manager of the General Electric Company; A. U. Brandt, Engineer of the Electrical Department for Alameda County; F. R. Alder, Teacher of Electrical Construction in the Vocational High School, Oakland; and Mr. Harmon D. Jones of the Western Union Telegraph Company (before the Society for the Promotion of Vocational Education and Occupational Guidance).

December 10—Dr. Jacob Loewenberg, Instructor in Philosophy, "Mysticism and Idealism" (before the Philosophical Union).

January 11—G. W. Fishback, formerly of the United States Diplomatic and Consular Service, "Memorabilia of Expositions: Their Evolution and Development, from that at London in 1851 to the Panama-Pacific International Exposition in 1915."

January 13—Dr. Hans Lisser, Assistant in Medicine, "Syphilis of the Lung," with demonstration of plates by Dr. H. E. Ruggles, Assistant in Surgery; Dr. K. F. Meyer, Associate Professor of Tropical Medicine, "The Bacteriology of Infantile Dysentery;" discussion opened by Dr. W. P. Lucas, Professor of Pediatrics (before the University Hospital Medical Society).

January 19—Dr. B. J. Cady, Veterinary Field Agent of the Bureau of Animal Industry, "Swine Raising and Swine Diseases."

January 25—C. J. Pierson, "The Insect Fauna of the Euca-lyptus and the California Pepper Tree in the Bay Regions;" C. W. Woodworth, Professor of Entomology, "The Theory and Use of the Microscope" (before the Entomology Club).

January 30—Memorial Address at the Memorial Services in Agriculture Hall in honor of Eugene Woldemar Hilgard, Professor of Agriculture, Emeritus, by Edward J. Wickson, Professor of Horticulture, Emeritus.

February 8—Dr. W. P. Lucas, Professor of Pediatrics, "The Cerebrospinal Fluid in Meningeal Conditions, with Special Reference to Polioencephalitis" (before the University Hospital Medical Society); F. H. Falconer, Assistant in Medicine, "A Report of some Infections with Bacilli of the Typhoid-Colon Group."

February 9—John McNaught, formerly of the editorial staff of the San Francisco "Call" and the New York "World," "Journalism and the University."

February 16—John McNaught, "Journalism and the Newspaper."

February 16—J. A. Long, Assistant Professor of Embryology, "Fertilization and Some Associated Phenomena in Mammals, with Especial Reference to the Living Eggs of Rats and Mice" (before Sigma Xi).

February 21—Dr. Kuno Meyer, Professor of Celtic in the University of Berlin, "Old Irish Poetry."

February 23—John McNaught, "The Ethics of Journalism."

February 23—S. B. Freeborn, Instructor in Entomology, "Progress in Medical Parasitology;" M. C. Richter, '09, "Bee-Keeping in Chile" (before the Entomology Club).

February 24—Paul Fussell, "Adventures of a Peace Advocate" (before the Cosmopolitan Club).

February 25—G. M. Stratton, Professor of Psychology on the Mills Foundation, "The Psychology of Mysticism" (before the Philosophical Union).

February 25—Ralph S. Minor, Associate Professor of Physics, "The Spectroscopy of the Extreme Ultra-Violet."

February 25—C. B. Babcock, "The Superiority of Gas Illumination."

"THE CITY MAN IN AGRICULTURE"

More than 500 people, of whom four-fifths are men and the great majority between the ages of 25 and 35, are attending the course of fifteen lectures on "The City Man's Chances in Agriculture" being given by different members of the faculty of the College of Agriculture, through co-operation between the University and the Educational Department of the San Francisco Y. M. C. A., at the Y. M. C. A. Auditorium in San Francisco.

LECTURES AT THE MUSEUM OF ANTHROPOLOGY

(At the Museum, on Parnassus Avenue, San Francisco, on Sunday afternoons,)

December 5—J. Marius Scammell, Teaching Fellow in Anthropology, "The Evolution of Modern Military Tactics."

January 9—Dr. Richard Thürnwald, of the Museum of Ethnology of Berlin, "Life in New Guinea."

January 16—Dr. Richard Thürnwald, "Leben in Neu Guinea."

January 23—E. W. Gifford, Assistant Curator of the Museum of Anthropology, "San Francisco Bay Shellmounds."

January 30—E. W. Gifford, "The Maidu Indians of the Sacramento Valley."

February 6—E. W. Gifford, "Indians of Central California."

February 13—Dr. Richard Thürnwald, "Reisen auf den Salomo-Inseln."

February 20—E. W. Gifford, "Indian Cultures of Northwestern California."

February 27—E. W. Gifford, "Indian Cultures of the Santa Barbara Region of California."

LECTURES ON LOCAL FAUNISTICS AND BIOLOGY

January 17—Albert L. Barrows, Instructor in Zoology, "Rock and Wood-Boring Animals on the Pacific Coast."

January 24—John C. Merriam, Professor of Palaeontology and Historical Geology, "The Ancient Mammalian Fauna of the San Francisco Bay Region."

February 1—Dr. Harold C. Bryant, of the staff of the California State Fish and Game Commission, "Mammals of the San Francisco Bay Region."

February 7—Dr. Harold C. Bryant, "Reptiles of California."

February 14—Dr. Harold C. Bryant, "Amphibia of California."

February 21—Albert L. Barrows, "Parasitism among Animals."

February 28—Dr. Harold C. Bryant, "The Economic Relations of California Birds."

READINGS FROM GREEK PLAYS

James T. Allen, Associate Professor of Greek, continued his series of public readings from Greek plays as follows: February 2, the "Agamemnon" of Aeschylus (translation of Dr. Walter Headlam); February 9, the "Libation Bearers" of Aeschylus

(translation of Professor Blackie); February 18, the "Cyclops" of Euripides (translation of Shelley); February 23, the "Electra" of Sophocles (translation of Sir George Young).

LECTURES ON TROPICAL MEDICINE

(At the University Hospital, Saturday mornings.)

January 15—Dr. E. L. Walker, Associate Professor of Tropical Medicine, of the Hooper Foundation for Medical Research, "The Scope of the Literature on Tropical Medicine."

January 22—Dr. E. L. Walker, Associate Professor of Tropical Medicine, of the Hooper Foundation for Medical Research, "Entamoebiasis," with clinical discussion by Dr. H. C. Moffitt, Professor of Medicine and Dean of the University of California Medical School.

January 29—Dr. E. L. Walker, "Leishmanioses," with clinical discussion by Dean H. C. Moffitt.

February 5—Dr. K. F. Meyer, "Trypanosomiasis."

February 19—Dean H. C. Moffitt, "Clinical Aspects of Malaria in California."

February 26—Dr. K. F. Meyer, "Spirochaetiasis."

MINING LECTURES

During the spring lectures on various topics in mining engineering and metallurgy are being delivered by visiting experts. Among those who have spoken are:

Professor L. E. Young of the University of Illinois, formerly Director of the Rolla School of Mines: January 11, "The Economics of Shoveling;" January 12, "Mining Bonds;" January 13, "Some Principles of Economics Applied to Mining;" January 13, "Profit Sharing in Mining."

T. A. Rickard, Editor of the "Mining and Scientific Press," "General Review, the Growth of the Economic Idea, Recent Theories of Enrichment, the Creation of a Gold Vein;" February 1, "Fortuitous Discoveries, the Aid of Mineralogy, Elementary Inferences and the Application of them in Colorado, Nova Scotia, and Australia;" February 2, "The Structural Geology of Leadville, the use of Geologic Maps, the Ore Deposits of Rico, Contacts and Verticals, Replacement Deposits of the Black Hills;" February 3, "Frost as a Geologic Agent, the Discovery of the Klondike, Mining in the Yukon, the Geology of Bonanza Creek, Steam Thawing, Coal Mining in Spitzbergen;" February 4, "The Golden Sands of Nome, the Raised Beaches, the Romance of Mining, Conclusion."

February 21—F. H. Probert, consulting engineer and mining geologist, "Outcrops and the Zone of Oxidation, General Presentation of the Problems Involved, Anatomy of the Earth's Crust, Physical Forces at Work."

SCOUT MASTERS' TRAINING CLASS

A series of fifteen lectures and demonstrations were arranged by the Department of Physical Education for the half-year beginning in January, 1916. Among the speakers were:

February 1—W. S. Wollner, San Francisco Scout Commissioner, "A Brief Outline and History of the National Organization of the Boy Scouts of America;" F. L. Kleeberger, Assistant Professor of Physical Culture, "The Local Organization and its Relation to the City of Berkeley and the University of California;" B. M. Cherrington, Secretary of the University Y. M. C. A., "The Benefits of such Work with Boys;" H. R. Wilson, Boy Scout Executive for Berkeley, "The Tenderfoot Test."

February 8—H. B. Wilson, Examination of Scout Masters in the Tenderfoot Test;" Dr. A. M. Meads, "First Aid to the Injured: the First Principles."

February 15—A. H. Singleton, U. S. N., Naval Training Station, San Francisco, "Setting-Up Drills; Marching; Signalling; General Scoutcraft."

February 22—Albert H. Allen, of the Sierra Club, Manager of the University Press; "How to Hike: Distance, Equipment, Clothes, Shoes, Food, Water, Games, Discipline, Scoutpace;" Dr. A. M. Meads, "First Aid Lecture: Demonstration, Practice."

THE HALF-HOUR OF MUSIC

(In the Greek Theatre on Sunday Afternoons.)

December 5—Miss Effie Stewart, soprano, accompanied by Ashley Pettis.

OTHER MUSICAL AND DRAMATIC EVENTS

December 4—Annual Glee Club Concert, in the Harmon Gymnasium.

December 10—Miss Maude Powell, violinist, and Arthur Loesser, pianist (before the Berkeley Musical Association).

February 1—Ossip Gabrilowitsch, the pianist (before the Berkeley Musical Association).

February 15—San Francisco Quintet Club, composed of Louis W. Ford, violin; Emile Rossett, violin; Clarence B. Evans, viola; Victor De Gomez, violoncello; Gyula Ormay, piano; and Elias M. Hecht, flute; presenting the Schumann quartette in A major (op. 41); the Mozart quartet in C Major, and the Dohnanyi quintet (op. 1), under the auspices of the Department of Music and the Berkeley Musical Association.

February 17—Miss Katherine Heyman, pianist, in a "University Recital" of music by Balfour Gardiner, Moussorgsky, Schoenberg, Rhené-Baton, Grovlez, Scriabine, and Debussy.

UNIVERSITY OF CALIFORNIA CHRONICLE

VOL. XVIII

JULY, 1916

No. 3

THE SENSE OF THE STATE*

GEORGE E. VINCENT

“This is the University of California. It is not the University of Berlin or of New Haven that we are to copy: It is not the University of Oakland or of San Francisco that we are to create, but it is the University of this State.” These are the words of Daniel C. Gilman, spoken in 1872 as he assumed the leadership of the institution which may now be truly described not only as the University of California, but as a national center of light and leading, a cosmopolitan capital in the world-wide commonwealth of scholarship.

Our thoughts today are fixed upon the fact that nearly a half-century ago, California, by collective action, created this University which has become an essential organ of the state, a West Point of Science and the Arts, an expert advisor of the Commonwealth. At the same time we remember that no other State University has been so generously aided by private individuals as has this institution. On every hand we have evidence of this loyal and open-hearted support. It remains true, however, that these gifts have made manifest the social spirit of private citizens, without changing the fundamentally public character of the University.

California has sent forth thousands of young men and women into the life of countrysides and city, of state and nation. Other thousands, now upon the campus, have access

* Address delivered at the Charter Day Exercises, in the Greek Theatre, March 23, 1916.

to the world's tradition of knowledge, taste, skill, and idealism which finds active expression here. During these years a group of scholars and teachers has been gathered, men and women well-trained, devoted, loyal, eager not only to transmit, but to refine and to increase the knowledge and insight of mankind. It is this great company of teachers, investigators, students, graduates, citizens, that actually constitutes the University of California. In them it lives; through them it serves the State.

The State has done much for these men and women, for these graduates and present students. It has given them training for individual success, added to their personal prestige. What today does the State mean to faculty, students and graduates? What imagery comes to their minds as they think of California? What sentiments are stirred? How does imagination respond? How are personal purposes and ambitions related to those forms of life together that men call community, state or nation? The people have the right to ask. The University is answering as the years go by.

Three decades ago Mr. Bryce asserted that to us Americans the State is not, as to the German or Frenchman, an ideal moral power charged with the duty of forming the characters and guiding the lives of its citizens, but rather a huge commercial company. And only the other day, Mr. H. G. Wells declared that the American has no "sense of the state." "I do not mean," he explains, "that he is not passionately and vigorously patriotic, but I mean that he has no perception that his business activities, his private employments are constituents in a large collective process; that they affect other people and the world everywhere, and cannot as he imagines, begin and end with him."

This charge of "state blindness" arouses our resentment. In the national crisis, have we been found wanting? Did the men of '61 have no "sense of the state?" Did they hesitate to lay down their lives for the cause of the Union? Did not the Southerners display a vivid sense of

what to them seemed an issue of supreme importance? Yet, as we reflect upon the full meaning of our critics' assertion our confidence falters. In everyday life does the American see and feel himself intimately related to his city, his state and the nation? Does he think of the common life as an extension of himself, or as something quite outside? Are there sacrifices which he feels called upon to make for the general good? Has he any consistent philosophy of his social obligations? We vaguely feel that these Englishmen have hit upon at least a half-truth. We are tempted to plead that we are a young nation. But how much longer can we hope to attenuate our adolescence?

It must be frankly owned that there is no uniform "sense of the state" in American minds. "Americanism" is a kind of patriotic algebra, satisfactory enough until we try to solve the equation. There are, and have been, many attitudes toward the common life. Each of these has at one stage or another, been especially serviceable. Some of them have important functions today. Others are outgrown and almost if not quite useless until they are reinterpreted in terms of modern life. These attitudes fall, roughly, into an evolutionary series. Community consciousness has been developing for a century. The transition from the intensely individualistic life of the frontier to the complex conditions of an urban, industrial regime, has compelled radical changes in thought and feeling about the community. The new world situation, the meaning of nationality now so dramatically impressed upon us, our future responsibilities and the test which we face—all are forcing upon us a new and insistent "sense of the state." It is worth while, briefly, to review the chief elements which seem likely to play a part in this national consciousness of the future.

Every nation has a collective egotism—a kind of cooperative self-satisfaction. Americans have been no exception. Mrs. Trollope and Dickens thought us insufferable boasters and braggarts. They did not understand our need of cheering ourselves with hope. We craved the comfort

of others' approval. It is the essence of provincialism to be ever avid of admiration. Cosmopolitanism takes itself for granted. The citizen of London, Paris, or Berlin does not think of asking the visitor what he thinks of this capital or that. Until very recently we have been provincial, and have not too deftly tried to keep the conversation centered upon our institutions, our resources, our virtues and even our climate. We Americans invented the gentle art of "boosting"—a process of mutual hypnosis by which we conceal from ourselves the realities of life, and by a kind of magic turn disaster into victory. Then, too, we are not lacking in that good opinion of ourselves which comes from not knowing too much about other nations. There still survives a measure of that earlier vanity which in a subtle way was transferred from the nation to the individual. This "sense of the state" turns out to be only in disguised form a sense of personal importance. But just as vanity—a mere desire for the good opinion of others—may in the individual yield to self-respecting pride, so there is reason to believe that American boastfulness and craving for admiration and approval are being transformed gradually into a worthy, national sense of responsibility and duty.

To millions of Americans, patriotism is a glorified geography. They rejoice in staggering statistics of areas and crops. Images of boundless prairies, yawning chasms, towering mountains, majestic rivers, mighty waterfalls and copious geysers give them a feeling of exaltation. The geysers at times seem singularly appropriate and symbolic. All these natural phenomena take on a proprietary character and contribute to the citizen's personal significance. There is a suggestion in this anecdote of Roscoe Conklin. He had given the chief address at the opening of the first suspension bridge at Niagara. While the crowds were waiting for the returning trains, Conklin walked to and fro majestically, in isolation from the throng. He obviously communed importantly with himself. Said one Pullman

porter to another: "Who is dat gen'lemun? Is he de man w'at built de bridge?" "No," was the answer, "I reckon he's de pusson w'at made de falls." The American cannot wholly escape a creative attitude toward the national habitat. Moreover the very stretch of territory expands his mind and stimulates his imagination. If this is not the whole of patriotism, it nevertheless plays an important part in making vivid to the American a certain "sense of the state." It is hard to conceive of a loyalty so abstract as to exclude the concrete imagery of "rocks and rills," "woods and templed hills."

There are magic words in the lexicon of every people. "Destiny" is talismanic in America. Early habits of living for the future and enduring the present, still persist. Things may be far from satisfactory just now, but a dazzling destiny is in store for us. Why concern ourselves with problems when an automatic millennium is assured? Unseen cosmic forces are conspiring for our prosperity and happiness. There is no doubt that this faith in the future, this auto-hypnotic confidence that the stars in their courses were plotting a glorious national career for the United States, played at one time a useful rôle. We lived, so far as plans and policies went, from hand to mouth; opportunism and compromise took the place of a purpose; we could not see clearly the next steps, yet with our eyes fixed on the rainbow of destiny we stumbled perseveringly on. But this sense of destiny, whatever its value in giving heart to a hardpressed generation, has long been a hindrance to a people who need to formulate and pursue a national ideal. As we see in Europe the contrast between nations which have worked out farseeing policies and programmes and those that have been content to drift and "muddle through," we realize the danger inherent in any "destiny" which has not been defined and organized in terms of a collective purpose.

Like other nations, Americans have thought of themselves as having a monopoly of Providential oversight and

aid. To be the special instrument of Divine purpose is a rôle which we accept with as much humility as we can summon. This again contributes to our sense of personal importance, and like the destiny doctrine leads to a feeling of irresponsibility. How unworthy after all is this parochial conception of Providence! We can understand how the warring nations revert to the earlier idea of a tribal God, but we surely can take a larger, nobler view. We are coming, happily, to this more inspiring conception. When we think of all nations as together working out a Divine plan of civilization, each making its own contribution, our "sense of the state" is changed from an attitude of complaisant ease into one of earnest effort. An assurance of indulgent special favor changes into a call for loyalty and service.

Until recently the average American—if there be a type—has thought of the community as a mine to be worked rather than a cause to be served. Individualism has been the underlying American philosophy. Let each man look out for himself and the common welfare will be automatically promoted. This theory was almost perfectly adapted to the frontier conditions which have been the real key to an understanding of American development. To her hardy, courageous and energetic citizens America said: "Go forth into the wilderness and help yourselves." How remarkable were the results! American initiative and resourcefulness which have become proverbial were tested and developed in a westward moving zone known as the frontier. In this life the "jack of all trades" was exalted and the expert derided. Personal independence and individual rights received an exaggerated recognition. A reaction has come. Congested, industrial, urban conditions have raised serious questions. A policy of conservation suddenly asserts collective rights. Social legislation runs athwart the individualistic current. The heroes of yesterday are denounced as the traitors of today. Yet this philosophy of individualism has played a vital part in the past and, controlled by

a new "sense of the state" seems destined to be the chief stimulus to progress for a long time to come.

The individualistic struggle has given rise to perhaps the most common view of the State, namely the police or umpire theory. Individuals and groups are engaged in constant rivalry and competition. The State sees that the rules of the game are enforced; that there is fair play. Thus it becomes a form of compulsion or control. The State seems set over against the citizen. It taxes him and spends his money; it thwarts him in many ways. It is an external force. It is hard to feel much enthusiasm for this idea of the State. It lacks positive and constructive force. It seems chiefly negative. "That government is best which governs least," Spencer's ghost haunts this conception. It is reminiscent of Bentham and of Manchester. If graduates carry into life only this "sense of the state" they will not spend themselves lavishly for the commonwealth. And yet this regulative function of the State is essential and fundamental. It may easily be widened and reinterpreted, as we shall see, into a very much broader, more constructive and inspiring conception. The negative policeman may become a positively ministering public servant.

Against the police view of the State, there has been a growing protest from those who see in the collectivistic idea an all-inclusive organization. There has been a growing revolt against the doctrines of individualism which were adapted to relatively simple industrial and social conditions. Over against the rights of the individual have been asserted the rights of the community. The public aspects of child and woman labor, housing, health, recreation, insurance, education, have been insisted upon. Governmental control has been extended. The changes are gladly greeted by the socialist who offers a "sense of the state" which merges the citizen into an encompassing whole. The State becomes the one agency of the life in common. To the ardent collectivist this is compatible with the spontaneity and self-direction of the individual. To most of us, however, this theory of the

State seems destructive of that feeling of independence and responsibility which is essential to the most vigorous type of personality and to an expanding, advancing society. Just as, on the one hand, an exaggerated individualism leads to arrogance and to aloofness from the community, so the socialistic "sense of the state" on the other hand submerges the individual in the mass. There is no denying, however, that the American mind is gradually recognizing the ideals of a socialized imagination.

But the socialist is not the only one to exalt the all-powerful State. He would rely upon democratic control. The tragedy in Europe shows us the State as a fighting unit under quite different guidance. Leadership and discipline, undisputed control by the competent few, docility and obedience on the part of the well-trained, regimented many—these are the lessons of war. All fighting nations must heed them. The laws of life are inexorable when once appeal has been made to force. Democracy and autocracy alike must obey or go to the wall. Such "sense of the state" has played little part in the American mind. We have relied on isolation; we have avoided "entangling alliances;" we have congratulated ourselves on our immunity; gone our easy way, prospered in material things, pampered ourselves, given a paltry percentage of our margins for the relief of suffering; we have avoided sacrifices and discipline. May we escape the horrors of bloodshed, but may we find a "moral equivalent for war!" May we awake from our dreams of self-indulgent ease and gain a "sense of the state" which will give us discipline and urge us to glad sacrifices for the common welfare!

Efficiency is a current shibboleth. Experts are invading factories and offices. Even universities, the last stronghold of traditional drift, are being investigated. Business methods are carried into community life. Municipalities are declared to be nothing more than big corporations which should be managed by experts and pay dividends to citizens in health, comfort, and happiness. We have, we are told, no

further need of parties and sentimental loyalty. Business in politics and politics in business. The theory is being extended to state organizations and administration. There are utopian dreamers who fondly dream of a millennial age when the Federal Government will substitute a national budget for the patriotic pork-barrel. There is a strong appeal in the conception of business efficiency. It fits into the practical spirit of the people. It demands good service and applies more searching tests. And yet this business "sense of the state" cannot touch the imagination and arouse the devotion which our common life demands. Men will not spend themselves gladly for systems of cost accounting and civil service examinations.

Yet, the demand for business efficiency springs from very real needs. Whether we like it or not, the community has more and more regulative and constructive tasks forced upon it. Shall we assume an attitude of reluctance, even resistance, or endure the change as a necessary evil, or shall we welcome an opportunity to enter into a constructive co-operation? Germany today offers an instructive illustration of national unity based not chiefly on coercive authority, but upon enlightened social policy. In Germany the State has not hesitated to undertake a wide range of activities which we have left to private initiative. One who studies the trend of modern life cannot doubt that we shall have to follow gradually a similar policy. Many of us dislike the idea. But what difference does that make? Yes, there is a new "sense of the state" as a vast agency of a purposeful, advancing society in which individuals find self-development and self-expression. Public health, industrial organization, popular education, taxation, control of public utilities, challenge attention and demand more than negative treatment. The loyalty which is only a superficial emotional response is not to be relied upon. A sense of justice, of opportunities fairly equalized, of burdens fairly borne, of rewards justly apportioned, is the only guarantee of safety. We are beginning to realize that we

are entering on a new phase of community life. May we have the constructive imagination to do consciously and collectively the things that must be done!

The vision of constructive co-operation implies the moral ideal which Mr. Bryce missed in us thirty years ago. Back of this change is the conviction that the State is more than a business corporation. It is an ethical force. It seeks justice, tolerance, mutual understanding, respect and goodwill. It cannot rest content with a technical or administrative efficiency which neglects the moral development of its citizens. It seeks their spontaneous, intelligent, self-directing loyalty. Through the conflicts and turmoil of our times, through the policies that are urged and the devices proposed, there is struggling for expression a quickened "sense of the state" as a moral purpose. For, after all, moral life is a collective co-operation, not an isolated individual thing. Most of us live under the control of group standards. These are raised to higher levels by the vision and leadership of men and women who have new moral insight. Yet we all share in the ethical achievements of these prophets. The State is one of the vehicles of moral power. In its laws and their administration it helps to give effect to the ethical energy of the people whom it serves.

Moral earnestness is fostered by the idealism which has religious fervor. Church and State are separate in America, but this does not mean that we Americans are irreligious. Quite apart from theological differences is a unifying spiritual power which kindles our enthusiasm for common tasks. No thoughtful student of our national life can doubt that immense spiritual energy is finding expression in many forms of public and social service. There is a faint glimpse at least of an ideal which makes the State an object of inspiring idealism. Only a few perhaps have yet caught this vision, but these men and women are the prophets and leaders of our times. Sir Thomas More in his *Utopia* describes a national religion which, without in any way interfering with the various sects, united all citizens in the

worship of what they accepted as a common object of faith: "The Divine Essence."

Such are several typical "senses of the state" in American minds. These different attitudes have grown out of changing conditions. All of these views have had—most of them still have—value. They vary in insight and in inspiring power. They arrange themselves roughly in a progressive series, each larger conception including and perpetuating what is best in that which it supersedes. No education can be called liberal which does not arouse men and women to a truer patriotism, to a "sense of the state" which shall blend in a noble vision, a chastened chauvinism, a love of the land itself, a thrill of future greatness, a faith in Divine purposes, a submission to just control, a demand for technical efficiency, a deepened feeling of comradeship, a loyalty to common tasks, an enduring moral earnestness, and fidelity to an ideal national purpose.

We face new times. We must prepare for an industrial and commercial struggle in the world's markets, and for a readjustment of our own social order. We shall become a moral force, not by assertion, but by showing our capacity for self-discipline and sacrifice. We shall wield an influence for world welfare only if we are ready to assume our international responsibilities. In these new times our colleges and universities will be tested as never before. If they fail to furnish intelligent, fearless, loyal leadership, they will lose their greatest opportunity and forfeit public confidence. Upon State Universities will fall a double burden. They must furnish a practical, technical training more and more exacting. They must respond with well considered plans to every authentic social demand. At the same time, they must foster in their students a consciousness of the community and its purposes, must liberalize practical pursuits by giving these social significances and dignity. This idealizing function is of increasing importance. There is very real danger of a recrudescence of materialism under the guise of a demand for national efficiency. The "new

humanities"—the social sciences—must be cultivated with a new energy and in a new spirit. There must be a steady and high-minded appeal to the imagination, to social sympathy, to common purposes. The shibboleth of service must be translated into concrete, constructive social tasks.

May you men and women of the University of California, on this day of memory and high resolve, dedicate yourselves anew to the service of truth, justice and the common life! May you organize your personal careers into the community and the nation. May you repay what you have received here in no carefully calculating fashion, but gladly, freely, generously may you spend yourselves for others who are a part of your larger selves. May you see in your Alma Mater, not a fond, indulgent mother, but a stern parent mindful of public duty and scornful of sons and daughters who seek only their own success! May you gain an ever nobler "sense of the state," for "without a vision the people perish."

CEREMONIES AT THE LAYING OF THE CORNER-
STONE OF BENJAMIN IDE WHEELER HALL,
UNIVERSITY OF CALIFORNIA,
MARCH 23, 1916, 3 P.M.

Presiding Officer, Regent JOHN A. BRITTON

1. Song by UNIVERSITY OF CALIFORNIA GLEE CLUB, "Hail to California."
 2. Address—JOHN A. BRITTON, representing the Regents of the University of California.
 3. Address—OSCAR SUTBO, President of the Alumni Association.
 4. Address—Professor A. O. LEUSCHNER, representing the Faculty of the University.
 5. Response—President BENJAMIN IDE WHEELER.
 6. Laying of the Cornerstone—Regent JOHN A. BRITTON.
 7. University Hymn, led by UNIVERSITY GLEE CLUB and UNIVERSITY BAND, "All Hail!"
-

ADDRESS BY REGENT JOHN A. BRITTON

Charter Days have come and gone, and Charter Days will come and go, but as there never has been in the history of our beloved University a Charter Day such as this, so in my judgment will there never be. On this day we are met to give recognition and reward to one who has served the University faithfully and well. We are giving this

recognition not in mere words of adulation, nor by pro forma resolutions of esteem, but in a more responsive way through the material things represented in this wonderful structure by masses of steel and granite, which are going to live to remind continually those who come and go of the recognition and reward due to one who has builded in the past seventeen years so well.

Coming to us a comparatively young man, to take charge of a University small in numbers but great in purpose, Benjamin Ide Wheeler has created a solidarity of interest not only in the student body and the faculty, but in the minds of the people of the State of California, which has resulted in the lifting up of this University to a rank second in the United States in attendance of students, and first in the love and affection of the people of this State. To our President we of the Regent body owe much, because he has been our staff, and a guide to us in our deliberations, and personally, I cannot recall anything in my varied experience that has given me more pleasure than to have kept through fifteen years of association with a man of such high attainments and such marvelous executive ability, his friendship, love, and esteem.

Within the boundaries of the campus of this University there have been many buildings erected, following the plan evolved by that most wonderful of all women, Mrs. Phoebe Apperson Hearst, but there will be no building around which more pleasant memories of association could cluster than this building that we today are honoring by conferring upon it the title of Benjamin Ide Wheeler Hall.

The Alumni of the University of California represents its bone and sinew. Twelve thousand loyal members of that body attest the effect and influence of the University, and it affords me pleasure to introduce to you, as representing that splendid body of men and women, Mr. Oscar Sutro, the President of the Alumni Association.

ADDRESS BY OSCAR SUTRO, PRESIDENT OF THE ALUMNI
ASSOCIATION

The noble structure we are about to dedicate is a monument to a great President, to a greater University, and to its greater Alumni. Under the vitalizing touch of our President our colleges have gradually asserted a forward place in the world of universities. He came to us in 1899, seventeen years ago. We were an institution of no mean proportion it is true, with an enrollment of 2500 students. We were vigorous, willing and liberally supported by the State. President Wheeler has changed us into a great University, which even now numbers 6000 men and women. The institution is animated by the spirit of a great university. No finer or more fundamental thing is taught on the campus today, or will be taught in these halls, if the wise policy of our President is continued, than that which created student self-government and all that its perfection will imply. And that is symbolic of the spirit that rules the University Faculty. Education in facts and things, as Stephen Girard said, rather than in words and signs; or as it has been well put, education in the obvious has become more necessary than investigation of the obscure. To teach knowledge of the conduct of man to man is ever near the thought of our President. It is because President Wheeler peculiarly values the importance of this aspect of collegiate education and because this building symbolizes the growth of our university and of its aims along these lines as well as those of intellectual development that we as alumni rejoice that it is to bear the name of, and honor, Benjamin Ide Wheeler.

The building is a monument to a rejuvenated body of alumni, a body rejuvenated by the work of the last Council and its President, Allen Chickering. It may fairly be said to be the first of the fruits of a tribute laid at the feet of their Alma Mater by loyal sons and daughters. In 1914

the need for additional class rooms was so urgent that an initiative amendment to the State constitution to provide \$1,800,000 by the issue of bonds for additional buildings was presented. It was proposed to the voters by petition circulated and signed at the instance of thousands of alumni. A systematic and well ordered campaign was put into operation. By September 1914, every city in the state had its local chairman and publicity director. The state was flooded with literature, showing the desperate need for further buildings. Teachers of all schools were circularized and their help secured. Precinct organizations were created in all the larger cities, and buttonholing brigades organized. The support of our sister university was enlisted and enthusiastically given. The country press was flooded with editorials appropriate to local situations and to furnishing the weary editor with copy. With excellent tact arguments showing the necessity of the buildings were made in detail for those voters who could understand them. For others it was merely explained that to authorize the bonds would not increase taxes of the voters, but that under the revised financial system of the state the burden of debt would fall on the corporations. That argument was most effective. Indeed, the political machine of our graduates was perfectly built, oiled and run. It was a labor of love well done. The election on November 11, 1914, showed an affirmative of 415,020 in favor of the bonds. It was a vote for higher education. The only total affirmative vote that surpassed the vote on the University bond issue out of the fifty-odd propositions submitted to the people was the vote against prohibition. Politicians will find an analysis of the fact of interest. The majority for the bonds was 175,688. The amendment to permit Alameda County to contribute to the Panama-Pacific Exposition almost alone received a larger majority. This amendment, also, it will be observed, cast no burden on the other fifty-seven counties that voted for it. It is a safe deduction from the returns of this election that voters are ready for

public improvement no matter what it costs the other fellow.

The work of the Alumni has only begun. It is for the Alumni to make still more dear to the people of the State the University which the State so generously supports and which is enshrined in the hearts of the half million people who voted for its enlargement. As the University grows, it is for the Alumni to foster and nourish the college spirit which is the flower of university life, and which, unless carefully guarded, may chill and wither in the ever increasing crowds of students. The Alumni must become an institution. The spirit of the Alumni must continue the spirit of college life.

And now North Hall goes, Wheeler Hall comes. Dear old North Hall! whose very steps are carpeted with memories and traditions.

Emblematic is old North Hall of the old University of California, of its intimacies, its plainness, its crudities, its democracy. Emblematic of the growth and increasing splendor of the University is its successor, Wheeler Hall. I might say, "The king is dead. Long live the king!" But North Hall lived, not merely in its rickety old walls, but in its traditions and recollections, and these we of the alumni now house anew in Wheeler Hall, stately and beautiful, and soon to grow to its place together with the hills and oaks of Berkeley in the hearts of the loving sons and daughters of California. For California alumni I fondly paraphrase the prediction that stars will grow cold before this building shall have ceased to be, and the noble work to which it is consecrated shall have been finished.

REMARKS INTRODUCING PROFESSOR LEUSCHNER

The Alumni body may be considered as the superstructure of the University. The real foundation, may I say the props that sustain the superstructure, are found in the Faculty body, for it is really the foundation of the training and the educational value of the University, and as

an able exponent of the Faculty it affords me pleasure (if the form is necessary) to introduce to you Professor Leuschner, Dean of the Graduate School, representing the Faculty of the University.

ADDRESS BY ARMIN O. LEUSCHNER

On October 26, 1914, at a regular meeting of the Academic Council embracing in its membership all of our faculties at Berkeley, there was enacted (over yonder) in California Hall a simple but never to be forgotten academic ceremony, a ceremony as sincere as it was spontaneous. The occasion was the completion on the previous day by Benjamin Ide Wheeler of fifteen years of devoted service as President of the University of California. While a few of us were gathered around the lunch table at the Faculty Club, in the heart of the University family, from which so many real and good things have come to the University, plans were laid to turn the next regular monthly meeting of the Council, then but three days off, into an informal family celebration in recognition of the importance of the event. The one obstacle in the way, the promptness with which the President is accustomed to take the chair, was overcome by causing his Secretary to detain him. At the Council meeting it was my privilege to direct attention to the significance of the day, to move the suspension of the regular business and the appointment of Dean David P. Barrows to address the President in behalf of the Council. To Professor Henry Morse Stephens, the lifelong friend and associate of the President, fell the honorable mission of escorting him into the presence of the Council. In turning over the chair to the President, the temporary chairman, Professor Andrew C. Lawson, in a few simple words acquainted him with the purposes of the Council and then Dean Barrows spoke for us. He reviewed the fifteen years of loyal and distinguished service of the President; he emphasized the unity of the institution as expressed by the

firm bonds uniting students, faculty, and regents and brought about by the President's wise guidance; he proclaimed the flourishing condition of the University in scholarly work and numbers which has given it rank among the first institutions of learning in the world; and finally, in words coming from the fullness of his heart, he assured the President of the loyalty, affection, and admiration of the faculties. The members of the faculty seconded his every word by remaining standing throughout his address.

Well do I remember the President standing before us as he started to respond, his eyes moist, his voice trembling, his heart thrilled with the unexpected, but oh! so welcome, ovation following Dean Barrows' address. Welcome ovation, I say, for was this not the first time in a long fifteen years that a unanimous expression of appreciation of the faculties in meeting assembled had been given? To whom would it not have been welcome after so many years of uncertain toil? We knew without his assurance that it was the supreme moment of his life.

What was enacted in the intimate faculty circle less than two years past, we are today reaffirming in the wider family circle of the University, embracing regents, faculty, students, and alumni, yea indeed before the eyes of the state and the world.

But this occasion on which the cornerstone is being laid of the first building of a new group to rise above the ground as a token of the belief of the people of the State in their university, is also a welcome opportunity for the faculty to express its appreciation to the State of California for its generosity and to the alumni of the University through whose loyalty the initiative measure giving us these sadly-needed buildings was carried to success. This is also a welcome opportunity to do homage and to express our deepest gratitude to that first woman citizen of the State, Mrs. Phoebe Apperson Hearst, through whose wise foresight the home of the University will be as perfect in design and as harmonious in artistic creation, as the truths

to be taught in it are honest in conviction and inspiring to higher ideals.

But why should just this first of the new group of permanent buildings given by the State be named Benjamin Ide Wheeler Hall?

The average length of service of former presidents of the University of California has been but three and one half years, and President Wheeler has told us that in coming here he saw no reasons why his should be a longer term. But today, in his seventeenth year of service, he is the dean of the forty-two state university presidents. While the faith of sister institutions and of other states in this University which was so well conceived by the founders and the people of the State was formerly shaken at times on account of frequent changes in administration, the long and successful service of President Wheeler has given the institution a stamp of permanence in the eyes of

The first building erected by the State on the permanent could produce. It is the permanence of high scholarship and of high ideals, the performance of high citizenship and of loyal service, of those who toil within the institution and of those who go forth from it.

The first building erected by the State on the permanent plan as a home for its students stands there below us to the northwest and with eminent fitness is named after our glorious state—California Hall. But now the faculties of the University rejoice over and concur in the happy decision of the Regents to name this new permanent building Benjamin Ide Wheeler Hall in honor of the man with whose coming the University entered upon an era of permanence in the service of American civilization.

And this permanence will endure as a monument to the man whom we honor today, long after this mass of steel and stone shall have crumbled into dust and disappeared from the face of the earth.

REMARKS PRECEDING AND FOLLOWING THE READING OF
LIST OF ARTICLES PLACED UNDER CORNERSTONE

Within the recesses of the cornerstone of this building has been placed a box containing the following material:

Architect's Drawing of the completed building.

Photographs of the architect's drawings of the plan of Benjamin Ide Wheeler Hall.

Photograph of Benjamin Ide Wheeler, taken 1915.

Biography of President Benjamin Ide Wheeler.

Copy of the *Daily Californian* published by the students of the University of California, date of Wednesday, March 22, 1916, Vol. XVIII, No. 53, containing an account of the programme for Charter Day.

Copy of *Berkeley Daily Gazette*, for Tuesday, March 21, 1916.

Copy of the *Stanford Palo Alto News*, of Friday, March 10, 1916, containing President Benjamin Ide Wheeler's address at the Founders' Day exercises of Leland Stanford Junior University, at Palo Alto, California.

Copy of the President's Annual Report for the academic year 1914-15.

Copy of the Directory of Officers and Students, issued February, 1916.

Register of the University of California for the academic year 1914-15, containing Circular of Information of August, 1915, Announcement of Courses for 1914-15, and other Announcements of the University.

Copy of *Alexander the Great*, by Benjamin Ide Wheeler, published in 1900.

Copy of *Unterricht und Demokratie in Amerika*, lectures by Benjamin Ide Wheeler, as Roosevelt Professor at the University of Berlin, 1909-10, published in 1910.

Reprints of various writings and speeches of Benjamin Ide Wheeler.

Remarks of Professor A. O. Leuschner, Dean of Graduate School, at Corner Stone Laying Ceremonies, Benjamin Ide Wheeler Hall, March 23, 1916.

When this stone descends into its resting place, this material will be sealed from human eyes forever. The Summer winds may come and the storms of Winter occur,

but I give you the hope that the contents of this box will never by any act of nature, or otherwise, revealed to the eyes of the world until time shall be no more.

It is absolutely unnecessary for me to introduce to you the man in whose honor we are met today, and who will speak to you in his wonted way of his love not only for the University of California and all that it stands for, but his love for our great commonwealth, of which the University is an integral part.

REMARKS BY BENJAMIN IDE WHEELER

The typical activity of a university is teaching—but teaching inspired by fresh thinking.

The buildings of a university are of two sorts: on the one hand library and laboratory, on the other the halls of instruction. The laboratories for the sciences and the library for the humanities yield the oxygen of the university life.

Back to back with the library and its seminaries representing discovery stands this new building representing teaching. Research and teaching—we must have them both and have them blended. Teaching without the quickening force of discovery will soon grow stale. Research, without telling its story to the quickening of others, and without embedding its lessons into the uses of human society, will grow selfish and die by the hand of its own zeal.

Here in this stately hall, for centuries to come, each generation will transmit to its successors the lessons of the past; here, by the contagion of sympathy, each generation will inspire its sons and daughters to nobler living; here by the mystery of inspiration, vision shall awaken vision and personality shall give its spiritual life-blood to the handing on of life, like as fire by the handing on of the racer's torch.

Go now to thy place, old stone. Take up thy long burden of the years.

LITERATURE AND HISTORY*

JOHN S. P. TATLOCK

We live in days of sedition, privy conspiracy and rebellion, of plague, pestilence and famine, of battle, murder and sudden death. The waves of the great world-earthquake spread and disturb the most deep-fixed of spiritual strata. Matters and values which we have always taken for granted now provoke searchings of heart. In particular we of the ancient society of Phi Beta Kappa, whose work and interest have lain largely in the invisible regions of thought and art, at times view them with new eyes. To talk of poetry when men are bleeding and empires are crashing seems at times like offering a plantain-leaf for a broken leg, like thinking of social precedences when the ship is sinking. But after the earthquake and the fire in the days of King Ahab came the still small voice; it is the so-called unpractical studies, the humanistic disciplines, that give men insight and enable them to understand; that give us faith and courage, for which we appeal to science in vain. We come back to our former associations with a new understanding, and feel a new value in them.

I

Of the various ways of studying literature the commonest may be called the appreciative. No doubt it is the primary method. Literature is a form of art, and before

* The Phi Beta Kappa Address delivered at the University of California, May 16, 1916.

everything else we must feel and lead others to feel the beauty and ideality which make it art. In the secondary schools the teacher who does this is a good teacher, he who does not is a bad teacher. This is so all-important that it is exaggerating wholesomely to say that all the teacher has to do is to inspire a liking for good reading, so that the future store-keeper, contractor, mother, may be able to leave for a season, if they will, the fret and dust of life for this cool pure air. In colleges some of the most celebrated and influential of teachers of literature have done nothing else. Any broad and humane scholar will wish to do the like. He may be jarred and piqued by meeting at times a childish conception of this work; he may not like to be asked if his business is "teaching English classics," because that suggests holding hands with young ladies over the character of Silas Marner, or expounding the philosophy of the *Psalm of Life*. But no interest in research, or in the esoteric beauties and strange hints as to origin to be found in primitive literature, will take away the zest, they will rather increase the zest, in leading future lawyers, physicians, bankers, to find in books daily inspiration and repose—

This is the port of rest from troublous toile,
The worldes sweet in from paine and wearisome turmoyle.

Once more into the breach, dear friends, once more.
A man who does all this extremely well is worth a high salary.

The appreciative study of literature means the study of it for what it means to us, for the beauty and ideality in it to which we respond. In this spirit most men will read literature who read it for pleasure in the intervals of business. But what is agreeable and ennobling for a short time may become enervating or palling if we live in it. This method does not take us down to the bed-rock of truth. The ultimate reality in any literary work is what the author intended. What it means to us may interest and inspire

us more for a time; a great people may declare, "Deutschland ist Hamlet," and then lay the lesson to heart and change its ways, as in verity we have seen it do. But for him whose main occupation is literary study there are two dangers in this subjective attitude, by defect and by excess. One is of sentimentalism and superficiality. How can a man of active mind be content with the purely passive part of absorption and appreciation? As a rule he will not be, his main interest will cease to be study, and he will earn his keep by going in for social betterment, administration, popular writing—all of them most salutary things. But his teaching may suffer; there is immense stimulus to good students, even young ones, in the suggestion of new truth to be found. The other danger is over-subtlety. Not content with mere sensation, he will analyze his sensations, and teach his students to pore over theirs. The real pulling of literature to pieces is not the minute and accurate study of the meaning of the text, it is the cross-examination of our impressions. The fragile thing is not the text, it is our reaction to it. The investigator of esthetics as a branch of philosophy may have to analyze the flower of poetic pleasure into psychological gases and salts; but it is too bad when we cannot enter the stately mansion builded for our souls without finding it haunted by such ghosts as romanticism, classicism, realism, prose rhythm. I am afraid some timorous folk will camp out for good and all with the daily paper. It is as bad as Carlyle's picture of the aging Coleridge shambling about his garden at Highgate maundering about "summject" and "ommject." I have heard a prominent scholar and teacher avow the pious opinion that we should utterly abolish the words romanticism and the rest. We cannot; they are necessary time-saving categories, and harmless if we realize that romanticism is neither an entity nor a movement nor a doctrine nor a type, but only a taste, a taste for the strange. But most of such discussions give us no new truth or light, are mere questions of definition. Such and such a work is

romantic, romanticism is thus or so related to realism, if you define romanticism so or thus; and not, if you do not. As isms they don't exist, and never did.

I have been generalizing a good deal. He who believes there is divinity in fact never generalizes without compunction; but facts are not spread abroad without the wind which bloweth where it listeth. The generalizations which I have made and shall make are submitted in the spirit of the Frenchman, plainly a reincarnation of Epimenides the Cretan, who said, "No generalization is altogether true; not even this one."

II

The aspect of literature which I wish particularly to speak of is the historical aspect. I do not mean the history of literature, I mean the literature of history, literature as a part of history. We are apt to assume something absolute and fixed in the divisions of human knowledge as set out in the announcements of schools and colleges; but the practical and pedagogical are not the true facts, they are merely founded on them. There exists only knowledge of the world of nature and the world of man. With the world of man there is only the knowledge of what man is and of what he has done, and each teaches us about the other. The whole of knowledge of what man has done is history, and it is only for convenience that we relinquish the word to those who tell us of events in Europe and America (with a few courses on Mesopotamia and Japan). A good part of philosophy is a record of what man has done in the realm of thought; so is a good part of economics; and so is literature. Literary history is one of the most important chapters in the history of the human mind.

There is no lack of literary pleasure to be gained through studying literature in this spirit, to say nothing of purely intellectual pleasure. Astronomers tell us that more is to be seen by indirect than by direct vision; gaze a little to one side of the Pleiades, and you will see more

luminous points than if you look straight at them. In the crowd you may see more of human interest by not letting your eyes follow the spot-light. As you pursue your fact or your interpretation, even if pleasure is a by-product, you will have moments now and again like Saul, who went seeking his father's beasts and found a kingdom. You will have all the charm of finding the human and the beautiful when you are not expecting them. Do you suppose the goldsmith has not his moments of exultation over his gems, as he labors with fire and hammer and file over their settings?

Looked at thus, the works and questions most insignificant to a surface glance become full of interest. Some medieval allegory, some Greek novel, some obscure Elizabethan drama—when were they written, where did the author get his ideas, what was in his mind as he constructed and wrote them? To the student with historical imagination these are not dry disorganized matters; not merely because any problem gets warmth and life when it becomes *your* problem, but because such things bring you toward an intimacy with a human being long dead. That is it: not to know a string of facts about the past, but through the historical imagination to form a personal and almost emotional relation with it; not so much to say, "What should I have done if it had been I?" for you would not have been you in his day, as to put yourself in his place, his place being encompassed by all the social and intellectual conditions of his time.

But there is much more than this. If we come to as close quarters as we can with a number of elect souls in the past and by the sympathy of the imagination leap to meet advances from them, and take some pains to understand what in the past seems only queer, we learn what it really means to say that literature is one chapter in intellectual history. We have to enlarge our conception of literature. It is no longer the poetry, fiction and essays that in some mystic way (with the help of the publishers)

have got labeled "classic;" it is not only what has high imagination and beauty; it is any writing which is good of its kind, unless it is so technical that none but a highly trained person can read it. This is the conception at the basis of that monumental and illuminating work, *The Cambridge History of English Literature*. If we include Carlyle's *Frederick the Great* and Gibbon's *Roman Empire* in European literature, how can we exclude Darwin's *Origin of Species*, St. Thomas Aquinas' *Summa Theologiae*, Gerald de Barri's *Topography of Ireland*? Are not these far more interesting to any active and liberal-minded person than much imaginative work which anyone would call literature? They are sincere, as Lord Beaconsfield's and Lyly's novels, Young's and Carew's poetry, are not. One thing this historical view of literature enforces on us is that nothing keeps its vitality but sincerity; and that anything which another well-endowed human being has cared enough about to toil over is interesting, is at least interesting enough to be worth grasping in the large. There is no such thing as the queer; it simply means what we have failed to understand. We ought to be ashamed of not understanding. However harsh and dry the cinders which form the mould, they bear the form of humanity, however distorted; like the pumice from Pompeii, full of ghastly cavities, to be seen in the museums of Naples and Berlin. Yet for the omnivorous historical student even the cheap imitative and insincere things have value if they indicate the popular vogue of a device or type; its popularity gives us further insight into the spiritual quality of that age. The amorous allegories of the fifteenth century, wearying to the soul, make us feel how thoroughly the world then still believed that the essential realities are spiritual, that what we see is the accidents and that the substance lies behind; precisely when this world was the center of the material universe, the other world was the center of men's thoughts. The stories of Messrs. J. B. McCutcheon and Harold Magrath will tell our descendants how much those

quaint credulous old souls who lived in the early twentieth century admired breezy efficient young amateurs of both sexes who were equal to an emergency, political or military. Spirituality and efficiency, are those far from being the ideals of the fifteenth and twentieth centuries? What, by the way, will be that of the twenty-fifth—spirituality again, or deficiency?

The historical attitude toward literature takes us farther and farther from the "English classics" notion. One fact about literature the historical student cannot overlook, and that is how arbitrary and even meaningless is that word classic, how fluctuating have been literary reputations, how small the absolute and how great the relative have been in forming them. I am not referring to the appreciation which comes after the death of a man who is ahead of his age, as with Edward Fitzgerald and more recently Samuel Butler. I mean that no great poet of the world has been read and supremely admired from his day to the present (save Virgil alone). In the Middle Ages no one cared enough about Homer to learn to read him; Dante was substantially ignored in England from Chaucer to Coleridge; Voltaire's sneers and faint praise for him and Shakespeare are only symptomatic. Shakespearolatry reached its maximum in that blessed Victorian epoch, with the assumption that Shakespeare was always an oracle which could say no wrong. Signs are not wanting on both sides the Atlantic that a more judicious spirit will prevail; that we shall see him as human and therefore fallible, as a man of his age and therefore conditioned by his age, as often purely practical in his aims and therefore sometimes even—careless. If this means that Shakespeare's glory will seem to some a little dimmed, we must face the fact. We shall love and revere him the more for learning that he was a man of like passions with us. The truly great do not relish indiscriminating admiration. The father values more the appreciation of his grown son than the awe of the child. "Truth is the highest thing that men may keep."

So no reputation is wholly steady, except of those who are no longer read. The only quiet is in death. There is an exhilaration in seeing the Olympians, before whom we used to tremble, moving about democratically among ordinary people, and thereby showing how much taller they are. The historical student of literature feels like Dante among the mighty dead in Limbo. The historical study of literature is a perpetual house-party on the Styx.

III

It does not seem strange that literary tastes should differ, as we look back and see the amazing differences in humanity from age to age. I do not refer to superficial visible differences; kirtle and baldrick might listen to the same lines as doublet and hose, plum-colored waistcoats and tiewig to the same as walking-coat: or even to differences in custom; Queen Elizabeth's maids of honor drank beer for breakfast, and one of Chaucer's friars hugs and kisses a goodwife before her husband's face out of mere politeness, but these startle us no more than the cuttle-fish eating of the Italians, or the mutual osculations of German men. As we learn to know the past, it seems to us at times as if man had changed his heart and his soul. The cruelty of the medievals, their cold-blooded devilish cruelty, with their blindings, maimings, slow tortures, lingering deaths, makes one shudder. Can such men be of the same flesh as certain newspaper editors of a modern commonwealth that had finally got a notorious malefactor behind bars; which editors clamored for his release to soothe his old mother, and because prison-fare irked him, being an epicure? The persons whom the Middle Ages loved to contemplate in fiction seem to us not keenly human and well-rounded, but almost inhuman; the saint, who forsakes wife and children, and gives his body to be burned, the Quixotic loyalist, who will sacrifice family and reputation in order to keep his word. In modern fiction is any figure surer of popular liking than the cynical worldling, the easy-going scapegrace,

the kind-hearted crook or near-crook, who rises to an occasion for generosity or heroism when the prime minister, the envied Pharisee, the Prodigal's elder brother, fail! Such scenes abound in the novels of Dickens, Thackeray, Bulwer, Stevenson, in the plays of Oscar Wilde, Pinero, Augustus Thomas; the lights go down and there is not a dry eye in the house, as we see wild-oats yielding the bread of life. The differences between the past and the present are even greater than they seem to the casual reader. Truth and freedom—people in the Middle Ages threw up their caps and shouted for them just as we do; but by truth they meant not that which is sought in silent laboratories, but fidelity to one's word at whatever cost, and by freedom they meant liberality, not the right with which we all are blest to vote for boss-owned politicians. The medieval test of value was sometimes more social and more unselfish than ours; individualism, that scientific name for selfishness, had not yet been coined. Truth in the sense of abstract fact had no warmth for the Middle Ages; you might not break your word, but might deceive when it was expedient; the fourteenth-century French poet Deschamps, after enumerating the six necessary virtues of a knight, adds that he should not lie any more than he has to. We say or sing from generation to generation that kind hearts are more than coronets, that all men are created free and equal; by which we mean that every family shall have a chance to prove that it is only three generations from shirt-sleeves to shirt-sleeves. In the Middle Ages society and the outer universe alike were organized on an aristocratic basis; the very stars in their courses were respecters of persons, for their movements boded good or ill to princes, but ignored the humble. "Is there no astrological choice of times for a journey," cries a medieval poet indignantly, "especially for folk of high station? Alas, we are too ignorant or too slow." In truth, as we look back at our ancestors and see them dancing or marching, they seem moving in time to a music which we cannot hear.

And yet when we look again, read further and think more, we feel how fundamentally like us they were. We are used to saying that we live in a scientific age, and that there was no medieval science, or that it was a mere matter of tradition and authority. That is true of the material which science now deals with. But there was no lack of the scientific spirit, only it was exercised in what we should consider unscientific directions. Theology may be called the only subject for scientific research for the medieval, because he cultivated the consciousness, which we rarely allow to glimmer over us, of living on a bank and shoal of time ever beaten upon by the surges of eternity and infinity. Spiritual influences for good and ill were perpetually acting on him; the dead were not merely gone but were still dependent on him for their welfare; his own attitude toward theological truth was to determine his welfare during an eternity to which life was as nothing. Why should he care more to make himself at home on this earth than we care to make ourselves comfortable on the tender carrying us to the ship on which we are to cross the ocean? So momentous were the issues of theology that the sensible and thoughtful man could not but devote to it what powers he had. There are few greater works of the scientific intellect than the *Summa Theologiae* of St. Thomas Aquinas, that wonderful clear-headed man among a generation of turbid and fallacious minds, like Newton or Darwin in their generations of the like. The foundation of his system was authority? Yes, because his world relied on the infallibility of Scripture and general councils, as the astronomer now relies on gravitation, and the physicist on the ether (though some of them have their doubts); they were his data. His method was *a priori*? Yes, because from such data that was the only trustworthy method of extracting new truth. In this field of theology there was no lack of scientific imagination and brilliant hypothesis. The theory of substance and accidents was one such, with the remarkable advantage of being invulnerable. Again, why did Satan

tempt our first parents? His motive was jealousy; man had been created to fill the void in heaven left by the fall of the rebel angels. Why was Pilate's wife warned in a dream concerning that just man? Satan sent it, to avert the Passion, that man might not be redeemed. Thus the medievals sought that linking together and unity which is the ultimate object of all searching after truth.

We say we live in an age of science and the medievals in an age of faith. We take the precautions suggested by science, our ancestors took those suggested by religion; some of them, and some of us, superstitiously and ignorantly, and some intelligently. We are told there are hostile germs everywhere, they were told there were hostile demons. A French preacher (apparently borrowing from the *Moralia* of St. Gregory) warns us of a nun who ate a lettuce without making the sign of the cross; a devil, unknown to her, was sitting on it, and she ate him, with shocking results. The devil may have been the typhoid bacillus, and we may think a better precaution would have been to avoid green vegetables raised in dubious surroundings. But in the long run is it any more mentally wholesome to be always thinking of germs than always thinking of devils? Perhaps it is no worse to incur a slight risk of physical disease than to incur the certainty of nervous prostration. The main point is that our ancestors acted on the fundamental beliefs, which were just as rational to them as ours are to us; and sometimes the analogies are curious.

Some years ago a brilliant man of science who has never affected to hide his light under a bushel proposed an ingenious method of making a suspected criminal betray his guilt. An instrument for registering arterial blood-pressure was to be placed on his wrist, and a list of words recited, with threatening mien, some of which alluded to the crime; at the tell-tale words the pulse was to leap. But Agilulf, king of Lombardy, was as wise, according to the second novel of the third day in Boccaccio's *Decameron*; to find the man who had just wronged him he passed from bed

to bed among his sleeping courtiers feeling their hearts, and found the offender, who was shamming sleep, by his bounding heart-beat. There is much the same idea in the Latin *Gesta Romanorum*, the French *Seven Sages*, and elsewhere.

How often has an institution or custom changed its form and not its spirit! How often we can detect identity of function under diversity of name! What is a camp-meeting but a stationary pilgrimage, with its motley gathering of not over-intelligent people, and its combination of religious excitement, social amusement, and an outing? What was canonization in early ages but a sort of *post mortem* honorary degree? St. Jerome and St. Augustine of Canterbury hardly come up to our idea of saints. The early church, like the modern university, rewarded eminent service to itself and society by the highest honor in its gift. The most extraordinary case of differentiation is the replacement of the medieval jongleur or minstrel by the theatre, the opera, the concert, the ballet, the circus, the newspaper, the magazine, the "movies."

A vast deal of our folk-lore, traditional sentiments, popular beliefs, are inherited from the Middle Ages. Every one knows the superstition about Groundhog Day—that if the woodchuck comes out of his hole on the second of February and sees his shadow in the sunlight he goes back for forty days more. The ecclesiologist at once pricks up his ears, knowing that the second of February is Candlemas Day; and he may know of the old and wide-spread belief that good weather on this festival bodes a long winter and bad crops. Who has not seen such edifying sentiments as, "Yesterday is dead, forget it; tomorrow is not born, look not toward it; only today we have, use it." One may have seen it printed on blue satin hanging in guest-rooms, along with other articles not wanted by the family. But a mediæval preacher commended the same thought to his congregation: "Preteritum tempus, illud mors tenet; de futuro incerti sumus; solum presens possidemus." Such recur-

rences could be illustrated again and again. One and the same satirical tale is told at the expense of the medieval friars and the New England Hard-Shell Baptists; the same anecdote is told of Alexander the Great, a Roman emperor, and Louis XIV; the same conceit occurs in two New England epitaphs and in an Anglo-Saxon sermon and an old Irish dialogue between Ossian and St. Patrick.

The methods, and fruits, of the idealist are always much the same, when a great evil afflicts the whole world and the enthusiastic imagination leaps toward a cure over the thorny road which intervenes. For two centuries dreamers and statesmen too, longed to save the Holy Land from the infidel, and to make safe the way of the pilgrim. In the year 1212 a host of children, led by an enthusiast, started with the touching hope that what had been denied to the wise and prudent would be granted unto babes. The Children's Crusade ended in heart-rending disaster. In these dreadful days not only are malignant and turbaned Turks slaughtering Christians, but Christians are slaughtering Christians by the thousand, and peaceful nations look on longing to stop it. It is not long since a magnanimous idealist led a band containing some like himself, to thrust their weak arms between the crashing nations. No member of our Children's Crusade has been sold into slavery, and far be it from me to suggest ridicule of those who catch at straws rather than do nothing for a noble cause. But has idealistic enthusiasm ceased to dazzle the eyes so that they cannot see the harsh facts?

It is in regard to religion and its status that at first sight the Middle Ages look most unlike our day. Then religion spoke out clear and bold in answer to any and every question; now she is busy exploring and setting the dim borderland between *is* and *isn't*. We are used to seeing intelligent and upright people belittle the externals of religion, or even, as for religion in the traditional sense, live without any at all. But in the Middle Ages all good men were believers. There were deliberate atheists and

scoffers, but they were men who preferred a godless universe and annihilation after death to a good God and his just condemnation. All this is true; yet in the thirteenth and fourteenth centuries there was out-and-out skepticism in Italy, and elsewhere in Europe indifference and spiritual deadness. We may remember the political-minded Cardinal degli Ubaldini, whom Dante meets among the heretics in the tenth canto of the *Inferno*, and who is said by a commentator to have declared that if he had a soul he had lost it a thousand times over for the sake of the Ghibellines. Other Italians denied the future life. The fourteenth century Eustache Deschamps in a plaintive ballade has the refrain, "No one cares now for Hell or Paradise." In the same generation a pious English layman complains, "What is the use of preaching? A money-getter said to me the other day, 'He who rejects the pleasures of this life is a fool, for after death no one knows what becomes of us.'" Could the Persian Moslem of long ago say more, or the present generation which has found for its hedonism a voice in Omar? So we find even in the so-called ages of faith the worldliness and materialism, the inattention to spiritual things, which will always possess many in times of prosperity and sophistication. We detect it the less because the church's minimum requirements of her children were so low, and that little of so easy and external a kind, that most people thought it not worth while to flout them. We can find much the same conditions today in Latin countries.

In no respect do the Middle Ages as we read their literature seem more unlike our day, or more unlike the ancient standards to which we are more and more returning, than in the unpractical morality which they admired. Over and over again they applaud one virtue carried to an extreme, to the detriment of what would now be called "a well rounded character." A woman is praised for sacrificing her children's lives to her husband's whim; a martyr for forgetting sense and decency as she testifies to her faith—in the *Legend*, Dorothy and Cecilia may be saints, but they

are not ladies. Yet a French poet may now and then be found to extol with conviction the virtues of "mesure," moderation—the 'nothing too much of the ancients,' Terence's *nequid nimis*, the *οὐδὲν ἄγαν* of the Greeks. We feel at once that this rather than the other was the standard which most real people lived by. There is nothing essentially new in the Superman. He is not very different from the aristocratic ideal of all ages, especially the Universal-Man, the Uomo-Universale, ideal of the Italian Renaissance; from the titanic individualists of Marlowe's tragedies, and of the heroic plays of Dryden. Most of them have a considerable portion of hysteria and abnormality.

Now and again we are permitted a vivid glimpse of our ancestors in their habits as they lived. One may have been sometime on a steep cliff, surrounded by crags and clouds; the mists have parted and one has seen a barnyard at the foot, with cows and chickens. Just so the mists of literary ideality part, and we catch a fleeting look at reality. One of the most fascinating of medieval Latin books is by Walter Map, archdeacon of Oxford in the twelfth century; it is a kind of commonplace-book—Courtiers' Trifles, *De Nugis Curialium*; since the text is bad and the Latin difficult, it is good to know that a recent edition will be followed by a translation. Map shows us one delightful scene. A group of Benedictine abbots in after-dinner mood are chatting about the miracles of St. Bernard—over their liqueurs and cigars, one is tempted to say (this is not as incongruous as it sounds, for a very eminent English abbot of our day is known to smoke cigarettes). One of them added that the saint's attempted miracles did not always turn out as he could have wished, and told a case in point; on which the comment of one of the company was such that "erubuit abbas, et egressi sunt ut riderent plurimi." A parcel of medieval abbots behind the scenes—what a rare treat to catch them! This was not St. Bernard's only disappointment. Map goes on to tell of another of his Mrs. Partington attacks on Nature. A certain Walter had died,

but the saint would not hear to it. After the manner of the raising of Lazarus, he stood at the sepulchre and cried, "Galtere, veni foras." "Galterus autem," adds Map drily, "quia non audivit vocem Jhesu, non habuit aures Lazari, et non venit." Let us have another glimpse of greatness in undress. The type of gracious and considerate gentleman who imparts charm to modern life does not seem to us a characteristic figure of the Middle Ages. Yet there were such and on thrones too. The same Walter Map was talking with King Louis VI of France about the riches of various kings and Louis said modestly, "Nos in Francia nihil habemus nisi panem et vinum et gaudium." We not only recognize modern French grace of speech and manner; how this describes modern France (of two years back, alas)! Map responds at once to the spirit, and comments, "I have recorded this answer because it was so courteous and so true." We do not find such touches of nature oftener because the Middle Ages were taught to despise the actual; homely bits, traits of humanity as it is, seemed too commonplace to record. But when we do see such pictures, and get such flashes of insight, and piece together such facts, we feel as if the past as we have conventionally regarded it were a stage-play, with wonderful and terrible figures made up of costume and properties worn by very ordinary people; our ancestors, when we get behind their scenes, doff their lion-heads and tell us deprecatingly,

Then know that I one Snug the joiner am.

IV

I have been inviting you to look here upon this picture, and on this. I have exclaimed, How different were our ancestors, and How like us! Were they fundamentally like or unlike? Who can say, unless we know which is more fundamental, the ideal or the actual? Literature embodies ideals both literary and moral; and literature both lofty and humble affords the seeing eye constant glimpses of reality. There is the point. It is man's ideals which

change from age to age, not man. And this is the first truth, truism if you like, which gains light and freshness from a view of literature as a part of intellectual history.

All man's ideals do not change, unless we are to believe the more extreme disciples of Nietzsche. Such ideals as courage, loyalty, love, self-sacrifice, are permanent. It is these ideals, embodied in a keenly real form, which compose the matter of the supreme and enduring literature of the world. The literature must last as long as the ideals do; as Lowell said, the siege of Troy will be remembered when the sieges of Vicksburg and Paris (*absit omen*) are forgotten. But beside these virtues, as wide as humanity, each age has its temporary ideals; in the Middle Ages let us say devoutness, virginity, extravagant loyalty, in the earlier eighteenth century good sense, taste, unemotionality, in the so-called romantic period emotionality, sensitiveness, sympathy, in our day breadth, vigor, efficiency (I pronounce that august word with due awe). Temporary ideals pass away for two reasons—they cease to please and cease to fit, people weary of them and find they cannot adapt them to new conditions. It is often illuminating to see how out of one set of temporary ideals the next has grown as a reaction against it. The peculiar weaknesses of one age are often to be explained as an ill-governed reaction against the peculiar weaknesses of the preceding age. Harping on one chord wearies the world of its sound; narrow and ill-balanced natures by insisting on petty ideals set the world against them. The Christian preacher who exhorts the burglar to put away his jimmy, the murderer to put away his revolver, and the smoker to put away his pipe (I have heard the exhortation), the weakly insistence on the milder virtues of Christianity, the spineless version of the gospel of love, are responsible for the extravagances of the new gospel of efficiency and valor. Rest and change are of the essence of life. When the possibilities and developments of an ideal are exhausted, it must go, just as when a long-revered dogma cannot unfold itself to fit changed conditions, it

must go. Every ideal and system of ideals has to be adaptable to new conditions, or it lapses into the hands only of the weak and reactionary, and dies with them. In our day some of the most cherished which have come to us from the past we see in this perilous state. As St. Paul, St. Augustine and St. Gregory adapted primitive Christianity to the methods of thought and action of the Greek and Roman and medieval world, so now modernists and liberals (and perhaps conservatives, who knows?) must teach it to live and grow in a new soil and new climate. If it will not, what remains for it but extinction? And if we wish to maintain these or any old standards, it behoves us not to cheapen them by sentimentality and talk-talk. Here is the function of humor and even cynicism; they are wholesome and clear the air, and avert, for a time at least, the secular tempest which clears by destroying.

To look through literature at history, then, shows that there are all kinds of people at all times, all paying more or less sincere and practical homage to the great and permanent ideals of our race; some strong and dominating souls enforcing respect for the temporary ideals which are needed to restore the balance or meet the emergencies of the age, and a host of weaker souls, convinced by their arguments, dazzled by their brilliance, controlled by their force, following, exaggerating, distorting, wearing threadbare. The difference of one age from another really means the enthronement of one type of person; a weak specimen of that type may even prevail over a strong person of the contrary type, because society is pushing him from behind. People appear different to us as we look back at various ages because at one time one sort of person is orthodox, at another time another sort is orthodox; it is principally orthodoxy, the ideal, which is expressed in literature.

Another conclusion we come to is that unmitigated insistence on ideals defeats itself. Intellectual history shows us that half our ideals are one-sided and will be displaced. They are the pattern by which we are trying to mould the

world of reality, but we must not forget the nature of the material. Men do not make filigree of marble, nor statues of wire. All this is why I have chosen most of my examples from the Middle Ages, when ideals were most loudly voiced, and most different from reality. The Middle Ages were the world's great experiment in complete idealism, and it failed. We should heed the failure, and look to it that we fit our treasure better to the earthen vessels in which we have it.

As we thus reconnoiter the past we notice another thing. Some of these temporary ideals are recurring ideals. It is easy to make out a series of pendulum-swings in the changes of man's standards and likings; how often we can detect cycles as well it is too early to say. There was a strange spiritual affinity between the Middle Ages and the eighteenth century, with their cold intellectualism, their childlike fondness for "sentence" and "sentiments" (wisdom in sealed packages), their ideality and optimism, their belief in the attainability of the absolute. This is no paradox; the Middle Ages were not nearly so romantic to themselves as they are to us. Strange things believed in are not romantic, they are merely disquieting. Other cases of recurrence can easily be seen, and others may be foreseen. Eighteen hundred years ago the world of pagan culture was laden with a sense of sin, a purifying pain, which grew from barbarous beastliness and the vice of unmoral civilization. This sense of sin drew men to religions which offered redemption, that of Mithra and finally that of Christ. Beginning a hundred years ago with what is called liberal religion, with its insistence on the mildness and fatherhood of God, the world began to lose the severer side of religion, and make it into a mere comfort and luxury. Fear almost disappeared as a religious motive. Simultaneously science has been more and more showing us the inexorable severity of nature. The world of religion, and the world of nature, have been growing more and more unlike. The mild and easy being of whom we may hear on Sunday, without even

a Devil to put the blame on, does not look to the average man like the soul of that universe of which he learns and has experience during the week. When men have to choose between faith and sight, no wonder they incline to choose sight, and religion suffers. But the world needs religion, in some sense, and may need it more. With our superficiality, our restless pursuit of pleasure, our ruthless self-seeking, we may need a revival of the sense of sin, and may even be seeking a source of redemption. What science may tell us of the injury to ourselves and to society wrought by our course of life is not enough; the heedless world will take chances. The world needs the absolute to come down and stiffen it. Yet neither of our modern religions can bring this, neither the narrow old nor the flabby new. Such dilemmas, in which the thinking man constantly finds himself, intellectual history helps us to understand, and one day may help us to solve.

When one talks of the past, a certain feeling of chivalry leads one to take up the cudgels in behalf of our now helpless ancestors. They were not all fools, even though they are dead. But more than this, they and the view of history which we get through surveying them may teach us some precious things; things for which in these trying days of world-history we may be grateful. They teach us to stand firm and not to be swept off our feet by new isms and new ideals, which too may pass away; not to give up ourselves to everyone who has just found, or forged, a new key to the kingdom of heaven. They give us renewed confidence in the good sense and good feeling of the bulk of humanity; they show that in the long run the world has always acted rationally, under its circumstances, and that where the world has gone wrong it has been led wrong by ill-proportioned ideals. They make us feel that action and reaction, recurrence and cycle, have been due to intelligent free-agents trying to square themselves and their world with an absolute good beyond them; and that we can do no less, and with their guidance may do it better.

MANU AND THE FISH

(Translated from the *Mahabharata*.)

ARTHUR W. BYDER

There was a gentle, holy sage
Named Manu, in a former age.
The woes of life he would not blink;
For many years he did not wink.

With ragged clothes and frowsy hair
He lived beside a stream. And there
He saw a fish who thus began
To speak to him. "O holy man,

I am a little fish, you see;
And bigger fishes frighten me.
For bigger fishes eat the small;
It is their nature, once for all.

So dreadful terror weighs me down;
Besides, I fear that I shall drown.
Then save me. Some day I will do
An equal favor, sir, to you."

So Manu, when he heard his wish,
Stretched forth a hand, and took the fish,
And dropped him in a water-jar
That was as bright as moonbeams are.

And in the jar the little fish
Had everything his heart could wish.
He grew and thrived on food and fun,
For Manu loved him like a son.

At last he grew too big by far
To live within the water-jar.
He said: "Good Manu, I would thank
You very kindly for a tank."

So Manu took him to a tank
Eight miles in breadth from bank to bank,
And twice as long. There, free from fears,
He lived and grew for many years.

And when he grew too big to play
There in a comfortable way,
He said to Manu: "Pray deliver,
And put me in the Ganges River.

And I will never show you spite,
But some day help you, as is right.
My growth has not been selfish; it
Has happened for your benefit."

Kind Manu, anxious to deliver
His friend, went to the Ganges River,
And left him happy. As before,
He grew in time a little more.

And then he said to Manu: "Dear,
I can no longer wiggle here.
My holy friend, be good to me,
And take me quickly to the sea."

So Manu took him tenderly
And travelled quickly to the sea.
The fish tried not to weigh too much,
And to be nice to smell and touch.

The fish, when he had reached the ocean,
Smiled at his holy friend's devotion,
And said: "O kind and holy man,
You do as much as fathers can.

And now 'tis time for me to do
A little something, dear, for you.
For you must know, my holy friend,
The world is hastening to its end.

A dreadful time is near at hand
 For all the things that move or stand;
 There comes a flood that has no bound,
 And everybody will be drowned.

So build a ship, and build it strong;
 Put ropes on board, both stout and long.
 And one thing further you will need,
 Neat packages of every seed.

Embark then with the seven seers,
 And wait, good Manu, free from fears,
 Until I come. And you will see
 A horn upon the head of me.

Till then, farewell. Do not delay.
 The danger grows from day to day.''

Then Manu packed most carefully
 The seeds, and straightway put to sea.
 His good ship gently rose and fell
 Upon the ocean's mighty swell.

He longed to see the friendly fish,
 Who came in answer to the wish.
 He seemed a floating mountain dread;
 A horn was growing on his head.

So Manu, feeling less forlorn,
 Fastened a rope about the horn,
 And felt the ship glide speedily
 Over the dancing, salty sea.

But when the wind began to roar
 And ocean thundered more and more,
 The tossing, shaken ship began
 To stagger like a drunken man.

No land remained to cheer them there,
 But only water, sky, and air;
 No life through all those many years
 Save Manu, fish, and seven seers.

But Manu, all those many years,
Went sailing with the seven seers;
The fish pulled on with might and main
And did not weary nor complain.

At last he did, however, stop
Beside the highest mountain-top,
And bade them tie the ship; and they
Call it Ship Mountain to this day.

And then, with wide, unwinking eyes,
The fish, to Manu's great surprise,
Declared: "I saved the seven seers
From death and agonizing fears;

For I am Brahma. And my friend,
Kind Manu, who has seen the end
Of all the world, shall make again
Gods, devils, animals, and men."

And so he disappeared. But they,
Amazed, departed on their way,
While kindly Manu made again
Gods, devils, animals, and men.

Now all have heard who had the wish
The tale of Manu and the fish.
And everyone who takes it in,
Shall be forever free from sin.

SOME PHASES OF FINANCE DURING THE GREAT WAR.*

CARL C. PLEHN.

In this paper the finances of the great war will be approached from two different sides or points of view. From one point of view we shall seek to see a few of the effects on the money market, on foreign exchange, on banking, private investment and commercial credit; from the other we shall view the work of the finance minister in raising the vast sums which are needed to pay for munitions, for men and for the hire of "allies." War finance, however, is not a flat shield with two sides only, one of gold and silver and the other of blood and iron. There are other sides and many angles. But the two mentioned are the only ones we shall have space for, and only small parts of these can be viewed.

All through a long, dreary afternoon on the last Friday in July, 1914, a long string of "straw 'atted 'Arries," mostly in holiday attire, filed slowly into and out of the Bank of England, covertly resenting, but trying to appear unconscious of the jibes and jeers of a crowd of the curious, mostly likewise dressed for the holidays, who had been attracted by the novel sight and who had gathered on the steps of the Royal Exchange across the way. This was the opening scene of the great drama of a world-wide financial panic.

What brought this strange mob to the temple? The answer is simple: all they wanted was a little cash to

*A paper read at the Berkeley Club, April 27, 1916.

enable them to go away over the Bank Holiday, that customary Fall outing of all Londoners. Yet like Samson, though they came to make sport, they blindly got "hold on the two middle pillars on which the house (of finance) rested and pulled the house down upon the lords and all the people that were therein." The stage setting even was appropriate, for the bank was torn up for structural alterations.

A few thousand pounds of holiday money from the strongest bank in the world—did ever a lighter straw break the camel's back? What a load there must have been otherwise if this featherweight was the overweight. All in one week the load accumulated. On Friday, July 24, Austria sent her ultimatum to Servia. Saturday, July 25, there was a near-panic on the London Stock Exchange and other bourses. All the next week the foreign exchanges were very queer. But the old lady in Threadneedle Street is slow and dignified, until she gets really flustered, and she waited the appointed time for the regular day, Thursday, before raising the bank rate of discount to steady the market. On Thursday the rate was raised from three to four per cent. According to precedent this rate should have stood until the following Thursday. For Thursday is selected so that the effect of the change in the bank rate may be seen on the remoter exchanges during the following week. Furthermore the coming Monday was to be the Bank Holiday. But contrary to all precedents the rate went up on Friday from four to eight per cent and the next day to ten per cent, after the visit of the mob of holiday makers. Ten per cent is the rate which, according to precedent, authorizes the Bank to apply for the suspension of the Bank Act.

"Then," says Hartley Withers, "came Sunday, then the Bank Holiday, and war, and then three more bank holidays, and then the general moratorium."¹

¹ Hartley Withers, *War and Lombard Street*. London, 1915.

The events in chronological sequence tell the tale. On Sunday, August 2, came the Royal proclamation "for postponing the payment of certain bills of exchange," to which was appended the usual benediction, "God save the King." On Monday, August 3, it was enacted "by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this Parliament assembled, and by the authority of the same," that, "His Majesty may by Proclamation authorize the postponement of the payment of any bill of exchange, or of any negotiable instrument, or any payment in pursuance of any contract, to such an extent, for such time, and subject to such conditions or other provisions as may be specified in the Proclamation." The same act ratified the Sunday proclamation.

But three special bank holidays intervened, so that the authorized proclamation calling on God to save the King through a general moratorium did not appear until August 6. Thus a temporary anesthesia fell on all debts, except wages, debts for trivial sums, taxes, maritime freight, debts due Englishmen by foreigners, dividends and interest, bank notes, old-age pensions, insurance, workmen's compensation, and savings deposits. Cheques and demand bills had been excepted from the moratorium of Sunday, and continued exempt until August 12, when there came another proclamation covering cheques and still further extending the moratorium. On September 3 the duration of the moratorium was extended another month, making two months in all. By very different routes and legal devices a similar moratorium was created in France, and, as to debts owed by men called to arms, in Germany. But these we must omit.

Despite these drastic measures, the suspension of the Bank Act, customary in all times of trouble, was authorized by Parliament on August 6 in the usual terms: "The Governor and company of the Bank of England . . . may so far as temporarily authorized by the Treasury, and

subject to any condition attached to that authority, issue notes in excess of any limit fixed by law." The Bank Act, as is probably known, permits the Bank of England to issue £18,450,000 in notes against what the government permanently owes it, and beyond that to issue notes provided it holds five pounds in gold against every five-pound note it issues. Suspension takes away the necessity for holding gold. Notes may be issued without limit.

But on account of the moratorium and of another measure, to be noted later, the suspension of the Bank Act was unnecessary, or at least was not used in the traditional way. The suspension was in law only, not in fact. The other measure was the resort by the government to the issue of paper money. This was a new currency, consisting of one-pound notes (called "Bradbury's," from the name of the officer signing them) and of ten-shilling notes in scarlet and known as the "pink 'uns." These notes the act of August 6 declared "shall be current in the United Kingdom in the same manner and to the same extent and as fully as sovereigns and half-sovereigns are current, and shall be legal tender in the United Kingdom for the payment of any amount." Thus legally these notes are purely fiat money, although there is a provision for their redemption in gold at the Bank of England and there is an appearance of a reserve against them. This reserve, however, seems to be a sham, as it came out of the Bank's own reserves. These notes might be issued to banks up to twenty per cent of their current liabilities, which placed a limit of about 225 millions of pounds on the issue.

Facts at hand as yet as to these notes, the extent of their actual use and the like, are too scanty to furnish a means of judging of their effect. As postal money orders were made legal tender at the same time, there will always be difficulty in ascertaining the increase in the circulation that resulted. But the very power to issue these notes must, as Lloyd-George claimed, have given confidence.

When we slip around to the other side of the shield we shall see that every country has to provide in some way at the outbreak of a great war for some such power to expand the circulation, and thus to levy a forced loan. It was, however, a new departure for England to frankly issue fiat money, although the suspension of the Bank Act has at times had much the same effect. Every nation entering on war must provide some means of counteracting the stringency in the circulation created by the panic tendency to hoard money.

The events just chronicled constituted "an unpleasant string of surprises," and were a severe blow to the pride of the English bankers. To understand whence the blow came we may go back to our straw-hatted mob on which the curtain rose, and try to find out who sent them on their errand of trouble-making.

These people had cash claims against the ordinary joint-stock banks. There were, however, besides those who simply wanted money to pay their month-end household accounts and to go away for the holidays, some other depositors of the joint-stock banks who had become panic-stricken by the prospect of war, and wanted money to hoard. This is a stupid thing to do, but selfish people in a panic always do it. Some people in England, in the same sort of panic, rushed to the provision dealers and bought great stores of food to put away in their houses, lest famine should immediately stalk abroad in the land. That such action raised the price of food and promptly brought out new supplies was a very opportune result. But this sort of a demand for money cannot of itself call out new supplies of money.

The banks were thus confronted with possible runs. How many of their customers clamoring for cash wanted it for legitimate and holiday purposes they could not tell. So some of the banks paid out only Bank of England notes and told their customers to take these notes to the Bank of England to get the gold. This was bad policy. But

a banker is naturally timid and few living English bankers had had any experience with runs. Moreover, things financial were at the moment all very queer. The Bank of England cheerfully shovelled out sovereigns as fast as it could. But still the whole procedure was so weird and uncanny as to intensify unrest. A run on the Bank of England—of all things!

There are two sources to which the English bankers can turn to draw funds for such dire needs as these. One is the great stream of money always restlessly flowing hither and yon in the channels of trade, but which, wherever it goes, is always pumped through London. The other is the great reservoir of money investments. During the week from the 24th to the 31st of July the banks drew madly on both these sources. But after our holiday-makers appeared at the Bank the flow from both of them dried up.

All the world owes England in times of peace. Why couldn't she then call in her money? One reason, of course, was that the rest of the world was to a large extent in a panic too. But there was the further reason that by her own acts she had cut off the means of remittance, save and except the slow, uncertain and unusual one of the physical shipment of gold, and gold was not everywhere to be had, nor ships to carry it.

Foreign exchange is a chain of payments. Break a link anywhere and it will not hold. To pay money to someone in England I must ordinarily find someone here, or in New York, or in Hongkong, or elsewhere, who has money due him from someone in England, or to whom someone in England will lend money. But if every debtor in England is privileged not to pay, and nobody in England will or can lend, there is nobody in my part of the world, or in any part, that I can reach, who can draw a bill on England that I can buy, and under those circumstances, with the best of intentions in the world and of ability otherwise, I cannot pay.

With the prospect then that they could not collect what

was due them, the bankers of England feared that they could not pay what they owed, and in refusing to pay they again destroyed what little chance they had to collect. Had there been outside of the belligerent nations another money-pumping plant large enough to stand the strain, the result would have been different.

What has gone before applies to current funds, the great circulation of money which is pumped constantly by the heart, London, through the arteries of trade.

But why, you will ask, could not England realize on her investments, her long-time loans which cover the earth—why could she not sell to somebody, at some price or other, the foreign securities she owned? During that momentous week she did so desperately and drew in large sums. That was what caused the near-panic on the exchanges on July 25, or at least it was what contributed largely to it. It was fortunate, in a way, that July 25 was a Saturday and that the exchanges had a chance to catch their breath over Sunday. It gave them nearly a week of respite. It was this selling that kept the exchanges jumping so strangely all that week. That selling dropped consols, usually as good as gold and fluctuating only with the rate of interest, in one week from $75\frac{1}{16}$ to $69\frac{1}{2}$, the new French $3\frac{1}{2}$'s, not yet all issued (and artificially four times over-subscribed) down to 85, the Canadian Pacific from $188\frac{3}{4}$ to $157\frac{1}{2}$, Union Pacific from $160\frac{7}{8}$ to $145\frac{5}{8}$, and so on. But the stock exchanges, fearing sacrifices of securities on a scale that would spread ruin and cause a general liquidation, closed their doors, one after another all over the world.

This is remarkable evidence of the interdependence of the different parts of the financial world. It is no light matter to close the stock exchanges. Doing so puts the banks especially in a hole. The New York Stock Exchange, that flood-gate which controls the big reservoirs of investment capital through which normally one can turn an assured income into capital or capital into income on any

day except Sunday or a holiday, has closed its doors but twice in the century or more of its existence. The first time was in 1870, for ten days, and the second time in 1914, for nearly six months. Mr. Noble, the president of the exchange, says of this occasion :

On that eventful date (July 25) a financial earthquake of a violence absolutely without precedent shook every great center of the civilized world, closing their markets one by one until New York, the last of all, finally suspended in order to forestall what would have surely been a ruinous collapse. . . . Up to the final movement of the launching of ultimata between the European governments no one thought it possible that all our boasted bonds of civilization were to burst over night and plunge us back into medieval barbarism. Wall Street was therefore taken unawares, and so terrific was the rapidity with which the world passed, in the period of about a week, from the confidence of long-enduring peace to the frightful realization of strife, that no time was given for men to collect their thoughts and decide how to meet the on-rushing disaster.

Added to the paralyzing effect of this unheard-of speed of action, there came the disconcerting thought that the conditions produced were absolutely without precedent. Experience, the chart on which we rely to guide ourselves through troubled waters, did not exist. No world-war had ever been fought under the complex conditions of modern industry and finance, and no one could, for the moment, form any reliable idea of what would happen or of what immediate action should be taken. . . .

The conditions on the stock exchange, when the storm burst, were in some respects very helpful. Speculation for several years had been at a low ebb, so that values were not inflated nor commitments extended. . . . Furthermore, the unsettled business outlook due to new and untried legislation had fostered a heavy short interest in the market, thereby furnishing the best safeguard against a sudden and disastrous drop. . . .

To close the recognized public market for securities, the market which is organized and safeguarded and depended upon as a standard of values, is an undertaking of great responsibility in any community. To take this step in New York, which is one of the four pre-eminent financial centers of the world, involved a responsibility of a magnitude difficult adequately to estimate. Upon the continuity of this market rest the vast money loans secured by the pledge of listed securities; numberless individuals depend upon it in times of crisis to enable them

to raise money rapidly by realizing on security investments and thus safeguarding other property that may be unsalable; the possessor of ready money looks to it as the quickest and safest field in which to obtain an interest on his funds; and the business world as a whole depends upon it as a barometer of general conditions.²

No wonder the New York Stock Exchange hesitated. Could it stand alone and carry the world's credit? Bankers naturally insisted that it should try. Here again the vacation times of the Summer days played a part. Many of the brokers and even of the governors were away. It was not until four minutes of ten o'clock on the fatal day that the final decision not to open at ten was reached. Even then the decision was not unanimous. The exchange did not reopen until December 15 for all lines of business.

The bourses of Vienna and Budapest were the first to close, and that was on July 27. Brussels followed suit the same day. Paris also virtually ceased trading that day by a sort of unanimous consent. On July 30 the members of the "Coulisse," the less official part of the Bourse, formally decided to quote no prices for forward business, which with them means delivery in more than forty-eight hours. The *agents de change* continued to meet in the "parquet." Formal complete closing came July 31. On Tuesday the Montreal and Toronto stock exchanges closed their doors. On Wednesday all account business on the Bourse in Berlin and all settlements on the bourses of Hamburg and Frankfurt were suspended. The same day the exchanges at St. Petersburg, Antwerp, Amsterdam, Liverpool and all South American cities closed. Rome and Milan suspended all dealings in forward business the next day. Friday, July 31, London, Berlin, Paris, and at the last minute New York, closed their stock exchanges and all dealings in securities, which except in New York had been nominal for several days, were formally at an end.

² H. G. S. Noble, *The New York Stock Exchange in the Crisis of 1914*. Garden City, New York, 1915.

The closing of the stock exchanges hit the banks in England in two ways. They could not exchange their own securities for cash, nor could they collect from their customers, stock-brokers and others by the sale of collateral. Their liquid assets became frozen. These grim facts are enough to explain why the holiday-makers were driven to Threadneedle Street.

For the further effects we may follow for a moment the fortunes of another set of actors. These are the bill-brokers. They were the one set of persons whom the banks had fully in their power. These gentlemen buy bills of exchange as they come in from all parts of the world and pay for them with money that they borrow from the banks. They make their living from the difference between what they pay the banks and the rate of discount at which they buy the bills, and they usually borrow on call or for very short terms. In normal times it is a very safe business. They can pay on call, because their assets are always salable. The payment, when due, of a bill of exchange rests, in the last analysis, on the fact that men eat, drink, wear clothes, sit in chairs and so on, with commendable regularity. Hence, when a shipment of flour goes to England, it is a certainty that it will eventually become bread and be paid for and eaten. The means of payment, the bills of exchange, rest on the regular continuance of such shipments. That is, each shipment of flour must be followed by another, each shipment of cotton by another. Moreover, cargoes going in one direction must be passed by cargoes going in the other direction. Cloth, knives and what-not pay for the flour. There are, however, always temporary inequalities in the shipments going in the different directions. Cargoes go west at one time of the year and east at another. The inequalities are evened by the bill-brokers, who, through their correspondents, comb the marts of the world for bills to buy and sell, and thus offset a deficit in one place by a surplus in another. But there are times and places where the inequalities are per-

sistent and these are evened by the use of finance bills, which are artificial bills of exchange drawn, not against goods sold, but against money lent. At the bottom a finance bill represents money advanced by centers rich to centers poor in capital to trade with. But while resting on the flow of trade in their outer form, they really mean, looked at in the long run, since they are regularly renewed, an advance or loan of money for a rather long period—in effect, an investment loan, but callable. Thus, Sweden and Norway, for example, usually have a good deal of money advanced in this way by the London bankers. The reason for that is that in those countries capital can find better use in development of natural resources than in trade, while the London capitalist is content with the smaller return of capital in trade.

Now the moratorium suspended all outgoing bills, commodity bills as well as finance bills. No one in England was obliged to pay, and hence no one would lend. The poor bill-broker had in his hands paper that he could not collect on or sell. Neither the firms nor the acceptors were obliged to pay. But the banks said to the bill-broker, "pay up." He offered them his bills, which everybody knew would be good and be paid eventually, but they were not payable then, and then was the crucial time. So the poor bill-broker was in a bad way. Another link in the chain was broken. To be sure, it was only a mechanism, but it was an important piece of mechanism. Under these circumstances the whole movement of foreign trade the world over was menaced. What use was there for a San Francisco house to ship prunes to London, or for that matter to Amsterdam or Java, if they couldn't sell the bill they drew on their customer to get their money? The menace of the sea-raiders to trade was no greater than the menace of "no pay if you do ship." Bills that would certainly be paid in London despite the moratorium (mostly freight bills) were so scarce that their price rose in New York, for example, from a par of \$4.866 to \$7.00.

Here again a novel remedy was eventually applied. Hartley Withers tells about it in this vivid passage:

Something had to be done. The Government was not greatly exercised about the bill-brokers, though failures in the city would have been an unpleasant accompaniment for the first round of the big fight; nor perhaps about the accepting houses for their own sake, since any disaster that befell them, though it might have frightened the general public, would not have had any direct or overt effect on the general public's pocket. But the stability of the accepting houses was of very great importance with regard to foreign trade, for they supply much of the credit with which it is carried on; and it was clearly most important that nothing should be allowed to check foreign trade, which was already hampered by high freights, war-risk insurance premiums and all the dislocation that is inevitably involved by a sudden plunge into war on the part of five great European powers, followed by several other peoples. Further, since it was above all things necessary that the joint-stock banks should be supported and encouraged, and since the joint-stock banks had already seen all their stock exchange investments and loans against stock exchange securities frozen into immobility when the stock exchange closed its doors, an effort clearly had to be made to make the banks feel happier about their bills of exchange. And this was what was finally done. The accepting houses were not relieved of any liability on their bills. Ultimately they will have to meet them, out of their own pockets if their clients are still unable to remit, but in the meantime it was arranged that the Bank of England will lend them the money wherewith to pay them as they fall due, and the Government guaranteed the Bank of England against loss on this tremendous operation. This arrangement made all the bills held by the joint-stock banks a good asset, and incidentally helped the bill-brokers.

To bring this about it was first arranged by proclamation that bills accepted ³ before August 4 should be re-accepted for one month after their due date and on August 13 the Bank of England, insured against loss by the Government, began to discount approved bills, waiving recourse against the selling holder. The bank rate was then five per cent and two per cent more was charged. Out of the

³ To "accept" a bill means to guarantee its payment.

seven per cent the Government took two and one-half per cent for the insurance, which left the bank only four and one-half. This insurance was no mere matter of form, as on August 18, 1915, the Government assumed £27,600,000 worth of pre-moratorium bills. Some of this money will be recovered.

The first six months of the war thus saw England, "John Bull Cohn," as her enraged Australian debtors called her, demanding that the rest of the world "pay, pay, pay what you owe me," and the rest of the world paralyzed to comply, because she had cut off the means of payment.

But a new phase was rapidly approaching. From the biggest creditor England rapidly became a very heavy debtor. She steadily collected all money that was ripe for payment, gathered up hoards of gold in London, South Africa and Montreal, but as steadily contracted debts for munitions, for grants to the allies and for the goods she had ceased to manufacture at home. The tide turned strong. By July, 1915, it was no longer a question of how the outside world was going to pay England, but how England was going to pay the outside world. Everybody knows about the envoys who came to New York seeking help. The story has a strange likeness to that of Joseph's ten brothers who "went down to buy corn in Egypt," except that the returning envoys did not find the purchase money in the sacks. The resulting drop in exchange was as marked as its former rise.

Was the moratorium necessary? We shall know more about that later. At present it is hard to tell whether the moratorium was more a political, war measure, or more an economic necessity. How much did it do in the way of cutting off Germany's supply of gold? Could the strain have been met alone by the suspension of the Bank Act, the issue of government paper and the insurance of accepted bills? Would not the subsequent blow to England's credit and the difficulties of making payment abroad for

munitions and the like have been mitigated if England had let her outland credits stand for later use? On all these interesting questions we have too little light as yet and are too near the scene to decide correctly. But it does seem that England was too strong financially to have been so terribly flustered.

Now, if you please, let us go round to the other side of the shield. A Roman was asked which he would prefer, a lump of iron or a lump of gold. He said: "I will take the iron, as I can then get the gold also." The iron of war is men and munitions, money is but the medium through which for convenience we get them. Given men and munitions, money can be had for the asking. This is the whole philosophy of war finance.

As things are done today, soldiers' services, their food and clothing, the shot and shell they need, are paid for in money. It was not always thus. There have been eras when money was little used even in time of peace, and wars in which it played a small and almost ornamental part. It helps to clearness of thought if we remember that money is only the medium, if we fix our minds on the things done and used, not on the money by which those are measured and recorded. It is not inconceivable that a nation might by systematic co-operation of all classes do all the things that are necessary for the conduct of war without the use of money and without borrowing. Before the constitutional era borrowing on a large scale on the basis of national credit was impossible. Princes pledged their personal word and lands for means to go to the Crusades. But a nation's honor could not be pledged until there was a representative parliament which held the national honor in its custody.

The money from taxes and loans which is poured out for war in modern times is the exact equivalent, at war prices, of the services, so far as paid for, and of the food, clothing and munitions bought. As to war prices, the

wages of the soldiers are low and the prices of other things high as compared with times of peace. But barring these differences the same amount of human energy which equals \$25,000,000 a day spent in war will in times of peace equal \$25,000,000 worth of other goods and services. The use of money and of credit facilitates bringing the productive power and capital of every class to bear on the task of subduing the enemy. In time of war we work primarily for the common ends, while in time of peace we are allowed to work primarily for ourselves. A state of war is a state of socialism, almost of communism. England had before the war 12,000,000 men working for themselves; today she has 6,000,000 of them working for the state. Your true Socialist, not the mere trouble-maker who calls himself such, is silenced in time of war, because he sees the principles for which he stands in full operation. Moreover in time of war all class distinctions, the Socialists' *bête noire*, fall into abeyance. There are then only two classes—the patriot and the coward. The taxes which are paid for part of the war expenses are the means of making those able in a financial way contribute their help to those in the trenches. The bonds are the means of making future tax-payers help.

War borrowing will approach the limit of borrowing only in the rarest of cases. The limit of borrowing is reached when it becomes apparent that the revenues of the country will not be sufficient to maintain the interest and other debt charges. As a country's tax-revenues are necessarily a part of the income produced by the people and that income in turn is in proportion to the nation's capital resources plus its labor power, the ultimate limit is the same whether the borrowing be done at home or abroad, or (what is the same thing) whether the munitions be made at home or abroad—with this difference, that the margin required by a foreign creditor may be larger than that required by the home lender. Informally expressed: Brother Will may lend to Brother Tom up to eighty per cent of

the value of Tom's property, but a banker will not lend beyond sixty per cent. There is, of course, the further difference, that if Will forecloses the property remains in the family. The effective limit to war borrowing is the power of the government, the parties in power, to compel obedience and enforce the collection of taxes.

Since the services rendered and the goods used are rendered and made in a comparatively short space of time, and since they can be duplicated in value in the same space of time, and since the debt can never exceed capital resources, there can be no such thing as an economic necessity for repudiation of war debts, unless a devastating war destroys a very large part of the people of that nation. From five to six times the annual savings of the people during the pre-war period would pay the total costs of this great war for two years, and the total exceeds the debt. National debts have been repudiated, but for political reasons, never for any economic reasons.

A war debt, like any other debt or credit, is a means of exchanging present goods against future goods. The use of credit in a large and populous country in time of war has not only the effect of distributing the burden among all classes, but it also has the effect of letting a large part of the regular industry and production go on and of facilitating the return to old conditions when peace comes.

No great war has ever ceased for lack of money or credit and many wars have gone on when money was very scarce. Our own Revolutionary War is an excellent example. The absence of money or credit changes the form of doing things, but fighting goes on. When the terrific sacrifices so gladly made in time of war are over, the nation returns to its old individualistic life and pays off the accumulated war charges gradually by the taxation of private earnings. If the people were willing to continue the same sacrifices for a period of time equal to the duration of the war they could pay the debts in that time. But, as our subject is finance, we must turn from the substance to the shadow.

All possible sources of money for war must fall into one or another of the following nine classes: (1) A war chest accumulated in advance, (2) taxes as the war goes on, (3) borrowed money, (4) debasing the coinage, (5) issuing paper money, (6) other forced loans, (7) tribute or indemnities, (8) subsidies, (9) government business industries.

A very few historical illustrations must suffice. Frederick the Great was well within the period when wars were conducted by means of money. He began in 1740 with an inherited war chest of 7,500,000 thalers in treasure and a well-organized army. His money, of course, had some five times the purchasing power of money today. To this sum he added revenues from heavy taxes. But by 1745 his funds were exhausted. He tried loans abroad, but in vain. He then resorted to debasing the coinage, to paper money, to compulsory loans and ever more and more taxes, and finally in 1758 received a subsidy of some £670,000 annually from England. By the time of his death he had again accumulated a war chest of 70,000,000 thalers. His career affords an example of the use of all nine sources.

France, it will be remembered, wiped out her ancient debt when she wiped out the ancient monarchy which created it and began after the revolution with a clean slate. Napoleon discovered that he could take the conscript soldiers of a penniless, bankrupt nation into a hostile country and make war support war. He never forgot the lesson and, although he frequently had resort to heavy taxes at home, he seldom borrowed. Often he made a large profit from war. At his abdication he left a debt not much over \$100,000,000. His career shows how unessential debt is to war.

England has, however, always used her credit heavily for war purposes. She could do this as she so early developed parliamentary government. From 1688 to 1785 England financed wars which cost £312,000,000 of treasury funds by loans and taxes in about the ratio of two to one.

This is supposed to be the established English method. But she has not always been able to maintain so high a ratio of taxes. Between 1792 and 1815 she increased her debt by the sum of £601,500,343. In the same period she collected revenues which at the end of the period were five-fold those at the beginning, that is, they rose from £20,000,000 to £100,000,000. Again, during this period she paid large subsidies to her allies.

Reference is frequently made to the fact that England's debt at the close of the Napoleonic wars was relatively heavier than that which the present war has incurred or may entail. That debt was \$4,502,180,000, or \$224 per capita. The national wealth at that time was \$12,500,000,000, or \$625 per capita. In 1914 the national wealth was \$88,000,000,000, or \$1825 per capita. Hence it would take a debt of \$30,476,000,000 to equal that of the year 1816, without allowing for the lower marginal utility of each dollar in a fortune of \$1800 as compared with each dollar in a fortune of only \$600.

But this comparison is a tricky one. After 1816 there came into use a long string of great inventions, including the steam engine, in all its applications, wonderful new methods of spinning and weaving, new methods of mining, etc., etc., which in various industries multiplied man's productive power not one or twofold, but by the hundredfold. It was this unparalleled advance in wealth-producing power which made it possible for England to carry so easily the burden of debt with which she started the century. Yet, with all this tremendously rapid growth in wealth and after a century of almost continuous peace, Great Britain, as Rossiter points out, "wealthiest of all nations of Europe," still owes half of the cost of attempting to conquer her rebellious colonies and *all* of the debt incurred during the long Napoleonic wars.⁴ Thus little do people care for the burdens of war, when war is over.

⁴*American Economic Review*, March, 1916, Supplement, p. 113.

Speculation as to the great inventions which this war may bring forth or force into use are fascinating. But one thing is clear, and that is that to be a means of real salvation they must multiply our power to command food products not by accretions of a few per cent, but by the hundredfold. Improvements in manufactures and in transportation alone will not suffice. The economic structure is already topheavy like an inverted pyramid, with a vast weight of cheap manufactures resting on a slender point of dear foods. The war does not promise a sufficient reduction in the world's population to do much good.

Forced loans and debasing the coinage are now out of fashion. Of course there is always a small resource in the disappearance of small subsidiary coins, which commonly occurs in war time, the replacement of which gives a little profit. Paper money is a seductive but often a dangerous resort. It can be used, within limits in the first few days of a war, as it then has the merit of replacing the money that has been hoarded. It is a rather desperate resort of bad management in the middle of a war, but, of course, with failing credit it may become the last resort toward the close of a prolonged war. National credit is now so good that a war chest is not considered necessary. But the Julius Tower at Spandau is said to have held \$50,000,000 in treasure for mobilization. Tribute and indemnities are incidental results and cannot always be counted on in advance. Subsidies are now very much the fashion, but depend altogether on the line-up of the foes and friends. Government enterprises are more often a means of saving expense than of a money revenue, unless they happen to be like Villa's gambling resorts.

The elimination of these items leaves the war minister but one general programme. First, to borrow; second, to raise new taxes, as much to support more borrowing as for ready money; third, to use paper money as sparingly as possible, and fourth, to resort to more paper money.

The main thing is to conserve the nation's credit, as

that is the main source of money. Hence the first loans should display its full strength. This is a hard thing to do, as the money market is disturbed and panic reigns. That condition has to be remedied first. Fortunately the indicated remedy, some form of added circulating medium, can also be used to raise funds. As soon as the banks are at all restored to a normal condition they can be drawn on. Still it remains important that the first loans should strengthen, not weaken, the nation's credit. Usually, however, the first loan is made in a hurry and under circumstances that are not of the best. Moreover, most nations are very prone to assume that the war will be of short duration.

The very best way of all to display the full strength of a nation's credit is that of a popular loan. That is a loan that is not placed through the banks, but offered broadcast for subscriptions. This opens up a great underlying layer of lending power that the banks do not so readily reach.

As an aside I should like to suggest that it would be a proper feature of preparedness to have the plans all ready for the immediate floating of a popular loan. The statute providing for the loan should be on the books ready and finished, and nothing left to do but to indicate the amount that should be raised. All the advertising agencies should be selected, the places for receiving subscriptions designated, subscription blanks ready printed and bonds engraved ready to sign. In a month or six weeks the returns from a popular loan could be expected to be coming in. The enthusiasm with which every war is greeted would help the placing of the loan. The results would tend to steady the money market.

The next step usually considered necessary is the placing of new taxes. At four per cent every dollar added to the revenues means \$25 added to the permanent borrowing power. One of the greatest handicaps with which a finance minister usually has to deal is the slowness with which

new taxes are voted. In our Civil War it was months before new taxes were levied. There is usually a long debate as to the form of the new taxes. Again as an aside I would suggest that this debate could take place years in advance of the declaration of war and that as a feature of preparedness there could be on the statute books an entire war tax system waiting the firing of the first shot to take effect. All that Congress would have to do on that date would be to declare the amount to be raised. The tax administrative machinery should also be ready to start on the first day.

New taxes are a part of the programme that is generally thought to be necessary. It is a part of the English theory, as we have seen, and as new taxes are hard to get after the effects of the war are beginning to be felt it would seem to be a part of the programme that every nation should adopt. But it must be noted that the Germans have a different theory. They do not turn to new taxation, in the belief that the war creates disturbance enough without the disturbance to industry that the new taxation brings, and that as the credit of the government is so good it is just as well to wait until after the war to provide for the expenses of debt redemption and interest charges.

Now let us see what has been done by the leading countries in this great war and judge them in the light of the principles just set forth. First, England. On August 4, 1914, Parliament granted a war credit of £105,000,000, and on August 6 authorized treasury notes to be sold up to £100,000,000. These were issued as needed in treasury bills, which were sold through the banking agencies. The terms were such as to make the interest cost average about three and three-quarters per cent. At the same time the Government received the power to issue the currency notes, which, as we have seen, placed in their hands the power to raise £225,000,000. The only report that I have as yet happened to see on these notes said that up to August 26, 1914, there had been issued £21,535,000; of this, £10,000,000

were advances to the banks, subsequently to be redeemed. How the other £11,400,000 went out I have not learned. Some statements have been made concerning these notes which are very hard to understand and there seems to be an effort to maintain the semblance of a reserve against them. From that time on to November, 1914, England is said to have been spending at the rate of £1,000,000 a day, and to have "lent" to her allies, to the colonies, and others, £43,000,000, of which Belgium received £10,000,000 and Servia £800,000. By that date £90,000,000 of the treasury notes had been sold. Now ninety days at a million a day and forty-three million make in all £133,000,000, which more than used up the war credit of one hundred million, and left practically all the money loaned unaccounted for by receipts. Where the rest came from we shall not know until the full reports are published.

By November, 1914, it was estimated that the war might run on for two full years, and if so that it would cost the treasury £450,000,000. This was a sanguine estimate, as will be seen. So new loans were authorized to the amount of £350,000,000, to bear interest at three and one-half per cent nominal, and to be issued at 95, redeemable after March, 1928. This was practically a four per cent cost loan. It may be added that by April, 1916, by virtue of various conversions of the old consols and various refundings, the interest rate on the entire debt is for the future on a cost basis of not far from five per cent. The *Economist* makes the cost to date actual at 4.36 per cent, as the earlier loans did not cost so much.

In November, 1914, the first new taxes were imposed, and new ones have come in each new budget. The income tax, which had been running at rates ranging, on its two-fold graduated scales, namely by the size and by the kind of income, from three and three-quarters per cent to eight and one-third per cent of the taxable portion of the income, was doubled, and a supertax was placed on all incomes over £2,500 for all persons whose income was above

£3,000. The result was a rate for large unearned incomes of about thirty-five per cent. Just recently there has been a further increase in the rates on all incomes between £500 and £2,500. At the same time the exemptions have been lowered, the £160 exemption being reduced to £130. The tax on beer was raised to one half-penny a glass, tea to threepence a pound. Rapidly other new taxes have come in. The sugar tax has gone from 1s 10d a cental to 9s 4d. Tobacco taxes and those on cocoa, coffee, chicory, were first raised fifty per cent, and more since then. Motor spirits pay threepence per gallon, the tax on patent medicines is doubled, all imports pay thirty-three and one-third per cent *ad valorem*. War profits pay fifty per cent. A multitude of new taxes have been invented and an attempt was made to raise the rates of postage and of the telegraph and telephone service. Still ever new taxes are being proposed, including a tax on goods exported. A penny a shilling tax on railway tickets is among the latest.

Mr. McKenna's speech of September 21, 1915, presenting the third budget of the war, was commented on by the staid old sober *Economist* in the following striking language. "It was a plain unvarnished statement of unparalleled revenues, an inconceivable expenditure, and an unimaginable deficit, followed by a list of fresh taxation which, as he said, imposed an unprecedented burden on the country."

It was not long ago estimated by Mr. McKenna that by March 31, 1916, the dead weight of debt, old and new, would be £2,200,000,000, including £423,000,000 lent to the allies and colonies. But the latest report I have makes the total \$17,500,000,000. The revenues as estimated at various times went from 198 million pounds before the war to 227, then to 305 and 506. But these estimates were not realized. In fact, the results have not yet reached us. In April, 1916, Mr. McKenna claimed £300,000,000 a year in new taxes. The spending is now \$25,000,000 per day, and interest alone calls for two-thirds of the new revenues.

Criticism.—There seems to have been a great deal of disorder and confusion until the third budget, which did something to set matters in order. The results of England's borrowings have not been bad in themselves, as the cost shows. But she has done little to reach the lower layers of lending power and has therefore not loosened up as much as she might have the foreign investments held in England, which would have helped the restoration of the exchanges, as well as facilitating war loans. While she has done much in the direction of increased taxes, the rate of spending has been such that the ratio of taxes to borrowing is nearer one in ten than the traditional one in three. Her gravest blunder was to seek money abroad before she had demonstrated on the same issue that it could be raised at home, and at what rates. Her venture into the New York market was disastrous. Her credit has been hurt by each successive loan.

The London *Economist* says that Germany has followed a well thought out plan. It has been exactly what has been set forth in the books as her plan for years past, indeed since 1870. For the first three months war was conducted on money raised through the Reichsbank. The procedure was to increase the gold reserves and issue notes at practically three for every one of gold, redeemable at the bank in regular banking fashion. These were advanced to the government and were funded in September, 1914, in four and five-year treasury notes, and at the same time an eight-year popular loan was offered. This loan was at five per cent nominal and was offered at $97\frac{1}{2}$, or on a five and five-eighths per cent basis. The interest rate is purposely high on the theory that it is better to make sure of calling out the funds needed and that refunding after the war can be made effective to reduce the costs. The first one was a popular loan of \$1,115,000,000 and reached 1,177,235 subscribers, thus averaging less than \$1,000 apiece. Of these, 926,059 were people of such modest means that they took sums under \$500 each. The second

loan, of \$2,265,000,000, in March, 1915, was also at five per cent nominal and was placed at 98½, or on a five and three-eighths per cent basis. This reached 2,691,060 subscribers, and of these 2,113,220 took less than \$500 each. The third loan, September, 1915, was for \$3,025,250,000, and reached 3,551,746 subscribers, 2,883,799 of whom took less than \$500 each. Of the nearly 10,000,000 certificates required for these popular loans, 2,000,000 are for less than \$25 each. It is interesting to note that the numbers of those who could never be reached by bankers or syndicates has grown with every loan and that the amounts required from the large moneyed institutions to fill out has not been one-sixth of the whole. The fourth loan is offered at 98½, with valuable conversion features, and figures about five and one-quarter per cent cost. Measured by costs and by the number of participants, the credit has improved by use.

The empire has levied no new taxes of any consequence. What the several states of the empire may have done is not reported. A war-profits tax after the war is promised. But as prices are regulated there may not be any to tax. The absence of taxes, it is claimed, has facilitated placing the popular loans.

Criticism.—The no-tax policy, which is in part a result of the limited powers of the empire as against those of the constituent states, is certainly debatable. To pay interest out of borrowed money requires grit. As against fiat money, new circulation regulated by banking principles has much to commend it. How heavy the cost of maintaining the gold reserve for this purpose has been remains to be learned. Germany's banking facilities seem to offer large powers of liquidating the people's assets and there seems to be no limit to their lending power short of their entire capital and capitalized earning powers.

So much for the work of the finance departments. There remains to consider the costs of war in the broader aspects; in interruption of production, destruction of property,

human life, and of ships and their cargoes, decrease in the stock of foods, metals and other raw materials, the stoppage of investments and betterments, the diminution of future trade and all the other dire results.

These are variously estimated, but there are so many uncertainties in the estimates that the personal bias of the statistician who makes them often vitiates the comparisons. The Crammond-Rossiter estimates are those most frequently relied upon.⁵ Corrected to date, these seem to point to a total loss for two years of war and for demobilization of not less than \$100,000,000,000, excluding any money estimates of the loss of life.

Measuring human life in money is poor business at best, and is statistically full of assumptions and hypotheses. The usual basis is to take the average earnings of a man in the years of his productive life and arrive at their present cash value on an assumed expectation of life for the average man. It will be readily seen that this is full of uncertainty. Among the various estimates that of the London *Economist*⁶ seems the most reasonable. That gives a total loss in killed and permanently incapacitated of 4,000,000 men. The capitalized value of these lives is about \$8,000,000,000, or about four per cent of the capitalized value of all virile producers in the countries concerned. If we cut out the money values the result in ratios will be the same.

More interesting is the study of the replacement of the life losses. This also involves a number of assumptions. The males born in the belligerent countries in the ten years before the war exceeded those dying by about 23,000,000, or an average gain in males of about 2,300,000 per annum. At that rate the increased death rate due to war would equal the increase in males in a period of about one and three-fourths years. In other words, in spite of the war losses the male population would, if the old birth-

⁵*American Economic Review*, Supplement, March, 1916, p. 94 ff.

⁶War Supplement, December, 1915.

rate continued, increase. It is probable, however, that the birth rate will be affected by the war, especially as the losses are among the most virile males. That is all a matter of speculation and the ratios are very different in the different countries. Thus in France there is no such rate of replacement. As an interesting sidelight, there are (if these figures are at all reliable) more men growing up into the fighting age each year than have been killed off. This, however, again does not apply equally in all countries; in France particularly the crop of young males is small.

It has been suggested that light may be thrown on the cost of the war by the rise in prices. This is a very uncertain field of investigation at present for the reason that there are two different causes for the increase in prices. One is the actual scarcity of commodities, the other is the inflation of the medium of exchange, money and credits. How much is due to each of these causes is difficult to ascertain until we have more facts than are now available. The famous old *Economist* index number has now passed the 4,000 mark; its revised 1905 base is 2,200, and hence the level of prices so measured is nearly one hundred per cent higher than it was before the index started in 1905, and is fifty-seven per cent above the level of July, 1914.

In conclusion I wish to recapitulate Professor Kemmerer's offsets to the dark side of the picture.⁷ He points out that the living costs of the troops are low, compared with those of times of peace. Luxury and extravagance are curtailed, both for those in the field and those at home. Much of the waste that goes on in times of peace is cut out. The productive power of the nations is exerted more efficiently than at other times. There is less leisure, less idleness, less vice, more health and vigor and less sickness and weakness. War is playing havoc with bad things as well as with good things.

It is breaking down outworn economic customs, antisocial vested interests, and antiquated methods of production. War

⁷*American Economic Review*, Supplement, March, 1916, p. 120.

clears the decks, as it were, and in this clearing process there are swept away many things which long since have become obstacles to progress. Many an ugly and antiquated building which has been destroyed by war will be replaced by a sightly and modern one, many a narrow street will be replaced by a broad one; in like manner the democracy of the trenches will remove many class prejudices, to be replaced by stronger bonds of social sympathy between industrial classes.

These economic gains will not cover the economic costs of war, but they will to a certain extent offset them.

ADDENDA

I. DIRECT COST OF WAR TO MARCH 31, 1916

United Kingdom.....	£2,025,000,000	\$10,000,000,000
France	1,755,000,000	8,700,000,000
Russia	1,200,000,000	6,000,000,000
Italy	225,000,000	1,100,000,000
Belgium and Servia.....	45,000,000	220,000,000
<hr/>		
Entente total.....	£5,250,000,000	\$26,020,000,000
Germany	£2,270,000,000	\$11,300,000,000
Austria-Hungary	1,100,000,000	5,400,000,000
Turkey and Bulgaria.....	30,000,000	150,000,000
<hr/>		
Alliance total.....	£3,400,000,000	\$16,850,000,000
All belligerents.....	£8,650,000,000	\$42,870,000,000

From the London *Economist* War Supplement, December 18, 1915.

II. DIRECT AND INDIRECT COST OF WAR TO JULY 31, 1915

Belgium	\$2,364,390,000
France	6,504,624,000
Russia	8,346,000,000
Great Britain.....	4,475,880,000
Austria-Hungary	6,133,320,000
Germany	9,214,560,000
Italy	1,158,000,000
Turkey, Servia, Bulgaria and neutrals....	1,500,000,000
<hr/>	
Total	\$39,696,774,000

Crammond-Rossiter estimates.

Notes: The above contains no figures for loss of lives or disability.

The *Economist* estimates the same items at \$42,000,000,000, but has a very different distribution.

The total direct and indirect costs to all belligerents to August, 1916, will reach \$100,000,000,000.

III. LOSS OF HUMAN CAPITAL—FIRST TWO YEARS

	Dead and Incapacitated	Value per Head	Loss
United Kingdom.....	235,000	\$3000	\$ 705,000,000
France	515,000	2500	1,287,000,000
Russia	980,000	1375	1,347,000,000
Italy	140,000	1750	245,000,000
Belgium and Servia.....	130,000	1750	227,000,000
<hr/>			
Entente total.....	2,000,000	\$1910	\$3,811,000,000
Germany	990,000	\$2250	\$2,227,000,000
Austria-Hungary	840,000	2000	1,680,000,000
Turkey and Bulgaria.....	150,000	1375	208,000,000
<hr/>			
Alliance total.....	1,980,000	\$2070	\$4,113,000,000
All belligerents.....	3,980,000	\$1990	\$7,924,000,000

Economist estimates.

Rossiter estimates capital value of all virile aged males before war at \$235,000,000,000.

Hence loss equals 3.4 per cent.

IV. NATIONAL WEALTH IN 1914 OF THE POWERS NOW AT WAR

Great Britain	\$ 88,060,000,000
Germany	83,250,000,000
Russia	60,160,000,000
France	59,000,000,000
Austria	55,580,000,000
Italy	20,000,000,000
Belgium	12,000,000,000
<hr/>	
Total	\$378,050,000,000

Notes: These are the Crammond-Rossiter estimates. The *Economist* total for the countries in Table IV is \$397,000,000,000.

V. WAR LOANS OF PRESENT WAR TO DECEMBER, 1915, AND AGGREGATE
DEBT TO SAME DATE

	New	Old and New	All, Per Capita
Great Britain.....	\$8,077,320,000	\$11,269,768,463*	\$242
Germany	7,140,000,000	12,135,000,000	177
Austria	4,308,992,000	8,113,792,000	159
France	3,871,940,000	8,776,815,000	220
Russia	3,570,000,000	8,162,700,000	57
Italy	620,755,550	3,115,920,000	87
Total	\$27,589,007,550	\$51,573,995,463	\$134

* England's total to May, 1916, is \$17,500,000,000.

Crammond-Rossiter estimate. Note exchange has been computed at the U. S. Mint ratio.

VI. DEBTS OF THE GREAT NATIONS BEFORE THE WAR

Nations—	Reported Debt, Millions	Pop. Millions	Debt per Capita	Annual Revenues, Millions	Annual Debt Charges	Debt times Revenues
Austria	\$3,752	49.4	\$75.95	\$1,142.5	\$156	3.3 fold
France	6,284	39.3	159.87	914.6	186	6.9 "
Germany	4,913*	64.9	75.70	2,368.1	219	2.1 "
Italy	2,706	33.9	79.84	512.0	104	4.1 "
Japan	1,242	52.2	23.79	292.2	71	4.3 "
Russia	4,554	160.1	28.45	1,674.0	207	2.7 "
England	3,486	45.0	77.46	918.8	119	3.8 "
U. S.....	1,000	94.8	10.55	1,000.0	23	1.0 "

* Mainly railroad debts of the kingdoms.

From Plehn, *Government Finance*.

SHAKESPEARE THE WRITER*

WALTER MORRIS HART

The past three years have been, indeed, notable ones for all lovers of Shakespeare. We have had the good fortune to see the admirable performances of Miss Anglin, of Faversham, of Mantell, of Sothern, of the Stratford Players, and of Forbes-Robertson. We have found, once more, the old delight in our steady favorites among the plays,—Hamlet, Macbeth, Caesar, Romeo and Juliet, the Merchant of Venice, As You Like It, Much Ado, and Twelfth Night. And we have found a newer pleasure in plays less often seen—in Lear, King John, Richard the Second, Henry the Fourth and Henry the Fifth, the Merry Wives, and Richard the Third. And there have been, too, excellent amateur performances.

These years have, it must be admitted, been unusual ones. And yet there have been, in California, many such years; in the country at large there have been many more; in England, many more; in Germany, many more. Shakespeare, as a matter of fact, has held the stage for more than three centuries, and he continues to hold it today. His is by no means a "lost cause;" we have no reason to admire ourselves as generous and self-sacrificing champions, or as exponents of an esoteric culture, when we go to see his plays. It was perhaps in this spirit that a few of us bought seats for the earlier performances of the Stratford Players;

*An address read at the celebration of the Shakespeare Tercentenary at the University of California, April 21, 1916.

but there came immediate evidence of the reality and universality of Shakespeare's attraction in the rapid growth of the houses in the second week. There was no affectation in their enthusiasm.

Shakespeare audiences, moreover, are insignificant in numbers as compared with Shakespeare readers. Many read because they prefer reading to seeing; or because they cannot afford to see; or because they have no opportunity to see. From the beginning publishers have found his plays a profitable investment. There have been, too, numerous translations into all the European languages. These books are sold. And all over the world Shakespeare is read by people in comfortable chairs before library fires; and read for pleasure, not studied under compulsion to fulfill "admission requirements" or to obtain units of credit for the bachelor's degree. Even Shakespeare classes have not been able to destroy the ever-living interest in Shakespeare.

It is a fair question, how far this cult of Shakespeare, whether in the theatre or in the library, is sincere; how far it may be mere superstition, convention, tradition—a prodigious game of follow-the-leader. Certainly it looks like a somewhat unusual instance of that game. No other, on so large a scale, has lasted for three centuries, no other has taken possession of the whole world as its playgrounds. You can fool a literary club for a year; but you can't fool the whole civilized world for three centuries. And the game has been going on in spite of attacks. Again and again critics have opened our eyes to the shortcomings of Shakespeare. Within the last few years he has been "exposed" by Tolstoy and by Bernard Shaw; and only the other day an eminent French critic, Monsieur Pellissier, while admitting that Shakespeare was a great poet, proved that his plays are "an enormous mass of balderdash, in which scenes of the finest sort shine here and there;" and "that in addition to historical inaccuracy, bad taste, and a defiance of the laws of time, space, and probability, they

exhibit glaring shortcomings in construction, in characterization, and in psychology."

This is but a single example of adverse Shakespearean criticism, of the kind of opinion that has found utterance through all the years since his contemporary and rival, Robert Greene, called him "an upstart crow, beautified with our feathers, . . . that supposes he is as well able to bumbast out a blank verse as the best of you, . . . in his owne conceit the only Shake-scene of a countrie." Yet the upstart crow has somehow survived, and continues to survive, these attacks; for to condemn Shakespeare is like speaking disrespectfully of the equator—which serenely continues its function as an imaginary line (or, as the little girl preferred to call it, a menagery lion) running round the middle of the earth.

No! So much smoke means a real fire. You cannot account for the marvelously persistent cult of Shakespeare on the basis of mere supersition, mere convention. There must be something there.

Books and books have been written to show what that something is. It is, indeed, the end of all Shakespeare criticism, the heart of Shakespeare's mystery. I do not know that the task has ever been accomplished; and certainly if I had the assurance to undertake it at all, I should not undertake it at the present moment. However, I think that the mysterious charm of Shakespeare can, in its broad outlines, in its essential quality, if not in its thousand variations, be reduced to the simple formula of Universal and Abiding Human Interest. It is an interest that appeals primarily to the emotions and the senses rather than to the intellect; and to the intellect only by way of the emotions and the senses. It is an interest that makes its appeal through every phase of Shakespeare's work—through the characters, through their emotions, through what they do and what they suffer, through their comments on life, and through the poetry they speak.

He would indeed be hard to please who could not find

friends to his liking among the characters of Shakespeare's plays. How infinite is their variety! What a miracle it is that the children of one creative imagination should be so utterly different—as Hamlet and Falstaff, Macbeth and Sir Andrew Aguecheek, Rosalind and Mistress Quickly, Beatrice and Juliet. And yet this variety is not the significant thing; it is not the variety of the group that makes us delight in any one member of it. We do not exclaim, as we thrill with Hamlet's great soliloquy, "How different he is from Falstaff."

Again, Shakespeare's people are marvelously real. We seem to stand face to face with them: Othello *is*, Prince Hal *is*, Romeo *is*; I do not feel so sure about the King of Spain, or Mrs. Pankhurst, or Admiral von Tirpitz. It is not because I have known anyone like Shakespeare's characters that I am convinced of their existence. I have never met anyone who reminded me of Portia, or Viola, or Hotspur, or Kate; I wish that I had. They enlarge, they do not repeat, our experience of human nature. And they do not seem real by virtue of any self-consistency. What Monsieur Pellissier says of Hamlet is true in a measure of most of Shakespeare's heroes: "The complications of his character, when analyzed, resolve themselves into incoherency." Let us be thankful that Monsieur Pellissier does not apply his test of consistency to you or me; he could prove that we do not really exist. And coherency, after all, is an intellectual test of reality; the tests which we instinctively apply are more emotional and less considered. And these tests, these unreasoned judgments to which we subject them, Shakespeare's characters always survive. What they do and say always seems at the moment natural and appropriate enough; it is only after reflection or as the result of analysis that doubts arise.

Real and various as they are, however, it is not the mere reality and variety of Shakespeare's people that has held us captive for three hundred years. It is rather their sheer charm, their personal magnetism, their agreeable or

admirable, their comic or heroic quality. Not that we should like to know them all, to associate with them daily in real life. It would be a keen pleasure, of course, to be admitted as an equal and mingle in the society of the high comedies. I think that I should like Viola; but I should be a little afraid of Rosalind and Portia, and very much afraid of Beatrice. I yield to none in my admiration of Falstaff, but I should not want him to carry a latchkey to my front door. I am glad that Romeo, Hamlet, and Macbeth are not members of my club; and that Polonius is not Professor of Moral Philosophy in the University of California. I hope that I shall never be cast away on a desert island with Dogberry and Verges. It is amusing to see them bore others with their errors and prolix stupidity; as daily companions they would be intolerable. There are exceptions, of course—numerous exceptions—Helena, Lafeu, the countess, and the King, in *All's Well*; Horatio, Viola, and many others. But for the most part Shakespeare's characters were created, as scenery is painted, for the stage, or, at most, for the pages of a book. I do not mean that they are stagey or bookish; but they are too heroic, or too melancholy, or too ambitious, or too revengeful, or too comic, or too clever, or too witty for human nature's daily food. Mingling with us they would look as absurdly out of place as we should appear, plotting and soliloquizing at Elsinore, dying at the foot of Pompey's statue, playing at love-making in the Forest of Arden, or making love in earnest on a balcony in Verona. Shakespeare wisely did not put us or our like in their places; he knew that admirable as we are as real human beings, in our own surroundings, we should not be effective in his plots or on his stage. He chose more wisely; he created with the sureness of genius just the kind of people that he needed, people who should charm the world from the stage or from the printed page. We go to the theatre, we open our Shakespeare again and again, for the sheer delight of contact with their vivid personalities.

Like his characterization, Shakespeare's psychology is not the result of analysis, or of any scientific process; it makes no attempt to be complete, to account wholly for the action. It is, rather, a series of marvelous glimpses, the result of the insight of genius. It appeals directly to our emotions, not to our intellects; and its purpose is to charm, to delight, to move to tears or laughter, to awaken pity or terror. Perhaps Monsieur Pellissier is right in declaring Macbeth to be first a victim of fate, then a monomaniac. Yet nothing could be more true than that cry of the tortured soul of the murderer seeking in more murder final peace:

We have scotch'd the snake, not kill'd it;
 She'll close and be herself, whilst our poor malice
 Remains in danger of her former tooth.
 But let the frame of things disjoint, both the worlds suffer,
 Ere we will eat our meal in fear, and sleep
 In the affliction of those terrible dreams
 That shake us nightly. Better be with the dead
 Whom we to gain our peace have sent to peace,
 Than on the torture of the mind to lie
 In restless ecstasy. Duncan is in his grave;
 After life's fitful fever he sleeps well.
 Treason has done his worst, nor steel, nor poison,
 Malice domestic, foreign levy, nothing
 Can touch him further.

Twelfth Night, again—to take an utterly different example—has a plot of manifest absurdity. It is not conceivable that Viola, disguised as page, should really serve and love the duke Orsino, and keep her passion and her sex concealed. The situation is impossible, yet the emotions that spring from it are true. "Make no compare," the duke tells Viola—

Make no compare
 Between the love a woman can bear me
 And that I owe Olivia.

And Viola answers:

Ay, but I know
 Too well what love women to men may owe.
 In faith they are as true of heart as we.

My father had a daughter lov'd a man,
 As it might be, perhaps, were I a woman,
 I should your lordship. . . .
 She never told her love,
 But let concealment, like a worm i' the bud,
 Feed on her damask cheek. She pin'd in thought,
 And with a green and yellow melancholy
 She sat, like patience on a monument,
 Smiling at grief. Was not this love indeed?
 We men may say more, swear more; but indeed
 Our shows are more than will, for still we prove
 Much in our vows, but little in our love.

DUKE: But died thy sister of her love, my boy?

VIOLA: I am all the daughters of my father's house,
 And all the brothers, too—and yet I know not.
 Sir, shall I to this lady?

It is from situations like these, from the great moments, that we gain our chief pleasure in Shakespeare's plays. It is not from the plot as a whole. Improbabilities and inconsistencies trouble us very little. What we really desire is that interesting or charming or terrifying things should, from moment to moment, happen to interesting people.

Shakespeare's greatness, then, does not lie in the creation of characters which are consistent wholes, or in complete studies of their psychology, or in the construction of well-rounded plots. It lies, rather, like the greatness of Gothic architecture, in the beauty and perfection of details. And this is true also of his criticism of life. He does not offer us a systematic philosophy. Indeed it is doubtful if we can get behind his dramatic characters at all, if we can ever venture to regard their utterances as embodying his thoughts. What, for example, were his views of honor? "Rightly to be great," says Hamlet, is "greatly to find quarrel in a straw when honour's at the stake." And Falstaff asks, "What is honour?" And he answers

A word. What is that word, honour? Air? A trim reckoning. Who hath it? He that died o' Wednesday. Doth he feel it? No. Is it insensible, then? Yea, to the dead. But will it not live with the living? No. Why? Detraction will not suffer

it. Therefore I'll none of it. Honour is a mere scutcheon; and so ends my catechism.

Manifestly it would not be safe to quote either Hamlet or Falstaff as expressing Shakespeare's views.

However, there are, here and there, passages which show deep and wide, if not systematic, thinking; glimpses, merely, like the glimpses of character and psychology, but glimpses of infinity. So Lear, shut out by his daughters on the heath, in the storm, soliloquizes:

Poor naked wretches, wheresoe'er you are,
That bide the pelting of this pitiless storm,
How shall your houseless heads and unfed sides,
Your loop'd and window'd raggedness, defend you
From seasons such as these? O, I have ta'en
Too little care of this! Take physic, pomp;
Expose thyself to feel what wretches feel,
That thou mayst shake the superflux to them
And show the heavens more just.

Thus Lear reveals not only the essential goodness of his own nature, but also the fact that Shakespeare himself was passionately aware of the injustice of the universe. Macbeth, planning the murder of Duncan, meditates upon the inevitability of the punishment of sin:

If it were done when 'tis done, then 'twere well
It were done quickly. If the assassination
Could trammel up the consequence, and catch
With his surcease success; that but this blow
Might be the be-all and the end-all here,
But here, upon this bank and shoal of time,
We'd jump the life to come. But in these cases
We still have judgment here, that we but teach
Bloody instructions, which, being taught, return
To plague the inventor. This even-handed justice
Commends the ingredients of our poison'd chalice
To our own lips.

Finally, in Hamlet's dying request to Horatio, Shakespeare sums up, or suggests, a whole conception of this life and of the life to come:

If ever thou dost hold me in thy heart,
Absent thee from felicity a while
And in this harsh world draw thy breath in pain
To tell my story.

These impassioned comments on life are never present for their own sakes merely. They are the sincere utterances of great personalities under the stress of strong emotions. They spring from the dramatic situation of the moment; their purpose is not to edify us, not to "improve the occasion," but rather to heighten for us the emotional effect of the scene, to move us with pity or with terror, to give us, in a word, pleasure of the deepest and highest sort. For again in these comments on life, as in characters, emotions, and plot, it is effectiveness that Shakespeare aims at, effectiveness of play as play, whether for the hearer or the reader. He was adept, not in scientific management, but in artistic management, of all the means at his disposal.

Shakespeare, Monsieur Pellissier admits, was a great poet. Everybody, I suppose, will agree with him. The passages that I have ventured to quote are perhaps sufficient illustration of his mastery of the mere music of words, of the marvelous suggestiveness of his figures, of his exquisite felicity of diction. Many of his phrases have passed into the language as final perfection of expression of the ideas they convey. With no poet do you get an impression of more masterful ease in the handling of his verse; it was manifestly for him a perfectly natural, as well as a delightful, means of expression. All the more wonderful, then, is the fact that there is so little mere poetry in his plays. Shakespeare's poetic gift itself is scarcely more marvelous than his restraint in the use of it. The temptation must have been enormous, how enormous one can see from the fact that he does, now and then, yield to it, even at the height of his powers. In *Hamlet*, for example, when the Queen tells Laertes that his sister is drowned, "Drown'd! O, where!" Laertes asks unnaturally enough, clearly to

introduce the Queen's poetic but inappropriate description of the place:

There is a willow grows aslant a brook
That shows his hoar leaves in the glassy stream.
There with fantastic garlands did she come
Of crow-flowers, nettles, daisies, and long purples;
There on the pendant boughs her coronet weeds
Clamb'ring to hang, an envious sliver broke,
When down her weedy trophies and herself
Fell in the weeping brook.

So again in *Much Ado*, when Ursula and Hero begin the talk which, it is intended, Beatrice shall overhear, Ursula is gratuitously poetic:

The pleasant'st angling is to see the fish
Cut with her golden oars the silver stream.

But, in his greater plays, Shakespeare seldom sins in this way. There are not many lines of poetry that do not justify their existence by their dramatic value; they express character or emotion; they carry forward the plot. Here, then, is one more reason why we delight in Shakespeare. Anyone who has watched the preparation of a play knows how difficult it is to deal with mere poetry, to render it with animation and variety, to prevent its becoming for the audience merely dull and monotonous. Shakespeare, clearly, was well aware of this danger and restrained his own genius to increase our pleasure—artistic management, again.

And so, through every phase of Shakespeare's work, through the characters, through their emotions, through what they do and what they suffer, through their comments on life and through the poetry they speak, it is universal and abiding human interest that has worked its magic spell for three centuries, that charms us today, that will captivate those who follow us for many years to come.

THE SPIRIT OF HEGEL'S PHILOSOPHY.

J. LOEWENBERG

I suppose you all know the oft-repeated tale about Hegel—attributed to other philosophers as well—who, when a student after a lecture once asked him to explain the meaning of a certain proposition, replied: “When I uttered this proposition, there were two who could understand it, God and myself, and now there is but one, and he won’t tell.” A story of this sort throws aspersion not only on the intelligibility of the philosophy of Hegel, but on that of philosophy in general. The popular mind, especially, receives such anecdotes, whether true or not, with great relish, for they sum up its habitual attitude towards philosophic problems. With regard to Hegel, it is one of the great traditional superstitions, not only among the general public, but also among philosophical students and philosophical literature, that Hegel’s philosophy is essentially obscure, unintelligible, and puzzling. Now it is true that Hegel’s philosophy offers indeed many perplexities and difficulties and puzzles to the technical student; and how could it be otherwise with a new theory which went out to slay the logic on which, as James said, “since Aristotle, all Europe has been brought up”? Nevertheless, the general spirit of Hegelianism should be clear and intelligible to anyone who is at all capable of reflection. It is due in a large measure to Hegel’s obscure language, determined by the novelty of his problems, and

to the still obscurer language of philosophic textbooks from which altogether too many obtain their sole wisdom about Hegel, that the obscurity and the unintelligibility of the *meaning* of the Hegelian problems themselves have become such a wide-spread conviction. But if one takes the trouble to isolate the spirit of Hegel's philosophy from its letter, if one tries to re-word its most general and central thought in simple and plain expressions, one marvels at the clearness and directness of its meaning.

What is the meaning of Hegel's philosophy? The simplest way to approach an appreciation of its spirit is through a consideration of the well-known concepts of permanence and change. Permanence and change are the most fundamental and most profound distinction in life and in thought. Life and nature offer abundant examples of both; there is the tragedy of permanence and there is the tragedy of change, and both have been sufficiently emphasized in poetry and in religion. The thought that there is nothing new under the sun, and that what is and shall be has been from eternity, and the thought that we are but "fair creatures of an hour" in a world of change and chance—both are equally depressing. The difference between permanence and change as a temperamental difference is very familiar. Who does not count among his friends the two types of people—the "static" and the "dynamic" types? Who is not familiar with the lover of the permanent things, the lover of the mountains, the rocks, and the conservative political party? It is the old-time religion, the old-time friends, the old-time books, the old-time traditions he is loyal to. The restless sea and the changes of the seasons depress him. New things—the New Thought, the New Woman, the New Party—he abhors. Methodical in his work, regular in his conduct, stubborn in his opinions, phlegmatic in his feelings, unwavering in his motives and principles—such is his character.

Contrast with this the dynamic type, the person of

the romantic, wayward, artistic, and moody temperament, who longs for change, excitement, and novelty, who is easily bored with people and life, who is sickened by the "same old things." The sea is his mistress; the changes of the seasons appeal to his changing moods; music, lyric poetry, and travel are his keenest amusements, and every innovation in art, politics, or religion, every departure from custom, convention or tradition is applauded by him with intense enjoyment. You never know how he is going to feel and what he is going to do next. He is always "on the go." And changeable and fickle as his moods are his motives and principles. Constancy, stability, loyalty, you must not expect from him. He is indeed intense, passionate, and sincere while his moods last, but his moods are numerous, following one another in rapid succession, and no one of them enjoys longevity.

There are temperaments lying between these two extremes; we all of us are more or less static and more or less dynamic. We choose, or heredity chooses for us, if you like, the things, tastes, feelings or principles which we invest with the value of permanence, while we allow others to drift in the passing stream of our fickle natures, but these two extremes, by no means rare and unreal, illustrate the profound temperamental distinction and antithesis between change and permanence and the deep-rooted need of investing one or the other with a more fundamental significance and value.

Philosophers, since reflective thinking began, have always been impressed with the changing and permanent aspects of life, and have tried to give metaphysical expression to the need of the one or the other. Change has been proclaimed by some thinkers to be the deepest and most real expression of reality, while others have insisted upon something abiding and permanent behind a world of flux. There are also those who have attempted to reconcile the two, but even to them either change or permanence is in the last analysis the more really real. In a very general

way, one may say that the difference between permanence and change is the pivot around which all philosophic problems turn. All through Greek philosophy, the characteristic activity of the thinkers consisted in searching, on the cosmological level in the case of the Pre-Socratics, for the permanent essence of that which appears and changes. Heraclitus, a sort of early Hegel, was the first one to see in change a deeper significance and reality than in permanence. A more philosophically dramatic opposition can hardly be imagined than the one existing between the advocates of change and the defenders of permanence, between the Heraclitans and the Eleatics, both schools claiming to have a monopoly on reason and truth, both distrusting the senses, and each charging the other with illusion. But curiously enough, by ascribing a thing to a mere illusion, one does not reduce it thereby to nothing—the illusion itself remains. The illusion is a fact in the universe, and calling it an illusion neither explains nor explains it away. I am here reminded of the story Professor Royce once told me. Years ago he overheard the following conversation between two little girls of about seven and ten years of age respectively. The younger girl asked her sister: "Sis, what is the sky?"—to which the older, having reached the age of rationality and skepticism, replied: "You foolish girl, there ain't no sky." "But," insisted the younger child after some silence, "What is it that ain't?"—a profoundly metaphysical question indeed!

Well, after the controversy between the Heraclitans and the Eleatics, philosophers have since been engaged in answering the question: "What is it that isn't?"—whether the "isn't" is taken to be the permanent or the changing. Now, in order to grasp the significance of Hegel's central philosophy, you must bear in mind that it was just this profound distinction between the permanent and the changing, the flitting and the abiding, that Hegel sought to understand, and to interpret. Hegel saw more deeply into the reality and into the significance of move-

ment, change, and becoming than any other philosopher; in his metaphysical vision the dramatic onrush from event to event and from phase to phase in the life of the individual and in the life of the race assumed a deeper rationality and a more tragic significance than was given to it by any other philosophy before or after him.

Hegel very early in his life was experimenting with various phases of human thought. The changes and vicissitudes of his own inner or outer life he did not analyze. He was not given to introspection, and he was decidedly adverse to romanticism, mysticism, and sentimentality, though he was humane and sympathetic enough to understand and to experiment with these human tendencies, as his early writings sufficiently illustrate.

When I have fears that I may cease to be
Before my pen has glean'd my teeming brain,

fears that beset the poet Keats, were probably unknown to Hegel. What he was interested in were the fears, passions, and hopes of others. His temperament was that of the fair and objective thinker, of the critic of universal problems, and of the experimenter with the paradoxes of life. With such an objective and humane attitude, the young Hegel endeavored to understand religious and historical problems. The dramatic life and death of Christ, the tragic fate of "the glory that was Greece and the grandeur that was Rome," the relation between the preachings and sermons of Christ and the positive Christian religion, and the fall of paganism and the triumph of the Christian church—these were the things over which the young Hegel pondered. It is the flowing changes of institutions, religions, and historical epochs that Hegel was interested in. With these processes, Hegel experimented in all sorts of ways until his genius came by a method which revealed to him the world as an orderly unfolding, as a progressive development with stages of relative values, the higher developing from the lower, and all stages constituting an organic whole.

That the whole universe is subject to an orderly sequential movement, that the flux of things is not a haphazard flux, but is flowing according to an immanent standard, discoverable by Speculative Reason—this is the spirit of Hegel's philosophy in a nutshell. It behooves us now to inquire what this immanent standard is.

In his early experiments with the processes, movements, changes of institutions, religions, and historical epochs, Hegel discovered how evil and error, separation and opposition, longing and suffering, are woven into the very tissue of religious and historical processes—without which no advance from one stage to another could be understood. I cannot undertake here to show how Hegel came by this discovery. Suffice it to say that for the young Hegel the elements of pain and suffering, separation and longing, were elements which are necessarily present in, and give meaning to, history and religion.

The universal principle which the mature Hegel, after many years of study and experimentation, came to regard as the pulse of life and the core of reality may, in a very general way, be stated thus: evil, error, sin, suffering, pain, disappointment, irrationality, contradiction, negation, etc.—in short, the devil—enter constitutively into the rationality of the world; the rationality of the world demands that there shall be a devil in it, if by the devil we symbolize and understand the *Geist, der stets verneint*. By regarding the devil as the most necessary factor in the definition of the world's rationality and activity, without which the world would indeed be chaos and inertia, Hegel's philosophy is able to furnish a criterion for evaluating the doings and the vicissitudes of the world; it is able to account for a real progressive development and evolution; and it is able to give us a world-view which is neither optimistic nor pessimistic, but a sort of higher synthesis of both. And this we shall soon see.

How the devil is needed for any rational activity, and how without the devil no development, no progress, is pos-

sible, a few commonplace examples may illustrate, the deeper application and meaning of which will appear later.

Any activity that is at all worth while and that is at all self-conscious entails the encountering of opposition, the overcoming of obstacles, and the removal of difficulties. Only then is any activity satisfying. If you wish to play a game—say football—you wish to overcome an enemy; and the stronger the opponent, the more powerful the enemy, the greater is the zest for the game and the more pleasing is the victory—if you win. In football the opponent is the devil whom you want to fight and to overcome and who alone rationalizes your game. Without an opponent to fight against, there could be no game, for certainly a team of dummies is not worth the trouble to vanquish. In your game you desire that there shall be something evil—something opposing, challenging, defying, fighting, and irritating you—for the game to be possible at all.

On higher levels of human endeavor, the necessity of the presence of a negative principle is still more obvious. If you analyze the significance of an act that ought to be performed, you find the presence of the devil there in the form of feelings, desires, inclinations, instincts, habits, that must be overcome. The person who can perform the acts he ought to perform with perfect ease, without any consciousness of the ought, without any inner conflict, is certainly an admirable, but scarcely a moral, person. If he cannot help being moral, or if he is incapable of being immoral, he is not a moral person. The consciously moral man is he who has to face alternatives and possibilities, who is in the presence of a dilemma. He performs the consciously moral deed the moment he makes the cruel decision of killing off one possibility which he would fain see realized, and of actualizing another possibility, which, for the moment, is not pleasing, but which ought to be actualized. Now if you wish to be a moral person in this sense—quite aside from the question whether morality has

the character of all-sufficiency or whether it has a subordinate place in the scale of human values—you must wish conflicts, oppositions, contrasts, and struggles; you must approve of, and see the rationality in crushing desires, killing feelings, and overcoming inclinations; you must, in short, realize the necessity of the presence of a negative principle, of an opposing force, of a discrepant element, in order that there shall be a moral deed at all.

Many other examples may be indicated. I may point out that what makes emotional experience valuable is perhaps not alone its serene, calm, and peacefully happy side; the significance of a love or friendship may be said to consist also in the removal of misunderstandings, the overcomings of jealousies, the adjustment of opposing claims, the reconciliation of contradictory tendencies. The religious life illustrates similar characteristics.

Now these are extremely commonplace and trite examples, but please to bear them in mind when we come to consider more complex situations. For the Hegelian thesis is that the strifes, conflicts, discrepancies, contradictions, oppositions, irrationalities, negations, disappointments, and sufferings which are necessarily present and give meaning to these familiar experiences—to the love for a game, to the performance of a moral deed, to the cultivation of a passion, to the enjoyment of religious and other emotions—are necessarily present and give meaning to every aspect of the world and of life. Everything in the world, be it a religious cult or a logical category, a human passion or a scientific law, is, according to Hegel, the result of an orderly process which involves the overcoming, the reconciling, the assimilating, of contradictions. Without such a process nothing could *be*. It is these contradictions which determine the development or evolution of the world in Hegel's sense.

In order to understand what Hegel means by *evolution*, you must not confuse it with the Darwinian theory of *transformation*, which cannot properly be called evolution.

The subject is extremely complex, and I have no time here to touch upon it even superficially. But even a slight knowledge of the biological theory of evolution shows us that what Darwinians mean by evolution is not an unfolding of the past, a progressive development of a series or scale or hierarchy of values in which the later stage is superior, and is organically related, to the former stage. In order to avoid confusion we must remember that Hegel's concept of evolution, or *Entwicklung*, is a concept of value or worth. The biological theory of transformation, on the contrary, as a descriptive concept, provides for no sufficient criterion for evaluating the various stages in the course of an evolutionary process. Why a man is superior to, or higher, or better, or nobler than, the apelike ancestor from which he is supposed to have sprung, the Darwinian theory by itself cannot tell us. There must be some criterion besides the mere external or accidental facts of the struggle for existence and of the survival of the fittest to account for a progressive evolution. The phrase "survival of the fittest," though connoting the meaning of value, really says nothing more than this: those who happen to survive are the fittest, or their survival proves their fitness, but why a bull, for instance, with a certain shape of horns, is a more valuable being in the scale of existence than his more unfortunate fellow not so horned—to this question Darwin's theory has no other answer than that such a being is better able to maintain himself in a hostile environment; that he is better able to survive. But that survival itself is valuable; that it is better to be alive than dead; that existence has a value other than itself; that what comes later in the history of the race or in the history of the universe is better, more perfect, more progressive, more valuable in itself than what went before; that, in a word, there is an immanent unfolding, development, progress in the world, only a complete, comprehensive, and systematic philosophy can attempt to show.

Hegel's philosophy *does* attempt to show, by means

of one universal formula, one uniform principle, that the world manifests a real, genuine evolution in all its phases. His theory of evolution differs from that of Darwin in this respect. In Hegel's scheme, the weaker, the lower, the inferior, is not slain, is not annihilated by the stronger—as the biological theory demands—but is absorbed by it. Only where you have such a relation, only where you have a passage from the strong *through* the weak to a higher form composed of both, only where you have the strong and the weak, the high and the low, the good and the bad, the yes and the no, reconciled, and yet differentiated, in a third thing which has or contains them both, only then have you a genuine case of real development or evolution.

What Hegel means may be illustrated from your inner life. What do we mean by the phrase commonly employed: "learning by experience"? You find yourself, for instance, in the presence of an entirely new situation. It elicits very definite attitudes and actions on your part. But you are ignorant; you do not know just how to behave in this new situation. Act you must, however, and thus you boldly rush in where angels would perhaps fear to tread. But trouble soon ensues. Your deeds and attitudes show that you have entirely misunderstood the situation and the person or persons involved in it. Your mode of behavior chanced to be the worst possible you could have chosen. As a consequence, feelings are hurt, pride is wounded, motives are misinterpreted, deeds are misjudged, relations are strained, hopes are shattered, illusions are destroyed—in short, you find yourself in the presence of a power you have yourself created, a foe you have yourself aroused. Nevertheless, after this great disappointment, this bitter misunderstanding, you return to yourself; you find yourself, as it were, by seeing the situation in its true light, by condemning your own acts, and by offering to make amends. Your wounds begin to heal again and at last you realize that the mental anguish, the intense suffering, the

bitter feelings, and the inner struggles experienced have really had a positive worth—they have led you at least to a better self-comprehension. And that is exactly what you mean when you say, "I have learned something from this experience"—you have come forth from it enriched and enlightened. Thus we all grow and develop, but we must pay the price for each step we advance.

In this formal example, familiar enough, to which each of you may supply his own content, you can distinguish three phases or stages. First, there is yourself as you take yourself and as you mean to be in the presence of the new situation, unaware of the imminent trouble. Then your wrong reaction to the situation engenders something foreign, hostile, opposed to you; you are at war with yourself; you are not what you meant to be, for you did not mean to wound. And, finally, you return to yourself, containing within yourself the negative experience—the troubles, struggles, and disappointments—as a valuable asset in the advance of your own development.

This process of falling away from yourself, of facing yourself as an opponent whom you reconcile and assimilate into your larger personality, is doubtless a familiar process. It is a process just like this that develops and individuates one's personality. For else what is meant by personality or character, except the endless process of overcoming conflicts, reconciling motives, and adjusting opposing claims? It is by assimilating disappointments, disillusionments, and suffering that a character is, in a large measure, fashioned. But when is the process ended? When is a character finally fashioned? Who can say, Lo! my personality is formed, I can no longer err? Whatever the metaphysical significance of a personality may be, it certainly is for each of us practically a constant process of self-scrutiny, of self-criticism, and self-correction, a never-ceasing battle with conflicting motives and antagonistic desires, and a never-ending cycle of endeavor, failure, and success through the very agency of failure.

This familiar rhythmic process, Hegel generalizes into a law of the universe. The whole universe and everything in it manifests, according to Hegel, just such a process, the whole universe and everything in it is but a result, an outcome of struggling, conflicting, but reconciled and adjusted forces. Categories, historical epochs, religious processes, social, moral, and artistic institutions are related to one another just as, in your own life, passions, wills, and deeds are related to one another—the whole universe for Hegel is a live affair. There is an eternal unrest and total instability in it, but its unrest and instability are of a regular and uniform kind according to a universal principle which renders the universe as a whole organic and orderly. This universal principle is Hegel's famous Dialectical Method.

I cannot here suggest even Hegel's application of the dialectical method to all forces and manifestations of life and reality. One or two instances may convey to you something of the significance and the profundity of the Hegelian method. How such a dialectical unrest is at the basis of personality, how our personality can be defined and understood only in terms of conflicts, oppositions, and their reconciliations, I have but dimly hinted at in my analysis of the phrase "learning by experience." However, though Professor Royce is right in calling Hegel's method "the logic of passion," Hegel did not come by his method through an experience of his own passions, through an analysis of his own emotions, but through watching objectively and humanely the processes, the movements, the changes of institutions, religions, and historical epochs; it is in religion, history, and society that Hegel first discovered the manifestation of an orderly and significant process. I shall therefore very briefly indicate to you how Hegel views the Evolution of Religion.

According to Hegel, the essence of religion is of the conciliatory tendency spoken of above. Though religion is essentially dualistic, though God and humanity are sun-

dered—God being in Heaven, man on earth, God being infinite, man finite, God being perfect, man imperfect, and so on—yet this dualism is not absolute. It is the function of religion to unite Heaven and man.

There are for Hegel three general types of historical religion which attempt to bring about such a reconciliation—the Oriental, the Greek, and the Christian.

All religions of the Orient, whether Brahmanism or Judaism, emphasize the infinity and the power of God. God is the prince, the lord, man his subject and slave. He is the creator, man his creature. God is everything, man is nothing. All things come from God and return unto him. Man can find peace and solace only by recognizing God's omnipotence and power and by acknowledging his own impotence and dependence.

In absolute opposition to this view is the Greek religion. The Oriental religion is a religion of the infinite, the religion of Greece is finite. The divine and the human are not sundered. Man in Greece is found to stand in the center of a cosmos, in the center of an harmonious order of things which is not foreign to his spirit. The individual is not isolated as he is in the Oriental religion, but he is a part of a beautiful whole. The gods themselves are the expression of a free people, conscious of their freedom. The gods on high, forming a heavenly republic, were but the glorified expression of an order and a harmony which the artistic Greek sought to realize in the state. The gods worshipped by Greece under the form of Zeus, Apollo, Aphrodite, were but idealized and glorified Greeks.

No more complete antithesis can be imagined than the one found in the Oriental and Hellenic views of religion; glorification of the infinite on the one hand and worship of the finite on the other. Religion, according to Hegel, had to go through this inner struggle and conflict in order to make Christianity possible—for the two extremes of the infinite and the finite meet and are reconciled in the Christian religion. Christianity contains both the principle of

infinity of the Orient and the element of finitude of Greece. In a being who is both God and man—a God-man—the gulf between the infinite and finite is bridged. God incarnated in Christ is the union of the spirit of the Orient and the Greek genius. God and man are both differentiated and fused, for the Christian, like the Greek, worships man, the deified Jesus, but this deified Jesus is one with the eternal being, the Oriental infinite, the ground of all things.

You see how Hegel explains the evolution of religion. For Hegel the Christian religion is a higher religion, because it is the reconciliation and the outcome of the Oriental and the Greek opposition. The Oriental and the Hellenic religions confront one another like enemies, as it were; the one stands under the banner of the infinite and the other under that of the finite. The Christian religion destroys, annihilates neither, but is both in unity; it is, according to Hegel, the developed result, the inevitable unfolding, the necessary outcome of both. This for Hegel is genuine evolution. Nor is this process peculiar to the Christian religion, but the Oriental and Hellenic religions as well manifest—each in its own sphere—the same dialectical character.

It is impossible within the limits of this address to show how Hegel applies his universal principle of evolution to physical nature, to the individual, society, art, and science—everywhere he observes the same peculiar process, the same paradoxical progress from yes through no to a higher yes inclusive of both, and the same orderly instability and rhythmic unrest.

Hegel's master stroke, however, consists in the discovery of such an orderly instability and such a rhythmic unrest among the very notions, terms, categories or concepts, which we employ in language and discourse. I should have liked to spare you this difficult portion of Hegel's philosophy, but I feel that I must say something about it, for Hegel's attempt to subject the concepts and categories of Logic to the same universal and orderly

flow is the most central and most original contribution of his philosophy. We all of us employ concepts and notions which we regard as more or less fixed and stable. We use even in our daily experience concepts such as cause and effect, form and content, whole and part, quantity and quality, substance and attribute. They do not give us much trouble; we do not aim at exact thinking in our work-a-day world; we can carry on interesting conversations without exercising scrupulous care in the choice of our words. But the student of philosophy cannot afford to be so indifferent. He must ask what are the concepts that science, art, religion, make use of? What is the meaning of terms and notions that we constantly hear—such as matter and force, cause and effect? Are we to accept them as ultimate validities? Are we to commit the “metaphysical fallacy” of the ordinary man of science? Or are we to use them in a vague and confused sense as the unreflected plain man does? Or might it not well be possible to regard them as entities whose constitution and behavior the logician can inspect and observe in the same sense in which physical objects are subject to inspection and observation by the physicist?

Just reflect how we do allow ourselves to be fooled by mere words. We very often think we have “explained” something by using just words. When Molière, ridiculing certain explanatory notions, asks in his *Le malade imaginaire* the famous question: “Why does opium put one to sleep?” and answers, “Because it contains a dormitive quality,” we laugh, but are we better off in our empirical science? When the child seeing a moving train ascribes its motion to the engine, we do not accept it as a “scientific” answer; when a more enlightened insight ascribes its motion to the steam, we reject it likewise as unscientific; but when we are told that the motion of the train is due to the specific behavior of molecules and atoms, we rest satisfied and think we have at last found the explanation sought. But why should we stop with the molecule? Is

this answer very much more superior to the child's simple explanation that it is the engine which makes the train run! What is a molecule, and why should molecules behave as they do? If this question is not answered, empirical science succeeds in saying no more than that the train runs because it runs. We all use such concepts as these, and many more. It is as Mephistopheles says in Goethe's *Faust*:

Denn eben wo Begriffe fehlen
Da stellt ein Wort zur rechten Zeit sich ein.

Hegel, of course, goes farther and insists that not only are popular concepts nothing but tautologies similar to the example cited from Molière, but many, if not all, of the so-called "scientific" explanations are just of this nature. Hegel finds fault with explanations only in so far as they pretend to be final and absolute. Certainly, the explanation that the train moves because of the behavior of the molecules is a more scientific explanation than that of the child who sees the cause of the motion in the engine, but the scientist's answer is no more ultimate than the child's, for the questions what molecules are, why they should behave as they do, why they could not behave otherwise, are just as baffling and as legitimate as the question concerning the motion of the train. Hegel sees in the nature of explanations and the zeal for them on the part of empirical science nothing else than the love of the human understanding for its own activity. The understanding, with a passion for its own activity, turns to its "external world," dismembers it, classifies, tags, and labels it, reduces it to phenomena, forces and laws, interprets it in terms of attraction and repulsion, energy and ether, motion and rest—forgetting all the while that these concepts are of its own making, bone of its bone and flesh of its flesh. The universe beyond and outside the active interpretative human intelligence, no more contains atoms, molecules, phenomena, forces, and laws than it contains the love and

hatred of Empedocles, or the Energy of Ostwald; from the most mythological conception and the use of the terms and notions of current science to this most technical and objective formulation and application, they are nothing but the expression of the human understanding. With explanatory and interpretative terms, the human understanding would fain penetrate the curtain which veils the secrets of the universe. If the understanding could but step behind the curtain, it would behold nothing but itself, it would surprise itself in the process of categorizing and interpreting the world; it would recognize nothing but itself and say:

So schaff' ich am brausenden Webstuhl der Zeit
Und wirke der Gottheit lebendiges Kleid.

Now Hegel does step behind the curtain and watches with great interest the categorizing activity of the human understanding. He finds that the play of the understanding with its own concepts is indeed a necessary and progressive phase in the development of the human spirit, but a really philosophic insight into the nature of things and into the nature of thought can be won only after a thoroughgoing examination of all the categories and notions which all the sciences make use of.

Now, as I have already indicated, Hegel's was a thoroughgoing objective mode of thinking; he was essentially the experimenter. He looked upon thought as a part of the given reality. He sought to discover in it the manifestations of an orderly and significant process which he had observed in other realms—in history, religion and society. It is with this conviction, with the conviction of discovering in one part of reality the order and the process already found in other parts, that he set out on his scientific experiment of exhibiting the organic structure and function of the logical categories.

I shall not weary you with Hegel's special procedure of exhibiting his experiment. I must state his result dog-

matically. It is this: Just as the curves concavity and convexity are inseparably connected, just as you cannot have one without the other, but both in union, though one is the very opposite of the other, so you cannot find a category without an inherent contradiction. Every category as soon as you analyze it develops a stubbornly negative and contradictory factor which must be overcome and reconciled in a higher category. In short, the same total relativity and mutual conflict which Hegel discovered to be the essence of religious processes and historical epochs he has discovered also among the categories. Concepts develop and cannot be taken in isolation. And the same general principle of evolution which he applied to religion—the principle of reconciling two opposed and opposite forces—he applies to logic. Every concept is but a result of two antagonistic concepts which it includes and reconciles. Thus, just as suffering, disappointment and failure are positive factors in the evolution of personality, just as conflicts, struggles and opposition are positive elements in the development of religion, history, and art, so error, negation and contradiction are the positive vehicles in the evolution and development of reason—of science and philosophy. To revert to my former metaphor, it is the devil, in the form of evil, error, sin, suffering, pain, disappointment, irrationality, contradiction and negation, who makes the world, according to Hegel, very hot indeed for us; but without him, the world would be mere chaos and inertia.

The spirit of Hegel's thought that the devil is responsible for the world's evolution is not easily grasped by those who hear it for the first time. It is difficult to realize that good without evil is not really good, that truth without contradiction is not really truth. Such a thought may have a depressing effect—it may lead one to a mournful resignation and pessimism. But think of the wise man who is keenly aware that he is destined to everlasting ignorance, because there is so much to know; does this

awareness cause him to resign himself with a "what is the use?" No, this awareness acts as an incentive to a continual attempt to gain knowledge. Just so with Hegel's devil. What Hegel is insisting upon again and again, almost *ad nauseam*, by investing contradiction with a positive meaning, by recognizing error as a vital factor in experience and thought, is the fact that, since the nature of everything whatsoever involves the union of discrepant and contradictory elements, nothing can bear and sustain its isolation and independence. One term, one process, one epoch, one institution of the world depends for its meaning, expression, and existence upon its correlative; it is impossible to take one apart from the other. To take any item of the world apart from its relations to the rest of the world is just like conceiving convexity apart from concavity. But wherever we are dealing with the world, in our art or in our science, in our religion or in our business, we are always dealing with error and contradiction, because we are but dealing with fragments or bits of experience; hence—and this is Hegel's crowning thought—*anything short of the whole universe is contradictory*. In brief, the principle of contradiction has therefore, without losing its nature of "contradictoriness"—without losing its devilish character—a positive meaning and value, because, being an essential element of every partial, fragmentary, isolated and independent view of experience and thought, it leads one necessarily to transcend contradiction, to go beyond it, which is possible only by viewing experience and thought in organic wholeness.

Hegel's final view of the universe is that the truth is the whole. Neither things nor relations, neither histories nor religions, neither sciences nor arts, express or exhaust the whole essence of the universe. The whole essence of the universe requires them all—the whole essence is the life of the universe, or the life of God, the meaning of the whole, the thought-totality that is *all* in unity. The dialectic unrest and instability of thought and of reality—the

activity of the devil—is seen to be necessary and inevitable under the form of eternity.

Such is the spirit of Hegel's philosophy. Whether you will like it or not will depend upon the kind of temperament you have. If you are of the extreme static type, you will not care for it: the necessary restlessness and instability, the eternal movement and flow, of Hegel's universe will appall you; there is nothing to lean upon in such a universe except the dynamic, fermenting, changing universe itself. Nor will the philosophy appeal to you if you are of the extreme dynamic type: there is too much order and regularity, there is too much rhythm and symmetry in Hegel's world. Its flow is not of the capricious sort; it follows an eternally fixed and permanent principle. Furthermore, you will reject this philosophy equally from the point of view of either ordinary optimism or ordinary pessimism, for it stands for neither. Hegel does not say, All is well with the universe, the world is the best of all possible worlds, nor does he assert that it is rotten to the core and that the devil may take it. Hegel's world, as I have tried to show, is a world of dramatic conflicts and tragic struggles, but these conflicts and struggles are necessary and inevitable. It is a rational world, though a bad one—and this constitutes the tragedy of life. It is just such a world that you yourself would create did you intend to create a rational world. Just reflect: it is indeed tragic that the state of childhood—so pure, so calm, so sweet and so happy—we cannot appreciate; its value and significance, its charm and sweetness, we do not grasp until we have passed beyond it; but do we desire a childhood that is self-reflective, self-conscious, self-observing, and self-analytical? It is tragic indeed to err and to blunder, to labor and to toil, to suffer and to pay for our experience, but would we care for an experience that could be had for the asking; would we find life very exciting in which there were no effort, no possibility of failure, but a pre-established harmony of anticipated happy issues and

glorious successes; in a word, would we choose to dwell in a fool's paradise?

Hegel's *Weltanschauung* is thus a "higher synthesis" of pessimism and optimism. It recognizes the tragedies of life as tragedies; herein consists its pessimism, but the realization of their inevitableness and necessity renders it optimistic. Hegel does not try to explain the devil by explaining him away. The devil is indeed always with us, but without him there could be no rational life. This universal paradox it is which Hegel sought to understand and to interpret. Nor is God exempt from it. Hegel's God is not the lofty, disinterested, dispassionate spectator of this world's show, but he is stage, playwright, actor, spectator, critic, manager, in one. He suffers with the sufferer, he fights with the fighter, and he triumphs with the conqueror. The view of the world as a universal and necessary tragedy, the view that the tragedy as a whole is God, the view that our very rationality demands a world that is essentially tragic, the view that there is but one logic which satisfies our reason and our emotions alike, is a view in terms of which the paradoxes of life and the problems of the universe can best be explained and interpreted. This does not mean that Hegel's system as system must be accepted. "His system as system," as Professor Royce says, "crumbled, but his vital comprehension of our life remains forever."

PHILOSOPHY AND LITERATURE.

GEORGE BOAS.

The first thing that strikes a non-technical reader of books is that they mean something. He is likely to look upon them as purveyors of ideas, and as a natural result he tries to understand these ideas; he tries to discover just what the books do mean.

Accordingly he picks up a book review or a critical essay. And what does he find? He finds in it the information that Shakespeare's sonnets contain fourteen lines, that stout Cortez did not stand upon a peak in Darien, but that stout Balboa did, that Wordsworth used to wander about the Lake country alone, that Southey had dreams of a Utopia on the shores of the Susquehanna, that *Paradise Lost* is an epic, that Chaucer wrote narrative poems. And when he learns all this he feels almost stuffed with knowledge and is quite sure that he knows what Shakespeare's sonnets are about, and what the intimations of immortality came from, and how Paradise was lost, and why the world is too much with us. And when someone asks him who Spinoza was, he says he was the great Dutch philosopher who ground lenses for a living; and when someone asks him what the principle of relativity is, he says it was discovered by Einstein. For, he argues, if I am to learn what Shelley said by finding out who Shelley was, who shouldn't I learn what Plato said by finding out who Plato was? In what respect is *Hamlet* as a work of literature different from *The Spirit of Modern Philosophy* as a work of literature? If they both have a meaning, then why not discover it in the same way?

Now of course all this is exaggeration. But it does illustrate a tendency and one which is all too usual, the tendency to make ideas the ground of personal anecdote, a tendency which unfortunately obscures their serious import. The non-technical reader is quite right in asking why all books should not be treated as literature and why their meaning should not be derived all in the same way. I have heard cynics announce that literature was well-expressed nonsense, and then rejoice in their freedom for esthetic contemplation. And to observe the usual comment which is made about literature one would indeed think that only complete absence of thought differentiated what was "literary" from what was not. Yet no one who cares deeply for books can forget that he has got quite as much from the ideas they expressed as from the manner of expression. Human beings are not so decadent that they can dawdle with lovely phrases for a lifetime. There are those moments when, perhaps a bit sheepishly, they turn away to minds which have something to say. They realize then why Dante is more important to the world than Cavalcante, and why Tolstoi will be read when Trollope is a footnote.

The student of literature will grant at this point that the literary essay may indeed be full of meaning, but he will insist that fiction most indubitably contains no ideas. Fiction that establishes a thesis, he will say, is no longer fiction. Poetry which teaches is not poetry. Plays which solve problems are no longer drama. But I am not here speaking of doctrinaire fiction, I am not referring to the allegory, nor to the dramatic tract. I am referring to ordinary novels and plays, novels and plays in which characters are drawn skillfully, a story is told, and the reader enjoys himself. I mean such fiction as *Vanity Fair* and *Macbeth* and *What Maisie Knew* and *The Pigeon*. And I mean that *Vanity Fair* has a meaning and that *Macbeth* has a meaning, and moreover that their meaning is intensified and more adequately expounded than it could ever hope to be in any treatise.

For fiction can treat of human beings as genuine human beings, can present them to us in intelligible forms with all the concreteness of life itself. Fiction can build up individuals, where an ethical treatise is concerned with "the individual." And fiction, while giving us life itself, can illumine the dark places in life and point out hidden splendors. The eye of the novelist can see beneath the mask of men as the eye of the chemist sees beneath the specific appearance of this or that substance to what he calls a more profound law. It is no greater revelation to have pointed out the law of gravitation in the movement of the earth around the sun than to have pointed out the tragedy of indecision in the career of a prince of Denmark.

It may be, it is true, that the knowledge which is perfectly individualized will be of little value to the human mind. For the human mind moves easily only in generalized knowledge. It may be, to be sure, that the knowledge derived from fiction is quite useless. It may in no sense of the word lead to social reform or commercial advantage. But if we are justified in the mere satisfaction of our intellectual needs, the knowledge in question will not be wholly worthless. It will furnish, to an unprecedented extent, an understanding of men as men, and not as "Man."

The meaning in men's lives is not so obscure a matter that it requires especial notice. We have all in a loose way found our friends "incarnations" of this quality, or "perfect embodiments" of that quality. We have our heroes and our villains in life, as well as in books, and there it does not seem out of place. But only too few of us are fitted to grasp the meaning of our fellows or of ourselves. We take them in sporadic glimpses; at no time are we presented with a coherent and unified picture, well-composed, of their total living. They are often the mere experiences of a minute. They are perhaps in this way contributors to our lives, making it more significant than it was before their presence; but they are not the objects

of our study; they have scarcely any meaning as we see them.

Isolate them, however, construct their whole lives from the fragments they afford, and you have before you what they symbolize. You have the symbol and its content in one presentation. Life with its motives—blinded or fulfilled—comes to you revealed, tragic or comic as the case may be. The revelation is a comment about itself; life reflects upon life; the soul looks into the soul and hymns its discoveries.

To expound properly such a theory of fiction would require a volume in itself. I must be content here merely with indicating the facts, hoping that they will initiate further speculation independently on the part of him who happens upon them. I may, however, say that the personal equation will be as important in the writing of fiction as in the taking of astronomical readings. Since the knowledge is so highly individualized, the liability to "error" is of course very great. Two novelists will invariably present you with two different stories arising from the same situation. But such errors are not un instructive. They demonstrate much more clearly than general uniformity the important complexity, the almost unpredictability, of human behavior.

The methods of interpreting life's problems through fiction will, nevertheless, be equal in number to the methods of interpreting them in other forms. And it is here that the philosopher enters to bring a greater order into an apparent chaos. There are, after all, but a few pre-eminent points of view from which to regard the universe, and it is the philosopher who knows what they are. And, by correlating the attitudes of novelists with these points of view, he has cleared the field for more complete understanding. Zola, for instance, then is placed where he belongs, with the deterministic students of human nature. He is no longer the melodramatic novelist of a melodramatic society. His idea of fiction is strained of its accidental

impurities. Its essential nature shines forth. It becomes an idea among other ideas of its kind. It can then be understood.

An idea so run to ground is an idea worth possessing. For having so run it to ground, you know the very pre-suppositions which impelled its formulator to propose it. He may not have known them, it is true. Poe, for instance, may never have heard of Heracleitus when he expressed the tragedy of change in *To One in Paradise*. But he is no less a "weeping philosopher." The profundity of most of our ideas is unknown to us. How seldom do we know the logical grounds of what we believe! But when we have discovered them a more intelligent and saner life is the inevitable result.

So when reading anything, if you know its logical origin, you know it more thoroughly than you did before. And the only supplement you need is the knowledge of its "logical conclusion." To have exposed the ancestry or posterity of an idea is to have understood the idea, and understanding is complete when this process is carried out. During the process one discovers extraordinary kinships. The reformer is thrown in with the conservative, the mystic with the positivist. One discovers how simple our thoughts are in their beginnings and how diverse they are in their implications.

Thus a student of philosophy would insist that "literature" be treated. Here we have considered only fiction. We could use the lyric for our purposes as successfully. Treating literature so would be treating it seriously. It would be naively assuming that words have meanings—an assumption often unwarranted—and that meanings are worth understanding. And it would be again naively assuming that to understand is self-justified. If understanding is not itself valuable, of course the whole theory crumbles. If the best life is the least speculative life, the life of decadence, the life of Bunthorne, then the theory is utter nonsense.

UNIVERSITY RECORD

VICTOR H. HENDERSON

The faculty has resolved that the students of the University must be compelled to acquire the habit of correct and effective use of English. All departments are to be expected to co-operate in the new plan of procedure proposed by Professor Benjamin P. Kurtz of the Department of English, adopted by the Academic Senate, and ordered put into effect in August, 1916.

If a student's papers are found unsatisfactory in English expression, he will be warned. If a subsequent paper is found unsatisfactory, the instructor will report the student as "delinquent in English." A new "Committee on Students' English," made up of representatives of various departments, will examine all papers reported faulty in expression. Every student whose English is deemed by this committee below the proper standard will be required to present himself to the Secretary of the committee for instruction in English composition. About once in two weeks the secretary will meet in a body all students who have been intrusted to his care, and give general instruction and criticism. The rest of his time will be devoted to weekly or fortnightly consultations with the students as individuals, for discussion of specially assigned compositions.

There will be no credit for this training. Students may be brought into the course at any time, and must continue until the secretary testifies that their English is satisfactory. In case of relapse, students must return for further instruction.

It is hoped the plan will at once raise the general level of expression among the students, since it will tend to prevent the carelessness frequently responsible for poor English. Moreover, it is believed that through this plan the students will come to respect good English. And it is the belief of the faculty that in the past the student has been affected by "a certain public

prejudice against correctness of expression," besides being "constantly subjected by his environment to the unedifying influence of myriad examples of poor English."

CANDIDACY FOR HONORS

Of recent decades it has been rather an academic fashion to speak disparagingly of prizes, marks, and scholastic honors as an appeal to unworthy motives. But if the faculties were not going to offer honors and rewards, the students saw to it that the lack was supplied, and athletic prominence and the prizes of leadership in "college activities" came to assume an undue relative importance.

Of late the tide has been turning. The Academic Senate has now approved a plan of "Candidacy for Honors" which will not only appeal to the spirit of generous emulation, but which will bring it to pass that students of special excellence may have superior training and special opportunities in their work in the University.

At the end of the Sophomore year announcements will be made of the names of all students who have achieved "Honorable Mention with the Junior Certificate." Students thus distinguished may then enroll as "Candidates for Honors" in whatever department each may choose. Place on this honor list may be retained only by good scholarship, but admission to these ranks may be won by distinguished work in any particular half-year of the work of the Upper Division. At Commencement the names of the "Candidates for Honors" whose record is of the greatest excellence will be announced as recipients of "Honors at Graduation."

But designation as "Candidate for Honors" will mean far more than merely the honor, for a number of departments are planning to offer certain courses planned expressly for students of marked excellence. Moreover, these "Candidates for Honors" will be given special freedom in the use of the libraries, laboratories, and museums of the University and other opportunities that the excellence of their past work has shown them worthy to profit by.

FRATERNITIES VIE IN SCHOLARSHIP

College fraternities nowadays want their members to be good students. For several years past it has been the University's custom, at the request of the fraternities and house-clubs, to announce each half-year the names of those fraternities and house-clubs the members of which excel in scholarship the average for the

male undergraduates as a whole. Now the fraternities and clubs have asked the University to make public announcement at the close of each half-year showing exactly how every one of the fifty-four men's fraternities and house-clubs compares in scholarship with every one of its rivals—not only relatively, but in actual numerical score.

The new system will enable any Freshman who has been invited to join any fraternity or club, or enable his family or friends, or enable alumni, to know exactly how each fraternity or house-club stands in scholarship as compared with every other.

The fraternities are working diligently to encourage good scholarship among their members by aid and counsel to their younger members and by good house rules.

So that general tendencies rather than mere accidental variations may be reflected, announcement will be made of the numerical standing of each fraternity not only for the preceding half-year, but also for the preceding four years.

FACULTIES STILL TO VOTE DEGREES

Degrees must continue to be conferred upon the recommendation of the respective faculties, and this power cannot be delegated by the respective faculties to the Academic Senate—such was the decision arrived at by the Regents on April 11, 1916, when the following report and decision of the Committee on Curriculum and Degrees were received and confirmed:

“We would report that the Regents referred to the Committee on Curriculum and Degrees the recommendation of the Academic Senate that the Academic Senate be authorized to recommend the conferring of degrees in course in the name of the University when the power to recommend is not otherwise reserved by law. Your committee requested legal advice upon this matter from the Attorney of the Regents. In his response to the question laid before him, Attorney Olney says:

“I have for acknowledgement your letter dated October 18, 1915, together with a copy of a memorial from the Academic Senate to the Regents, concerning the proposal that the conferring of degrees in course shall be hereafter recommended to the Regents by the Senate, instead of as heretofore by the respective faculties.

“By Section 8 of the Organic Act it is provided that so far as the Affiliated Colleges are concerned degrees shall be awarded to students recommended therefor by the respective faculties of said colleges.

“With respect to the University generally, it is provided by Section 9 of the Organic Act that each professor and instructor of the course, for the completion of which the degree is to be awarded, shall cast one vote upon each application for recommendation to the Board of Regents for the degree. In my opinion,

the word "course" is here substantially equivalent to the word "college" as used generally in the Organic Act.

"From the foregoing, it follows that the Organic Act contemplates that degrees in course shall be conferred upon recommendation of the respective faculties, not only of the Affiliated Colleges, but of the colleges of the University in general."

"It is, therefore, the sense of the Committee on Curriculum and Degrees that the action requested by the Academic Senate cannot be taken by the Regents."

PREVENTIVE MEDICINE AND HYGIENE

A new Department of Preventive Medicine and Hygiene has been established in the Medical School, headed by Dr. Wilbur A. Sawyer as Clinical Professor of Preventive Medicine and Hygiene. He remains also Secretary and Executive Officer of the California State Board of Health. It is hoped by this action to increase the present effective co-operation between the University and the California State Board of Health in the work of attacking the causes of disease in California. The University has done pioneer work in its organization of a Curriculum in Public Health by which training for careers in that field may be obtained by men whose method of approach is through medicine, sanitary engineering, bacteriology, or chemistry. Evidence of a growing public recognition of the need for better training for public health officers is afforded by the recent action of the Rockefeller Foundation in providing endowment of several millions for a new School of Preventive Medicine and Hygiene at Johns Hopkins University, where the engineer, the chemist, and the bacteriologist, as well as the physician, will receive higher training for public health activities.

The staff of the University of California's new Department of Preventive Medicine and Hygiene will include, in addition to Professor Sawyer, Dr. James G. Cumming, Director of the Bureau of Communicable Diseases, as Assistant Professor of Preventive Medicine and Hygiene, and, as lecturers in Preventive Medicine and Hygiene, Chester G. Gillespie, C. E., Director of the Bureau of Sanitary Engineering; Dr. J. C. Geiger, Assistant Director of the Bureau of Communicable Diseases; Dr. John N. Force, Graduate in Public Health, Assistant Professor of Epidemiology, and Dr. William C. Hassler, Health Officer of San Francisco.

NEW DEPARTMENT OF BIOCHEMISTRY

A new development of the University of California in medicine is the separating-off of a new Department of Biochemistry from the Department of Physiology, under the direction of Dr. T. Brailsford Robertson, as Professor of Biochemistry.

SCHOOL OF EDUCATION

The faculty of the School of Education, by vote of the Regents on April 11, 1916, was defined as consisting of the members of the Department of Education, of the professors or instructors in other departments who give professional courses approved as such by the President and the Department of Education, and of one member from each department or college or school representing a secondary school subject, but offering as yet no professional courses, this member to be appointed by the President in consultation with the department concerned and the School of Education.

The establishment of a new higher professional degree of "Graduate in Education," to follow after four years of successful professional experience and two full years of graduate study, was approved by the Regents on April 11, 1916.

LANGUAGE TESTS

All students must pass an examination in oral and written expression ("Subject A") before obtaining Junior standing. Of 733 men who took this examination in December, 1915, just 598, or 81 per cent, passed; of 593 women, 440, or 74 per cent.

A petition signed by 1380 students was presented to the faculty asking that the "Subject B" requirement be abolished—that is, the requirement that all students in the Colleges of Letters and Science, Commerce, and Agriculture, must pass an examination to prove reading knowledge of some one foreign language before they can receive the Junior Certificate. The Academic Senate, however, refused to abolish this requirement, holding that no student is really qualified to undertake advanced studies in the University unless he has equipped himself with the tools represented by knowledge of at least one foreign language.

At the "Subject B" examination on January 15, 1916, just 992 presented themselves for examination, 876 presented examination books, and 409, or 47 per cent, passed. Of the 465 men, 38 per cent passed; of the 404 women, 58 per cent.

KEEPING THE STUDENTS WELL

How frequently people need medical care and how effectively and cheaply preventive medicine may be achieved through sensible co-operation is shown by the past year's experience of the University of California with its Infirmary. During the University year just over, 4500 different students received treatment or medical advice an average of eight times, and 672 were sick

enough to be put to bed—for an average of five days—and the cost to each of the 6286 students was only six dollars for the whole year. In the ten years since the Infirmary was founded by Dr. George F. Reinhardt, deaths there have averaged only one in two years, so effective is preventive medicine in keeping small ailments from becoming serious.

The daily attendance at the dispensary for 1915-16 was 126.3 and the bed average 11.8. Of the students, 71.8 per cent received aid from the Infirmary. The dispensary diagnoses numbered 12,050 and the diagnoses of bed cases numbered 941. There were 121 students who were sick in bed more than once during the year. The largest number of patients in any one day was 24. Only 21 of the 653 house patients left the Infirmary not relieved.

That all the rest of the people of the United States ought to follow the example which the University of California has set in its Infirmary system, by which the 6286 students at Berkeley receive all the medical and hospital care they need to keep them well, in return for a small annual Infirmary fee, is the doctrine preached by Dr. Richard C. Cabot, the distinguished Boston physician, Chief of the Medical Staff of the Massachusetts General Hospital and a member of the Harvard Medical Faculty, in articles in the American Magazine for April and for May which have attracted wide attention.

He declares that only the very poor and the very rich have the best medical attention, because it is only the very poor and the very rich who get "group medicine," or treatment by a group of specialists, with all the modern resources of hospital and scientific laboratory, while most people have no preventive nor group medical care at all. He saw the results of the University's ten-year experiment with the Infirmary "and was astounded," he says, "at the greatness of the reform and at the ignorance of it in other parts of the country."

"After a considerable experience in medical practice here and abroad," testifies Dr. Cabot, "I think I am entitled to say that the work done in the Infirmary of the University of California is not surpassed in any place with which I am acquainted. It was thorough, accurate, up-to-date, kindly, humane work. I saw the students pouring into the clinic, many of them apparently in splendid health. Why, one might ask, were these healthy boys and girls going there? They were going because they needed advice about trifling ailments which, if treated in their trifling states, might very possibly be prevented from getting serious. A clinic such as that at the University of California encourages people to give the doctor that golden opportunity which he so often longs for and so often lacks, the chance to nip disease in

the bud, to strangle it before it can get full headway in the system. The Infirmary, giving first-class treatment at \$6 a year, is self-supporting. This, as it seems to me, represents a triumph of organized medicine.''

AGRICULTURAL WORK

This year 101 boys' agricultural clubs are conducting crop-growing contests for the prize of a month's journey of 9000 miles across the continent and back. The thirty clubs which first raise the \$250 necessary for their prize-winner's traveling expenses will be permitted to send one representative each on the transcontinental journey, but every club which completes the contest will be entitled to send its six best farmers to the annual convention of the Boys' High School Agricultural Clubs, from October 12 to 14, at the University Farm. Pigs and potatoes are the favorites for the contests this year, other clubs conducting contests in growing corn, beans, vegetables, sheep, sugar-beets, etc.

A "Short Course in Forestry" is to be held annually hereafter, for twelve weeks, in January, February, and March, to aid woodsmen to learn how to plan better systems of fire protection, how to build better trails or make better maps, and how to keep abreast of the latest developments in methods of logging and timber estimating. There will be work in forest management and instruction in elementary silviculture. The course will be particularly valuable for superintendents, foremen, rangers, and those who wish to qualify themselves for such occupations.

It costs as much to feed a poor cow as a good cow. The development of better dairy stock in California is being greatly aided by the important work which the University is doing in the official testing of dairy cows for production of milk and butter-fat. The University now has a staff of sixteen men engaged in this work, as compared with three or four three years ago. These supervisors visit the dairies, weigh and test the milk of the cows, and certify under oath to their production, the College of Agriculture and the breeding association concerned being jointly responsible for the accuracy of the records published. It is increasingly true that pure-bred cows are being sold on the basis of records of production made in these official tests. One such University test recently completed has shown that Tilly Alcartra of Woodland has produced during the past two years 60,278 pounds of milk and 1903.6 pounds of butter-fat, or more than any other cow ever recorded in the history of the world.

The increasing public interest in the great work of agricultural education which is being done by the University of California at

the University Farm is shown by the fact that the eighth annual University Farm Picnic, celebrated on April 22, was attended by 15,160, by actual count, up to five o'clock, or three times as many as the previous year. More than 2600 automobiles entered the University Farm during the day.

At the University Farm School in one particular month recently, 161 out of the 299 students supplemented their resources by work in some division of the farm, earning \$841.78, or an average of \$5.15 for each of the 161. Twenty-five earned \$10 or more from the farm during that month. With few exceptions the rate of payment was twenty cents an hour.

"The First Annual Davis Clean-up Day" was celebrated at Davis on March 18. The students built a new fence around their athletic field, aided in planting trees along the streets of Davis, built sidewalks, and otherwise aided in this community house-cleaning.

The farm tractor, which is nowadays ousting the horse for farm work, is to be made the subject of a special short course at the University Farm at Davis, from November 13 to 24. Other short courses will be in progress between October 2 and November 10 in agriculture, dairying, horticulture, and poultry husbandry.

DENTAL COURSE FOUR YEARS

A four-year course will be inaugurated by the College of Dentistry beginning with 1917-18, a course of this greater length having been approved as standard by the Dental Faculties Association of American Universities.

MEDICAL SCHOOL

A renewal for five years from June 6, 1916, of the affiliation between the Hospital for Children and Training School for Nurses in San Francisco and the University of California Medical School was approved by the Regents on April 11, 1916, a year's experience having shown the value of this relation to the patients, to the cause of medical education, and to the advancement of women in medicine and surgery.

"Toland Amphitheatre" has been chosen as the name of the amphitheatre in the new University Hospital, as recommended by the medical faculty, as a tribute to the memory of Dr. Hugo H. Toland, who gave to the University of California the Toland Medical College, in which he had long served as teacher—Toland being the foundation on which the present University of California Medical School arose.

SHAKESPEARE CELEBRATION

The University of California joined in the world-wide celebration of the three-hundredth anniversary of the death of Shakespeare by three events: on April 15, scenes from various Shakespeare plays were presented in the Greek Theatre by students of the high schools of the neighborhood, the Alameda High School giving a Corpus Christi celebration, including the second Shepherd's Play from the Towneley Cycle of Miracle Plays, as a specimen of pre-Shakespearean drama; the Fremont High School of Oakland giving two scenes from "A Midsummer Night's Dream"; the Berkeley High School giving the duel scene from "Twelfth Night"; the University High School giving a pageant based on the ending of "As You Like It"; the Oakland High School giving scenes from "Coriolanus," and the Oakland Technical High School giving the sheep-shearing festival scenes from "The Winter's Tale." Most of these schools made pageantry and dancing the essential motive of what they presented.

Literary exercises under the auspices of the English Department were held in Hearst Hall on the evening of Friday, April 21. Professor Charles Mills Gayley read an original poem, "Shakespeare—Heart of the Race"; Regent Guy C. Earl, '83, spoke on "Shakespeare, the Man"; Professor Walter Morris Hart on "Shakespeare, the Writer," and Professor William Dallam Armes on "Shakespeare's England."

The closing event of the Shakespearean Tercentenary Celebration was the presentation of "Julius Caesar" by the English Club in the Greek Theatre on Saturday evening, April 22.

THE PARTHENEIA

Save for the pleasant frivolities of the Senior Extravaganza, sometimes, as this year, adorned with lyrics of witty and poetic quality and original music of excellent worth, the Greek Theatre in the thirteen years of its existence has done little to encourage creation in either the drama or music. In the annual Partheneia, however, the University has a tradition of creative endeavor of honorable achievement in the past and of promise for the future.

This year's Partheneia, given April 7, and the fifth to be presented, was "Aranyani of the Jasmine Vine," an allegory written by Miss Maude Meagher, '17, who herself took the leading rôle in the 1915 Partheneia, with original music of distinction by Katherine Urner, a graduate student, rendered by an orchestra of thirty, conducted by Dorothy Pillsbury, '15. The costumes were from original designs by various women students. The

dances were devised and given by the women students. The rich opportunities for pageantry and spectacle were developed under the direction of Porter Garnett, of proved skill in such undertakings.

To test student sentiment as to whether the Partheneia, with its great demand for toil by hundreds of participants in its planning and execution, should be given only once every two years instead of annually, the women students voted on the issue. They decided by 532 to 221 to continue it as a yearly event.

ENGLISH CLUB PLAYS

The English Club, besides its two productions of plays in the Greek Theater each year, is holding also annual play-writing competitions. A competition has been announced, open to any student registered in the University, for a play of any length and any type, on any subject, the manuscript to be submitted during the first week of the fall semester and the play then to be presented by the English Club. Twice of late has the English Club presented original plays—"Blind Alleys" and "Bagdad," both written by Kenneth Perkins, '14.

THE DEATH OF ISHI

Ishi, the last American Indian of the Stone Age, for the past four years a highly contented dweller in the University Museum in San Francisco, died in the University Hospital on March 25, 1916. Born and reared in the remote fastnesses of Deer Creek, Tehama county, and throughout the first half century of his life absolutely isolated from any contact with the white man or the white man's civilization, he at last found himself the only surviving member of his tribe—a branch of the South Yana Indians. Driven out by hunger from his ancestral haunts he went down into the valley, clad only in skins, and was arrested for helping himself to food. Representatives of the Department of Anthropology of the University, who for some years had heard the rumor that there were absolutely aboriginal Indians still in hiding in the Deer Creek country, went to his rescue and brought him to San Francisco. In the years which have passed since then they have elicited from him a great fund of information as to the language, customs, myths, aboriginal music, and primitive arts of his people—information trebly precious because he was undoubtedly the only adult Indian in America whose life had been passed in complete isolation from the white man's civilization. His natural dignity and self-respect, his inborn courtesy and kindness, greatly endeared him to the University anthropologists, and they followed him to his grave with sincere mourning.

THE NEW HOSPITAL

The cornerstone of the new University Hospital, which is being built on Parnassus avenue in San Francisco through gifts of over \$600,000 from friends of the University, was laid on May 18. Regent William H. Crocker presided as chairman of the University Hospital Committee of the Regents, Regent Charles A. Ramm, '84, was Chaplain, and there were addresses by President Wheeler, by Dr. William Watt Kerr, Clinical Professor of Medicine, for the medical faculty, and by Dr. A. A. D'Ancona, '80, for the alumni of the medical school.

In honor of the cornerstone-laying the medical alumni held a series of clinics from May 16 to 18 and an alumni dinner, at the San Francisco Commercial Club, on the evening of May 18.

SCRIPPS INSTITUTION IMPROVEMENTS

Miss Ellen B. Scripps has arranged for the execution of contracts for additional work at the Scripps Institution for Biological Research, including a two-story reinforced concrete library building, \$17,928, and library stacks, \$2014. Through day labor she is erecting a club-house and several permanent living houses for the staff. She has recently constructed an aquarium, a garage, a service building, and three cottages at the Scripps Institution, at a cost of \$7000, besides completing a thousand-foot concrete pier and salt-water pumping system.

\$2,500,000 OF BUILDING WORK

During the summer a great amount of building work is in progress, on undertakings which will cost two and a half millions, including Benjamin Ide Wheeler Hall, the new classroom building; the completion of the Library; Hilgard Hall, the second unit of the Agricultural group; the first unit of the Chemistry group, and the second unit of the Central Heating and Power Plant (all these projects being undertaken from the proceeds of the sale of the University Building Bonds, voted by the people of California through their approval of the initiative measure proposed by the alumni); the completion of the granite balustrade and brick and granite steps and terraces about the Sather Campanile, with planting and improvement of the esplanade running north from the Campanile; the erection of the Domestic Science Building, to cost, including equipment, \$15,000, and to stand north of the Mechanics Building; the removal of the Philosophy Building to a new site east of the Drawing and Domestic Science Buildings; the completion of the new University Hospital in San Fran-

cisco, at a cost of over \$600,000, defrayed by private gift; much work at the Scripps Institution of Biological Research at La Jolla, including the erection of a thousand-foot concrete pier, a library, a club-house, and a number of cottages for employees; and the erection of the laboratory, offices, director's residence, and other structures for the Citrus Experiment Station at Riverside, at a cost of \$125,000.

SATHER BELLS FOR THE CAMPANILE

The twelve "Sather Bells," the chimes which through Mrs. Jane K. Sather's gift are to be hung in the open belfry of the Sather Campanile, have been completed by John Taylor & Sons of Loughborough, England, regarded as the foremost bell-founders of the world. After careful tests Mr. H. B. Walters, M.A., F.S.A., of the British Museum, recognized as the leading campanological expert of England, who made a special journey to Loughborough as the representative of the University to test the bells, has declared them "in every way satisfactory." The largest of the bells, "the tenor," came out of a weight of 3650 pounds.

"That the bells are in perfect tone and harmony there can be no doubt," reported Mr. Walters. "This is due to the new system of tuning which the makers have adopted with conspicuous success. It is well known that every bell when fairly struck gives out three distinct notes: a fundamental note, or 'tonic,' the octave above, or 'nominal,' and the octave below, or 'hum-note.' Bells cast on the old system very seldom had all these three notes in unison, the hum-note being usually sharper, the fundamental flatter, than the nominal. In tuning bells the two former were usually neglected, and the nominal only regarded. By the new system the fundamental note of each bell can be brought into true octave with its nominal with perfect exactness, and when each individual bell is thus rendered true in itself, the harmony of a whole ring or chime can be obtained with equal certainty. Similarly, the hum-note, where necessary, can be rectified by thinning the metal near the crown of the bell. The machinery by which the thickness of the metal in each part of the bell is regulated can be adjusted with scientific accuracy, and this has completely displaced the old rule-of-thumb method. It is also worth noting that bell-founders are now giving up the old short-waisted type of bell and are reverting to a more continental, that is, straighter and long-waisted, form. Anyone who is familiar with Italian bells, for instance, will appreciate the sonorous depth of tone which the long-waisted form yields. I have no hesitation

in saying that I am entirely satisfied with what I saw and heard of the bells, and I am sure that they will equally give you satisfaction."

HILGARD HALL

That Hilgard Hall should be the name of the second unit of the agricultural group, now being built from the University Building Bonds at an estimated cost of \$350,000, was voted by the Regents on April 11, in pursuance of recommendation by President Wheeler and the Council of Agriculture, the name being chosen in honor of Eugene Woldemar Hilgard, for thirty-one years, from 1874 to 1905, head of the Department of Agriculture, as Professor, Dean of the College of Agriculture, and Director of the Agricultural Experiment Station.

NEW LOCKER SYSTEM

Of recent years gymnasium work has been required only of Freshmen. Beginning with August, 1916, Sophomores as well as Freshmen must devote two hours a week to work in the Department of Physical Education. This will increase the men taking such prescribed work from approximately a thousand to approximately sixteen hundred. Since even this year all the two thousand lockers were assigned, it has been found necessary to change the locker system. At an expense of \$7000 "box lockers" are to be installed in the Harmon Gymnasium, so that the gymnasium apparel of a great number of students can be kept in comparatively small space under the care of the gymnasium attendants.

Those who use the gymnasium will then carry the small box locker and its contents to the larger dressing-room lockers which will be used for their ordinary clothes during the time they are exercising.

WHITAKER'S FOREST

In 1910 Horace Whitaker gave to the University 320 acres of land in the Sierras, near Badger, east of Visalia, on which grows a fine stand of the *Sequoia gigantea* (the "big tree") and other California forest trees. Through the kind cooperation of the United States Bureau of Forestry the Regents have now arranged that the forest ranger within whose district Whitaker's Forest lies shall act as custodian for Whitaker's Forest. The present custodian is Mr. Albert E. Redstone. The Regents on March 14, 1916, voted to have the following resolutions posted at Whitaker's Forest:

"Resolved, That the following rules be and they are hereby adopted for Whitaker's Forest:

"1. Whitaker's Forest shall be held in its present condition for forestry investigation and research connected with that branch

of instruction as taught in the University of California, and shall be preserved and continued as a park and pleasure resort for the people of California.

"2. No whiskey or other intoxicating liquors shall ever be sold or dispensed on said premises.

"3. Whitaker's Forest shall be open to well-behaved persons for use as a public park for campers, without charge for said use for camping purposes, subject to such regulations as may be made by the Regents of the University of California governing persons while camped on said Whitaker's Forest.

"4. Whitaker's Forest shall not be used for a stock range, but campers may keep thereon the necessary stock for their camping purposes.

"5. No Sequoia or Redwood trees growing or that may grow on said premises shall be felled or cut down.

"6. The lands hereinabove described shall be known as and called 'Whitaker's Forest.'"

CHANGE IN TREASURERSHIP

I. W. Hellman, Jr., Treasurer of the Regents since January 13, 1903, in a letter of March 27, 1916, addressed to Governor Johnson as President of the Board of Regents, tendered his resignation as Treasurer of the Regents. At a meeting of the Board on April 11, 1916, Mr. Hellman's resignation was accepted, and as his successor was appointed Mr. Mortimer Fleishhacker of San Francisco, President of the Anglo-California Trust Company.

Regent Livingston Jenks and Regent John M. Perry have become Regents *ex officio* for another year through reelection as President of the Mechanics Institute and President of the State Agricultural Society, respectively.

CHINESE STUDENTS PROSPER

That the careers being achieved in China by the young Chinese men who have studied at the University of California and then returned to their native land average far higher in brilliancy and rapidity of success than the careers of American graduates of the University who have stayed in America is the striking fact made evident by a booklet on "California Alumni in China," recently issued in Peking by the China Alumni Association of the University of California, recently organized by Hon. Julian H. Arnold, '02, Commercial Attaché of the United States for China and Japan. Among the positions which these California alumni and former students have filled in recent years in China are those of Financial Adviser to the Chinese Government, of Minister of Justice, of Minister of Finance, of Minister of Education, of Minister of Agriculture, of Member of Parliament,

of chief engineer or general manager of great railroad, manufacturing and trading companies, and of president of or professors in universities.

HONORS FOR A CLASSICAL GRADUATE

A student trained in the classics at Berkeley has been officially declared the best scholar in the Princeton Graduate School. Each year the Princeton faculty awards the Porter Ogden Jacobus Fellowship, of \$1000 per annum, to that student of the Princeton Graduate School "who, in the judgment of the Princeton University Faculty, shall have evinced the highest scholarly excellence in his graduate work during the year." For 1916-17 this Fellowship has been awarded to Shirley Howard Weber, a graduate of 1907 of the University of California, and M.A., '14, the first student of the classics who has ever won the Jacobus Fellowship.

CHARTER DAY

George Edgar Vincent, President of the University of Minnesota, delivered the annual Charter Day address in the Greek Theatre on the morning of March 23. That afternoon the cornerstone was laid of Benjamin Ide Wheeler Hall, the new \$700,000 white granite classroom building which was the first structure to be begun from the \$1,800,000 of University Building Bonds voted by the people of California. Regent John A. Britton presided, as Chairman of the Committee on Grounds and Buildings. President Oscar Sutro, in behalf of the Alumni, and Professor Armin O. Leuschner, in behalf of the faculty, voiced the appreciation of all the members of the University for the great constructive work which President Wheeler has wrought in his seventeen years of service as President of the University. In responding, President Wheeler told something of his faith and hopes for the University.

President Vincent, after giving the Charter Day address, also delivered a series of lectures, on April 12, 14, 17, 19, and 21, in Berkeley, under the auspices of the Pacific Theological Seminary, on the E. T. Earl Foundation, on "Self and Society."

FACULTY RESEARCH LECTURE

On Charter Day evening, also, Dr. Frederick Parker Gay, Professor of Pathology, delivered the Fourth Annual Faculty Research Lecture, speaking on "The Contribution of Medical Science to Medical Art, as Shown in the Study of Typhoid Fever" and telling of the results which he and his colleagues here have achieved

of late in the fight against typhoid—the discovery, in association with Dr. J. N. Force, of a skin-reaction test by which immunity to typhoid may be determined; the improvement, in collaboration with Dr. Edith J. Claypole, of the methods of immunization against typhoid by vaccination with an immune serum; and the development of a new method of treatment of typhoid by an immune serum, the result of which is that in forty per cent of cases the disease is brought to an end within two weeks after treatment is begun, while under former methods of treatment the disease practically always dragged on much longer, and far more frequently resulted fatally. The three prior annual Faculty Research Lecturers were Director W. W. Campbell, Professor J. C. Merriam, and Professor A. O. Leuschner.

THE SENIORS SPEAK

Each year President Wheeler invites to speak at the closing University Meeting those members of the Senior Class whom he deems of special credit to the University as representative leaders in undergraduate life. The Senior speakers at the University Meeting of April 28 were Alice Vira Georgeason of Eureka, President of the Associated Women Students; Charles Edward Street, Jr., of San Francisco, President of the Associated Students and a college baseball player; Leslie Hollis Brigham of Casa Verdugo, yell-leader; Lloyd Nelson Hamilton of Oakland, editor of the Blue and Gold, and General Chairman for the Student Labor Day celebrated on February 29; Hazel Halma Havermale of El Centro and Los Angeles, editor of the Occident, the student literary monthly; Matthew Emery Hazeltine of San Jose, President of the Senior Class, and football player; Robert Mack Light of Berkeley, member of Phi Beta Kappa, successful in passing the Rhodes Scholarships examination, and student actor; Josephine Miller of Berkeley, Chairman of the Women's Division of the Students' Welfare Committee; Osgood Murdock of San Francisco, editor of the "Daily Californian"; Theodore Lunt Preble of Berkeley, track captain, and member of the Committee on Student Affairs; William Sears Rainey of San Francisco, President of the English Club and student actor; Jean Carter Witter of Oakland, Vice-President of the Associated Students and General Chairman for Senior Week; and Ennis Casselberry Woodruff of Redlands, not only an athlete, but also a member of Tau Beta Pi, the engineering honor society, and also of Phi Beta Kappa, the scholarship honor society, which seldom honors an engineering student by election to membership.

Another speaker was Floyd Wayne Stewart, just elected President of the Associated Students for 1916-17. Three other students would have been invited to speak as amply deserving the honor, had they not already spoken at a University Meeting during the present term, namely, Paul L. Fussell of Pasadena, the debater, who represented the University with the Ford Peace Expedition; Thomas Edwards Gay of Sacramento, secretary of the Undergraduate Student Affairs Committee, and Miss Jean Queenie Watson of Oakland, Chairman of the Women's Division of the Student Affairs Committee. Philip Conley of Madera, editor of the "Californian," was not included in the list thus honored solely because he had already been honored with an invitation to speak at the Commencement Exercises.

A THOUSAND DEGREES

Altogether 1080 degrees were conferred at Commencement, or double the number conferred at Commencement five years ago. The Bachelor's degree was conferred on 785 persons, as compared with 382 five years ago; the Master's degree on 149, as compared with 73 five years ago, and the degree of Ph.D. on 22, as compared with 6 five years ago; the degree of J.D. on 22, of Graduate in Pharmacy on 33, of Bachelor of Pharmacy on 2, of Doctor of Dental Surgery on 29, on LL.B. on 8 graduates of the Hastings College of the Law, and of Doctor of Medicine on 29. The bachelor's degrees were distributed among the various colleges as follows: Agriculture, 87; Chemistry, 6; Civil Engineering, 33; Commerce, 39; Mechanics, 36; Mining, 12; Letters and Science, 572.

The honorary degree of LL.D. was conferred at Commencement upon James Ford Rhodes of Boston, the historian, and John Maxson Stillman, '74, a member of the faculty of the University of California from 1874 to 1881, and since 1891 a member of the Stanford faculty, where he is now Professor of Chemistry and Vice-President.

The University Medal, awarded yearly to the "most distinguished scholar of the graduating class," was given to Miss Kathleen Harnett, '16, of Long Beach, a Senior in the College of Letters and Science.

COMMENCEMENT WEEK

Commencement was held in the Greek Theatre on Wednesday morning, May 17, the speakers being Lena Meta Schafer of Modesto, Philip Conley of Madera, and Paul Longstreth Fussell of Pasadena, representing the recipients of Bachelor's degrees, and Lieutenant Hugh Samuel Johnson, U. S. Military Academy, '03,

this year graduating as Juris Doctor, as representative of the recipients of higher degrees.

At the Commencement Luncheon in Strawberry Cañon, Regent Charles S. Wheeler, '84, presided, and the other speakers were President Wheeler, Governor Hiram W. Johnson, Professor John Maxson Stillman, '74, of Stanford University, and Matthew Emery Hazeltine, President of the graduating class. The Commencement exercises were attended by about 7000 people and the Commencement Luncheon by 565.

Commencement Week began with the customary banquets for the men and women of the Senior Class on Friday evening, May 12, and with the Senior Extravaganza in the Greek Theatre on Saturday evening, May 13. The play, "Absent on Leave," was written by Hazel Havermale, '16, of El Centro and Los Angeles, and Roger Goss, '16, of Marshfield, Oregon. It set a new record by its dramatic worth and its excellent utilization of the opportunities of the Greek Theatre for movement and spectacle. For the charming and witty lyrics of the play, original music was written by Lawrence Seymour, '17, who composed no less than fourteen numbers, and by E. B. Spofford, '18; H. P. Darling, '16; J. S. Taylor, '16; R. G. Dudley, '16; K. C. Kaufman, '16, and Roger Goss, '16.

Right Rev. William Hall Moreland, D.D., Bishop of Sacramento, preached the Baccalaureate Sermon, "Cities of Refuge," in the Greek Theatre on Sunday afternoon, May 14, his theme being that men may seek refuge from enemies without, and their own worst enemies within, in work, play, service, the family, and God.

The Class Day Pilgrimage was held on Monday morning, May 15, and President and Mrs. Wheeler gave a reception that afternoon at the President's House for the graduating class, the Senior Ball taking place that evening at the Hotel Oakland.

GIFTS TO THE UNIVERSITY

Frank Adams, Professor of Irrigation Investigations, has given to the Library of the Department of Agriculture 1150 unbound publications and 53 bound volumes.

The Afterthought Mining Company has given to the Department of Geology a large specimen of zinc ore.

Miss Annie M. Alexander during the six months ending December 31, 1915, gave \$5580 for the support of the California Museum of Vertebrate Zoology. The collection on June 1, 1916, contained 23,861 mammals, 26,584 birds, 5609 reptiles, and 1632 sets of eggs. The work of the Museum is resulting continually in the issuance of valuable scientific publications.

Mr. Wallace M. Alexander has subscribed \$2000 toward the fund for the completing and equipping of the new University Hospital in San Francisco.

An alumnus has subscribed \$5000 toward the fund for the completing and equipping of the new University Hospital in San Francisco.

The American Book Company, through the courtesy of its San Francisco agency, has given to the Department of Zoology a number of biological books.

The Anaconda Copper Company has given to the Departments of Mining and Geology a large number of specimens of silver, copper, and gold ores and other minerals, exhibit material illustrating refinery processes and products, and a number of framed photographs of copper-treatment plants.

The Australian Commission for the Panama-Pacific International Exposition has given to the Departments of Mining and Geology a model of the Broken Hill Lode, several volumes of geological maps, and a valuable collection of gold and silver ores, building stones, and various mineral specimens.

The Bolivian Commission for the Panama-Pacific International Exposition has given to the Departments of Mining and Geology a valuable collection of mineral specimens from Bolivia.

Mr. Albert Bonnheim has offered to provide four Bonnheim Essay Prizes of \$10 each every year for the students of the University Farm School at Davis.

F. W. Bradley, '86, has given to the Department of Mining an additional gift of machinery and apparatus costing more than \$2100, including an air compressor and drill sharpener, a photostat and bookholder, sets of vertical and horizontal dies, and a number of valuable accessories for the photostat.

The Bunker Hill and Sullivan Mining Company has given to the Department of Mining two mine cars.

James M. Burke, '08, and the firm of Lamberson, Burke & Lamberson, of Visalia, very generously contributed their legal services as attorneys for the University in the suit brought by the heirs of Horace Whitaker seeking to obtain possession of Whitaker's Forest. The case was decided in favor of the Regents.

The California State Commission for the Panama-Pacific International Exposition has given to the Department of Mining and Geology fifty-six sacks of copper ores, a box of diamond drill ores, thirty pieces of dressed building stones from Siskiyou county, and a number of specimens of different California ores.

John C. Cebrian has made an additional gift of 242 volumes of Spanish books. The collection in this field which he has given to the University has now reached a total of 2535 volumes.

The Chicago Pneumatic Tool Company has given to the Department of Mining a sectionalized rock drill with mounting.

The Chinese Commission for the Panama-Pacific International Exposition has given three cases of metallurgical specimens, four framed embroidered pictures, and a model of a Confucian temple.

The Concordia Safety Lamp Company has given to the Department of Mining a Concordia electric lamp.

Regent William H. Crocker, who had already given \$50,000 toward the fund of \$150,000 given in memory of George Crocker by members of the Crocker family toward the cost of the new University Hospital in San Francisco, has now made an additional gift of \$2616.50 toward the fund for the completion and equipment of the new University Hospital, a purpose for which the Regents are endeavoring to obtain gifts to the amount of \$100,000.

The children of the late Regent Frederick W. Dohrmann have given \$500, in fulfillment of the wishes of their father, as a contribution toward the fund for the completion and equipment of the new University Hospital.

The French Commission for the Panama-Pacific International Exposition has given to the School of Architecture a collection of 144 photographs of French architecture, mostly of Gothic and Romanesque cathedrals and of various public buildings.

A friend of the University has given \$50 to be used as a loan to some needy student or students.

A friend of the University has subscribed \$2000 toward the fund for the completing and equipping of the new University Hospital in San Francisco.

The General Electric Company, through the courtesy of Dr. Thomas Addison and also of Mr. F. D. Fagan of the Edison Lamp Works, has given to the Department of Electrical Engineering a display cabinet showing tungsten ore in a semi-refined state and the stages through which tungsten passes in its preparation for use in modern incandescent lamps.

D. J. Guggenlime of San Francisco has given \$100 for the placement and extension of the Dr. Elias Grünebaum Memorial Collection of Hebrew books.

Regent Phoebe A. Hearst has given to the Museum of Anthropology twenty excellent examples of the pottery and bead work of the Pueblo and Plains Indians.

Mrs. Hearst has given \$2150 for the installation of a new smelting furnace in the Hearst Memorial Mining Building.

Mrs. Hearst has given to the Department of Mining thirteen samples of ores from Morococha, in Peru.

The daughters of Professor Eugene Woldemar Hilgard have given to the University some 7500 unbound publications and a

number of bound books gathered by Professor Hilgard during his lifetime.

The Hockensmith Wheel and Mine Car Company has given to the Department of Mining a coal car.

The Idaho State Commission for the Panama-Pacific International Exposition has given to the Department of Geology a case of lead-silver ores from Idaho, and other mineral specimens.

Mr. D. C. Jackling has given \$1000 toward the fund for the completing and equipping of the new University Hospital in San Francisco.

The Japanese Commission for the Panama-Pacific International Exposition has given to the Departments of Mining and Geology two models of Japanese volcanoes and a large number of specimens of Japanese minerals.

The Japanese Commission for the Panama-Pacific International Exposition, besides its geological gifts, has made many other gifts to the University, including a model of Matsushima Park, rice plant specimens, a number of books, valuable medical and hygienic exhibits, silk-worm exhibits, models and charts showing economic and educational statistics, and exhibits in the field of the fine arts.

The Mascot Copper Company has given to the Department of Geology a large specimen of chalcopyrite ore.

Mr. Charles W. Merrill, '91, has subscribed \$1000 toward the fund for the completing and equipping of the new University Hospital in San Francisco.

Mr. Ogden Mills has given \$5000 toward the expenses of the D. O. Mills Expedition to the Southern Hemisphere, which through the generosity of his father and of himself has added much to the world's knowledge of the stars and the structure of the universe.

The Missouri Commission for the Panama-Pacific International Exposition has given to the Department of Mining and Geology eighteen cases of ores, minerals, and mineral products, sixteen sacks of iron ores, and other mineral exhibits.

Mrs. James Moffitt has subscribed \$5000 toward the fund for the completing and equipping of the new University Hospital in San Francisco.

Regent James K. Moffitt has given \$1100 to maintain an instructorship in Urology in the University of California Medical School for 1915-16.

Mr. Alexander Morrison has subscribed \$1000 toward the fund for the completing and equipping of the new University Hospital in San Francisco.

The New York Commission for the Panama-Pacific International Exposition has given to the Department of Geology a large

pink calcite crystal and a case of specimens of magnetite, calcite, garnet, etc.

The Noble Electric Steel Company has given to the Department of Mining a collection of iron ores and products.

The Norwegian Commission for the Panama-Pacific International Exposition has given to the Department of Geology an exhibit of silicon carbide and of other electric furnace products, charcoal, and miscellaneous metal products and copper ores.

Mr. N. Ohlandt has subscribed \$1500 toward the fund for the completing and equipping of the new University Hospital in San Francisco.

The Pacific Gas and Electric Company, through the courtesy of Regent John A. Britton, has given the University the aid of two of its steam engineers in the planning of the installation of the proposed new unit for the Central Heating and Power Plant.

The Pelton Water Wheel Company has given to the Department of Mechanics and Electrical Engineering a portrait of Lester A. Pelton, inventor of the Pelton water wheel.

Professor Frank H. Probert has given to the Department of Geology \$60 to aid some deserving student.

The San Joaquin Valley Counties' Association has given to the Department of Mining an oil derrick and rig with small tools, piping, pump, etc.

The Swedish Commission for the Panama-Pacific International Exposition has given to the Department of Mining and Geology a large number of specimens of ores, iron and steel products, and photographs showing hydro-electric developments in Sweden, and has given also to the Department of Agriculture exhibits of grains, seeds, agricultural pictures, and a case of wood waste suitable for distillation.

The Tourmaline King Mine, through the courtesy of Mr. F. B. Schuyler, has given to the Department of Geology a number of specimens of lepidolite, tourmaline, etc.

The Trade Commission to the American Government, of New South Wales, Australia, through the courtesy of Commissioner Niel Nielson, has given to the Department of Zoology a kangaroo and an emu.

The Transvaal Chamber of Mines has given to the Departments of Mining and Geology a case containing gold ores from the Transvaal.

The Union Oil Company has given to the Department of Mining a pyramid of asphalt weighing a ton.

The United States Bureau of Mines has given to the Department of Mining 210 pieces of mining timber, 206 sacks of lead-silver, gold, and iron ores, and various fuse material.

The United States Geological Survey has given to the mineralogical museum ten cases containing exhibits of minerals and ores, an exhibit representing the per capita production of various mineral commodities in the United States, exhibits illustrating the coal, coke, and cement industries, and a number of specimens of marble.

The University of California Club of Hawaii has offered to give \$500 per annum for the maintenance of a loan scholarship.

The Utah Coal Operators' Association has given to the Department of Mining an obelisk of Utah coal.

SOME FACULTY MATTERS

Dean David P. Barrows has spent the half-year in Belgium, where he has had charge of the work in Brussels of the American Commission for the Relief of Belgium. A corporalship at the military training camp at Plattsburg and membership in the Summer Session faculty at Columbia followed as a summer occupation.

A new four-year course in chemical engineering has been established in the College of Chemistry.

Of the five representatives of the five great engineering societies chosen as directors for the California branch of the national organization for industrial preparedness three are alumni—Charles W. Merrill, '91, Chairman of the Board; Edmond O'Neill, '79, Professor of Inorganic Chemistry, and A. H. Babeock, '88. This board will direct the industrial survey which is to be made in California as preparation for mobilizing California's industries for national defense in case of possible need.

A hundred ancient villages, whose inhabitants used communal houses and made barnacles an important part of their bill of fare, have been found on Santa Cruz Island, off the coast of Southern California, by an expedition from the Department of Anthropology of which Professor T. T. Waterman and Leonard Outhwaite were members. The sites of some of these ancient villages were marked by accumulations of shell over fifteen feet in thickness.

The reappointment of Professor Herbert E. Bolton as member of the California Historical Survey Commission for a term of two years ending July 1, 1918, was recommended to Governor Johnson by vote of the Regents on May 9, 1916, and later by him confirmed.

Half a century ago Professor Hilgard left the faculty of the University of Mississippi. On February 29, 1916, the faculty of that University adopted the following memorial resolutions:

"Dr. Eugene W. Hilgard, in the early days professor in the University of Mississippi, has recently died at the University of

California. As State Geologist of Mississippi he did pioneer work and left in his 'Geology and Agriculture of Mississippi,' published in 1860, a valuable contribution to science, which has formed the foundation of all later geological work in this state. The University of Mississippi wishes to record in its minutes this tribute to the memory of Dr. Hilgard and this recognition of his valuable scientific service.'

That Professor Hilgard declined appointment as United States Commissioner of Agriculture and later refused appointment as Secretary of Agriculture, is a bit of secret history that is revealed in the March issue of the Experiment Station Record, published by the United States Department of Agriculture.

The Scandinavian Club of the University and a number of other citizens of Scandinavian origin have petitioned the Regents to establish a Scandinavian Department.

The Watson Medal was conferred upon Professor Armin Otto Leuschner, Dean of the Graduate School of the University of California and Director of the Students' Observatory, at the last Annual Convention of the National Academy of Sciences, in recognition of his researches as to the laws which govern the movements of heavenly bodies.

Lincoln Hutchinson, for the past two years in South America as Commercial Attaché of the United States for Brazil—he is the first to fill that rôle—will return to the University as Professor of Commerce (on the Flood Foundation) in August, 1916.

Mrs. George Frederick Reinhardt (Aurelia Henry, '98) has been chosen President of Mills College, the only women's college on the Pacific Coast. Mrs. Reinhardt took her Ph.D in English at Yale under Albert Cook in 1905, is a former member of the faculty of the Idaho State Normal School and of the University of Idaho, has published a critical edition of Ben Jonson's "Epicoene, the Silent Woman," and a translation of and commentary on the "De Monarchia" of Dante, and has served two terms as chairman for literature of the California Federation of Women's Clubs. Her brilliant University Extension lecturing, in the field of modern literature, has met with the greatest appreciation. Immediately after her appointment she went East to speak at the National Convention of Women's Clubs and to visit some of the leading women's colleges.

In recognition of the admirable work which he has done in making the University of California an active center for scholarly investigations in the field of Spanish-American history and institutions, Spain has conferred upon Henry Morse Stephens,

Sather Professor of History in the University of California, the honor of designation as a Commander of the Royal Order of Isabella the Catholic.

SOME UNDERGRADUATE MATTERS

Believing that so important a decision as the joining of a fraternity ought to be made with eyes open and not under the pressure of undue influence, the women's fraternities, through their Pan-Hellenic Association, put into effect last year a revised set of "Rushing Rules." They have decided to continue them in force for next year, so August will see another test in the heat of the real "rushing season."

Not one word of invitation to membership may be spoken to any woman student before she enters the University, nor during the opening week of the term. All invitations to membership must be in writing, in a form approved by the Pan-Hellenic Association. These invitations are to be mailed only just in time to reach the Freshman the Monday following the Monday when returning students register. For forty-eight hours thereafter there must be no communication whatsoever between any member of a fraternity and girls invited to membership.

This means that if a woman student is desired as a member by more than one fraternity she will have opportunity to know just what chapters are open to her, and two days for deliberation and investigation, unaffected by personal solicitation or "third degree" methods.

"Each fraternity shall be allowed three dates with the rushee," the "Rushing Rules" provide, including one informal dance, but excluding Sundays. All rushing is to be "informal"—that is, tug rides, "rushing with men," theatre parties, and house-parties are forbidden. A "house-party" is defined as an entertainment lasting longer than a day and a night, where more than two members of the same fraternity are present.

No rushing rules apply to sisters of members before they enter college.

The Pan-Hellenic Association, composed of two delegates from each chapter, meets bi-monthly. It has adopted various excellent rules, including the regulation that no member of a women's fraternity shall attend any dance given during the mid-week under the auspices of a campus organization, save only Senior Assemblies.

Some chapters have experimented with the rule that they would invite to membership early in the Freshman year, but not initiate until a novice had acquired sixteen units of passing or second grade, or, in the case of some chapters, sixteen hours of first and second sections. It has been suspected there is some causal

relation between this requirement and the fact that in eighty-eight instances, after the last mid-year examinations, members of the faculty requested the Recorder's Office to raise certain grades after reports had been turned in.

A party of eleven track men went East on May 14 to compete on May 26 and 27 at the Harvard Stadium in the annual I. C. A. A. A. A. There they tied with Stanford for third place with a score of 22 points, an excellent record in view of the fact that the two California universities were represented by very small delegations, while some Eastern competitors had more than tenfold as many men entered. Gildersleeve won a first and Richardson third in the hammer-throw, Liversedge a first in the shotput, Maker a fourth in the broad jump and a second in the high jump, and Captain Preble third place in the high hurdles. The team afterwards competed in the Western Conference Meet in Illinois, scoring 25 points and achieving third place, ostensibly—but the record was reduced to 12 points and fifth place by the fact that after Nichols had won first place in the high jump and Liversedge third place in the javelin throw and first in the shotput they found they were technically disqualified through having represented athletic clubs in athletic events at the Panama-Pacific International Exposition. Whereupon the California students themselves called the attention of the authorities to the situation, and the score was rectified. A pleasant feature of the episode was that the men who were technical winners by this incident in a very generous spirit sent their medals to California as a personal tribute to the two California athletes.

After long discussion of means of making the machinery of student self-government more broadly representative, the Associated Students on March 31 approved amendments to the constitution providing that the Executive Committee of the Associated Students shall consist of a member of the faculty appointed by the President of the University; an alumnus elected by the Alumni Association, instead of being appointed by the President of the University; the President and Vice-President of the Associated Students, elected by the student body as a whole; one Senior elected by the Senior class; one Senior and one Junior elected at large—all these elections being in April of each year—and two Juniors elected by the student body in January of each year, to serve until the next January. Thus the members of the Executive Committee chosen by student vote are increased in number from three to seven. The Graduate Manager ceases to have a vote, the Secretary of the Associated Students is chosen by the committee instead of by a general student vote, and the alumni elect their own representative on the Executive Committee.

The vote in favor of these constitutional amendments was 1095 to 75.

The election was preceded by a long and heated discussion of the proposal made by some of the women students that for two years two of the seven undergraduate elective offices should be reserved for women. This proposal was finally put to a general student vote on March 15. Half of the women holders of membership cards in the Associated Students voted, but only a quarter of the men. Of the women, 515 voted for the proposal and only 78 against. Of the men, only 174 voted for the proposal and 436 against. This meant that 689 voted for the proposal and 514 against, and as this lacked 113 of constituting two-thirds of the vote cast, the proposal failed to carry.

With great political astuteness the women students then nominated one woman candidate for Special Representative at large, Carol Eberts, although there were two places to be filled, and then in considerable numbers "plumped" for her. Miss Eberts was elected by 1489, Harold A. Hyde also being elected, with 1621 votes, and P. W. Furlong being defeated, with a vote of 1472. For Senior Member at Large, Anna Barrows received 751 votes from the men and 886 from the women, total 1637, while C. B. Cole received 931 from the men and only 50 from the women, total 981.

F. W. Stewart was elected President of the Associated Students for 1916-17.

Leila Berry, '17, has been elected President of the Associated Women Students of the University of California for 1916-17.

Chaffee E. Hall, '10, since 1913 Alumnus Representative on the Executive Committee of the Associated Students, by vote of the Alumni Council is the first alumnus to be elected to this position under the new plan.

John A. Stroud has been re-elected for 1916-18 Graduate Manager of the Associated Students. The Executive Committee was enlarged for the purposes of this action, as contemplated by a recent amendment to the constitution of the Associated Students, by the addition of three alumni, chosen by the Alumni Association—Charles W. Merrill, '91; Harold H. Ashley, '10; and Judge Everett J. Brown, '98.

The undergraduate Committee on Students' Affairs has this year consisted of President Charles E. Street, T. E. Gay, T. L. Preble, Philip Conley, and George E. Osborne, with Stephen Barrows, '17, as a Junior member, sitting with the committee, though without a vote.

To promote continuity of policy and action, a Junior was this year for the first time appointed as an Associate Member of the

Students' Affairs Committee, President Charles E. Street having chosen Stephen Barrows, '17, for this responsibility.

The Golden Bear has announced election to the Order of Franklin K. Lane, ex-'89, Secretary of the Interior, and Charles W. Merrill, '91, the metallurgist, from the alumni; from the Class of 1916 of Howard French Fletcher, Reno, Nevada; Edwin Bernard Fuld, San Francisco; Howard Alden Judy, Antioch; William Sears Rainey, San Francisco, and from the Class of 1917, Stephen Sears Barrows, Berkeley; Robert Blake, Berkeley; Raymond Karnaghan Bontz, Sacramento; John Roberts Bruce, San Francisco; Charles Josef Carey, Sacramento; Douglas Bray Cohen, Oakland; George Washington Cohen, Los Angeles; Albert Lawrence Dunn, Long Beach; Edwin Lowell Garthwaite, Oakland; James Benton Harvey, Sacramento; Henry Raymond Hogaboom, San Diego; Harold Anthony Hyde, Watsonville; LeRoy Farnham Krusi, Alameda; Edwin Marshall Maslin, Watsonville; Willis Robert Montgomery, Berkeley; Luther Allen Nichols, Pomona; Warren Dexter Norton, Berkeley; Louis Hubbard Penney, Colville, Washington; Emery Herman Rogers, Santa Monica; William Alexander Russell, San Jose; Harry Boyd Seymour, Sacramento; Leroy Bassett Sharp, Pacific Grove; Floyd Wayne Stewart, San Jose; John James Vandenburg, Los Angeles; Willis Guy Witter, Berkeley.

Phi Beta Kappa, the scholarship honor society, on March 22 initiated Ebba Braese, W. B. Brown, A. L. Caulkins, W. F. Cheney, Corinne Cronise, Pirie Davidson, Elizabeth Easton, Ada Fike, Helen Goodall, R. F. Goss, L. N. Hamilton, Freda Hazer, Grace Hobson, R. W. Hodgson, H. A. Judy, R. L. Lipman, Barbara McKenzie, Freda Meyer, Sarah Olsen, G. E. Osborne, Leonard Outhwaite, Alverda Reische, Katharine Rogers, Lena Schafer, W. B. Schoenfeld, Jennie Schwab, H. M. Stafford, J. S. Taylor, Owen Walker, E. C. Woodruff, Dorothy Wormser, E. P. Wright, G. L. Maxwell, Jr., Laurence Seymour, D. R. Merrill, Flossie Banks, and H. A. Hyde.

Sigma Xi, the scientific honor society, has elected to membership the following:

From the faculty: G. W. Corner, Assistant Professor of Anatomy.

Seniors: Agriculture, R. W. Hogdson; Anatomy, Charles E. Locke, Robert Carson Martin, Harry Pratt Smith; Botany, Hsen Hsu Hu; Chemistry, A. L. Caulkins, Victor Thaddeus; Palaeontology and Geology, Clarence L. Moody; Geology, Edmund J. Young; Mathematics, W. F. Cheney, J. S. Taylor; Mechanical Engineering, H. I. Crow, C. V. Foulds, C. W. Frick, R. S. Quick; Mining, Walter G. Farnlacher, Frank J. Hoenigmann, Richard S.

McIntyre; Civil Engineering, R. M. Barnes, W. Dreyer, H. N. Jenks, H. McV. Stafford; Zoology, William C. Jacobsen.

Graduate Students: William C. Boeck, Walter W. Bradley, Clifton W. Clark, E. N. D'Oyly, E. D. Eastman, Willard Gardner, G. L. Greves, W. G. Horch, Edwin Kent, Jr., Amram Khazanoff, John Albert Marshall, George H. Martin, Jr., Howard E. McMinn, H. S. Miller, Hobart C. Rhodes, C. C. Scalione, J. P. van Zandt, Harry B. Yocom.

Beta Kappa Alpha, the biological honor society, has initiated the following named from the Departments of Zoology, Botany, Physiology, Palaeontology, Entomology, Pathology, Hygiene and Anatomy:

Faculty: Dr. H. M. Evans, Dr. G. W. Corner, Dr. K. J. Scott, Dr. R. E. Smith, Mr. E. O. Essig, Dr. R. Ruggles Gates, Miss Dolores Bradley, Miss Grace F. Griffiths, Miss I. M. Stevens.

Graduate Students: Mrs. Christine Essenberg, G. G. Hahn, H. A. Lee, Irene McCulloch, Swarna Mitra, Lulu Newlon, C. J. Pierson, Homer Righetti, Jennie Robinson, Rosabelle Scott, Inez Smith, Frances Torrey, Lore Weber.

Seniors: Emerson Butterworth, R. W. Hodgson, Hsen Hsu Hu, W. C. Jasen, Myrtle Judkins, R. C. Martin, Freda Meyer, F. G. Maggs, Louise McRoberts, Lois Pendleton, H. P. Smith.

Juniors: Coleman Berwick, Elizabeth Ferguson, H. S. Hoyt, A. C. Leigh, Jr., Pearl Walther.

Eta Kappa Nu, the electrical engineering honor society, has initiated Professors C. L. Cory, F. E. Pernot, and B. M. Woods of the faculty of the College of Mechanics, and T. S. Cole, C. A. Hancock, R. T. Hazzard, J. H. Murray, R. M. Steed and W. L. Winter, Seniors, and F. C. Bell, G. A. Fleming, K. W. Houston, W. S. Peterson, Thompson Price, S. H. Rosenblatt, Juniors (1917).

Sigma Kappa Alpha, the history honor society for women, has initiated Barbara Burke, '17; Mary Louise Fundenberg, '17; Frances Lowell, '17, and Florence Macaulay, '17.

Theta Tau, the scholarship honor society for students of Mining and Geology, has initiated L. C. Uren, Instructor in Mining; C. H. Clark, W. E. D'Evelyn, '17; S. J. Ogilvie, '17; C. R. Knox, '17; K. H. Schilling, '17, and G. W. Coffey, '17.

Among the prizes announced at Commencement were the following:

The Bonnheim Dissertation Prizes, given by Mr. Albert Bonnheim: Upper Division, Carl Blick Beals, '16; Paul Longstreth Fussell, '16; Paul Sylvester Marrin, '17, and Calmur John Struble, '17; Lower Division, Portia Pearl Baker, '18; Idalene Garnett Bray, '18; William Ray Dennes, '19, and Luella Engel Haney, '19.

The Bonnheim Discussion Prizes: Upper Division, Paul Longstreth Fussell, '16; Lower Division, William Ray Dennes, '19.

The Bryce Historical Essay Prize, given by Regent Rudolph J. Taussig, Carl Blick Beals, '16; Honorable Mention, John Waino Granberg, '17.

The Newman Hall Essay Prize, given by the Alumni Council of the Newman Club, Margaret Perkins Hayne, '08.

The Irving Prize for Wit and Humor, given by Samuel C. Irving, '79, Edwin Marshall Maslin, '17.

The Emily Chamberlain Cook Prize in Poetry, endowed by Professor Albert S. Cook, Thomas Gordon Luke, '15.

The Menorah Essay Prize, Annie Paulena Letvinoff, '16; Honorable Mention, Calmur John Struble, '17.

The Richardson Latin Translation Prize, endowed by Professor George Morey Richardson, Jean Marjorie Deming, '16.

George Washington Cohen on April 14 won the Carnot Medal, at the twenty-second annual Carnot Debate with Stanford, the question for debate being: "Resolved, That the Establishment of a System of Compulsory Arbitration Will Promote the Welfare of the French People." Cohen chose the negative.

A Women's Cosmopolitan Club has been organized as an associate section of the University of California Cosmopolitan Club.

For 1916-17 the student publications have chosen editors and managers as follows: Californian, Robert Blake, '17, Editor; Harry Seymour, '17, Managing Editor; F. S. Moulton, Manager. Occident, J. R. Bruce, '17, Editor. Pelican, Edwin Marshall Maslin, '17, Editor; John Benton, '17, Manager. Blue and Gold, J. L. Reith, '18, Editor; Wilson Meyer, '18, Manager. Brass Tacks, G. L. Maxwell, '17, Editor; J. E. Johnson, '16, Manager.

G. L. Maxwell, '17, has been elected President of the University Y. M. C. A. for 1916-17.

The Sports and Pastimes Association of the women students has decided that hereafter not more than six "C's" shall be awarded in any one year. Recipients must manifest superior skill in two sports and must also prove themselves good in general work, scholarship, and "sportsmanship." While the "C's" will thus be few in number, gold emblems will be given to those who "make the team" in tennis, basketball, baseball, crew, swimming, hockey, and fencing. Recipients of the "C" will be chosen by a committee consisting of the officers of the Sports and Pastimes Association and the managers and coaches of the various teams.

The Sports and Pastimes Association has adopted training rules for members of women's athletic teams providing that for three weeks before a final competition contestants must be in bed

before ten o'clock, unless previously excused; must refrain from eating anything between meals except "fresh fruit or simple nourishment," must refrain from candy, coffee, tea, pastry, hot bread, and fried foods, must eat three regular meals a day, and must rest undisturbed for at least fifteen consecutive minutes every afternoon.

In the California-Stanford women's tennis interclass tournament, in which each class competed in two singles and one doubles contests, California won eleven and Stanford only one match.

In the California-Stanford women's athletic meet on April 22 California won two out of five of the tennis matches and two out of four of the basketball games, California winning the Junior and Freshman games by 45 to 14 and 27 to 6, and losing the Senior and Sophomore encounters 29 to 28 and 44 to 14.

The California interclass fencing matches were won by the Juniors and Sophomores. The third-year fencers took fourteen out of sixteen bouts from the Seniors and the Sophomores won a tie contest on points from the 1919 team.

The Stanford students have voted to continue to play Rugby, but athletic relations with the University of California have been resumed in all other sports, Freshman contests also being revived, but Freshmen being excluded from all 'varsity teams. In published statements President Wilbur of Stanford has declared that Stanford thinks Rugby superior to American football as a game, and that he objects to resumption of American football as tending toward evils in the way of excessive expenditures for paid coaches.

California won the Stanford-California baseball series, the score being 1 to 0, 3 to 4, and 3 to 2.

The California Freshman nine defeated the Stanford Freshmen on April 1 by 7 to 0.

Samuel Adair, prevented by a broken ankle from serving as this year's baseball captain, has been re-elected for next year.

Basketball finished successfully its first year as a major sport by defeating Stanford 32 to 28 and then 46 to 26. This was the third year of success against Stanford. During the season ten games were won and six lost, and the Oregon Agricultural College tied for the championship of the Pacific Coast Conference.

L. B. Sharpe was elected basketball captain for 1916-17.

Stanford won the 'Varsity crew race on April 22 by eight lengths, covering the course in 16 minutes and 37 seconds, as compared with 17 minutes 17 seconds for California.

The Second 'Varsity race was won by Stanford by eight lengths.

California won the Freshman race by seven lengths, in 14 minutes and 10 seconds, as compared with 14 minutes and 33 seconds for Stanford, and California won the second Freshman race by five minutes.

L. H. Penney, '17, has been elected crew captain for 1916-17.

The Seniors on March 11 won the inter-class crew regatta, rowing a mile and a half in 12:20.

Football Coach Andrew Smith, Pennsylvania, '06, is to be assisted next fall by Edward Mahan, Harvard, '16, for the past three years named as a member of the All-American team, and by Robert R. Vaughan, as an undergraduate a tackle at Princeton and for the past three years assistant to Smith in the coaching at Purdue. Vaughan came to California this spring to assist Smith in the six-weeks spring training season for football, which ended on April 7.

On March 11 Stanford defeated the California soccer team by 4 to 2. This, with a previous Stanford victory of 3 to 0, gave Stanford the year's championship in soccer.

H. E. Harding, '17, has been elected soccer captain for 1916-17.

The proposal that tennis should be reduced from a major to a minor sport and the members of tennis teams no longer be given the honor of a "Big C" was voted down at the student election on March 31, by a vote of 224 for its reduction to a minor sport and of 972 against.

California won four out of five of the tennis matches against Stanford on April 21 and 22, at Stanford. Stanford won, however, all the Freshman tennis events.

Stanford won the track meet on April 15 by 69 to 53. The California-Stanford records broken were as follows: low hurdles, John Norton, Stanford, 0:25 1-5 (this ties the coast record); 220-yard dash, Frederick Murray, Stanford, 0:21 3-5; high jump, Frederick Maker, California, 6 feet 4¾ inches.

The California Freshmen won the track meet with Stanford by 65 1-3 to 56 2-3.

California won the Pacific Amateur Athletic Association meet on April 21. The scores were: California 89, Stanford 61, Olympic Club 30, Caledonian Club 10, Visitacion Valley Athletic Club 5, unattached 3.

The University of Southern California 'Varsity defeated the California Freshman track team at Berkeley March 25 by 78 to 44.

The University of Southern California 'Varsity nine defeated the Freshman team on March 25 by 15 to 3.

The 'Varsity track team beat an "All Southern" team on March 29 by 80 to 42.

The College of Letters and Science won the intercollegiate track meet. The scores were as follows: Letters and Science 60, Agriculture 56½, Pre-legal students 46, Commerce 26½, Engineering 23. On this occasion Track Captain Preble tied the world's record of 9¾ in the 75-yard high hurdles. This performance, however, was not officially timed.

L. A. Nichols has been elected Track Captain for 1916-17.

APPOINTMENTS

(Unless otherwise specified, the following appointments are from July 1, 1916.)

Sather Professor of Classical Literature, from August to December, 1916, Paul Shorey, Professor of Greek in the University of Chicago.

Professor of Irrigation Investigations, Frank Adams.

Exchange Professor of Mathematics, Cassius Jackson Keyser of Columbia University, exchanging chairs with Professor M. W. Haskell.

Professor of Mining, Frank H. Probert.

Associate Professor of Pharmacology (in the Medical School), Hardolph Wasteneys.

Assistant Clinical Professor of Preventive Medicine and Hygiene and Director of the Bureau of Communicable Diseases (State Hygienic Laboratory), James G. Cumming.

Lecturers in Preventive Medicine and Hygiene, Chester G. Gillespie and William C. Hassler.

Lecturer on the Mills Foundation, Dr. Frederick James Eugene Woodbridge, Johnsonian Professor of Philosophy and Dean of the Faculties of Political Science, Philosophy, Pure Science, and Fine Art in Columbia University, from January 1 to June 30, 1917.

Treasurer of the Regents, Mortimer Fleishhacker, from April 18, 1916.

To be Physician for Men and Roentgenologist, Alvin Powell.

Assistant Dean of Women, Mary B. Davidson.

Classifier in the University Library, Ellen Hedrick.

Curator of Birds in the California Museum of Vertebrate Zoology, Harry S. Swarth, from February 16, 1916.

Teaching Fellow and Secretary of the Committee on Co-operation in the English Department, Adolph F. Anderson.

Fellow in the Lick Observatory, Hugh B. Wilcox.

Custodian of Whitaker's Forest, Albert E. Redstone, from April 12, 1916.

Office Assistant in the Wilmerding Trades School, Mrs. Carrie D. Howland, from March 1 to 31, 1916.

Head of the English Department of the University High School and Lecturer in the Teaching of English, Emma J. Breck.

Teacher of Science in the University High School, Edna W. Bailey.

Clerk in the University High School, Gladys A. Phelan.

Assistant Professors: H. L. Bruce, English Composition; W. F. Langelier, Sanitary Engineering; J. F. Bovard, Zoology.

Instructors: Willis T. Pope, Botany (at the University Farm School); E. D. Hayward, Civil Engineering; E. W. Rust, Entomology (at the Citrus Experiment Station at Riverside), from March 1, 1916; H. O. Eggert, Clinical Instructor in Operative Dentistry; H. L. Sams, Clinical Instructor in Extracting (in the Department of Dentistry); F. R. Macaulay, Economics; A. G. Brodeur, English Philology; Roswell G. Ham, English; George Lothaine Greves, Electrical Engineering; Fayette W. Birtsch, Surgery (in the Medical School); Alanson Weeks, Surgery (in the Medical School); John A. Marshall, Biochemistry; Edwin Sigfrid Sundstroem, Biochemistry; M. G. Edwards, Mineralogy; L. Barnier, French; Elizabeth McGuire, Spanish; Edna Roof, Physical Education for Women; Signe Hagelthorn, Physical Education; Annie Harriett Allen, Public Speaking.

Assistants: Francis Waite Albro, Nutrition; A. W. Christie, Agricultural Chemistry; Joseph Fernand Grass, Jr., Agricultural Extension, from April 1, 1916; P. T. Petersen, Veterinary Science, in charge of serum manufacture; Walter Carey Roberts, Soil Chemistry; W. L. Sweet, Pomology; O. A. Haberdier, Radiography (in the Department of Dentistry); Paul Black, Economics; Sidney J. Gamble, Economics; E. A. Kincaid, Economics; Clara Mortensen, Economics; G. L. Albright, History; W. C. Barnes, History; A. P. Watts, History; Gertrude E. Phipps, Senior Assistant, Library; H. J. Rowe, Senior Assistant, Library; Roy Charles Abbott, Orthopedic Surgery; Walter C. Alvarez, Research Medicine; Edna Locke Barney, Surgery; John Homer Woolsey, Surgery (Assistant Resident, University of California Hospital); Joseph Henry Catton, Medicine; Hans B. Christiansen, Laryngology, Otology, and Rhinology; Clain Fanning Gelston, Pediatrics (Assistant Resident); Mabel Farrington Gifford, Pediatrics (Speech Defect Clinic); Alice F. Maxwell, Obstetrics and Gynecology (Assistant Resident); John Floyd Pruett, Urology; Jerome B. Thomas, Laryngology, Otology, and Rhinology; Bertram Stone, Dermatology; William Byron Brown, Physics; George Bootes Burnham, Physics; Harold Gilbert Cloud, Physics; John W. Cook, Physics; Grandison Gardner, Physics, from February 12, 1916; Herbert O. Russell, Physics; George H. Martin, Physiology; J. R. Douglass, Political Science; Beatrice Cornish, Spanish.

Teaching Fellows: Leonard Outhwaite, Anthropology; Ferdinand John Neubauer, Astronomy; Leslie Gale Burgevin, English;

Guy Montgomery, English; Clarence Lemuel Moody, Geology and Mineralogy; J. D. Barter, Mathematics; F. R. Morris, Mathematics; W. F. Cheney, Jr., Mathematics; J. S. Taylor, Mathematics.

PROMOTIONS AND CHANGES IN TITLE

To be Professor of Accounting and Dean of the College of Commerce, H. R. Hatfield.

To be Clinical Professor of Preventive Medicine and Hygiene and Secretary of the California State Board of Health, Dr. W. A. Sawyer.

To be Professor of Commerce (on the Flood Foundation), Lincoln Hutchinson.

To be Professor of Plant Pathology in the Citrus Experiment Station and Graduate School of Tropical Agriculture, J. T. Barrett.

To be Professor of Engineering Mechanics and, from July 1 to December 31, 1916, Dean of the College of Mechanics, Joseph N. LeConte.

To be Vice-Dean of the Medical School, as well as Professor of Surgery, Dr. Wallace I. Terry.

To be Curator of the Bancroft Library and Associate Professor of History, F. J. Teggart.

To be Associate Professors: B. H. Crocheron, in Agricultural Extension (Professor Crocheron is in charge of the corps of Farm Advisers stationed by the University of California and the United States Department of Agriculture in a large number of different California counties, also of the Boys' Agricultural Clubs, of which the University is conducting more than a hundred in different parts of California); W. C. Bray, Chemistry; B. P. Kurtz, English; I. M. Linforth, Greek; G. P. Adams, Philosophy; F. L. Kleeberger, Director of the Men's Gymnasium and Associate Professor of Physical Education.

To be Assistant Clinical Professor of Medicine, George E. Ebright.

To be Assistant Clinical Professor of Ophthalmology, Walter S. Franklin.

To be Assistant Professors: R. E. Clausen, Genetics (Department of Agriculture); E. O. Essig, Entomology; William G. Parker, Agricultural Extension; C. W. Rubel, Agricultural Extension; W. F. Gericke, Soil Chemistry; Alfred Smith, Soil Technology; T. H. Goodspeed, Botany; C. E. Brooks, Insurance; Josephine M. Davis, Household Science; Jean V. Cooke, Pathology; Eugene S. Kilgore, Medicine.

To be Lecturer in Preventive Medicine and Hygiene and Assistant Director of the Bureau of Communicable Diseases, State Hygienic Laboratory, Dr. J. C. Geiger.

To be Lecturer in Preventive Medicine and Hygiene and Assistant Professor of Epidemiology, John N. Force.

To be Lecturer in Hygiene and Associate Infirmary Physician, A. M. Meada.

To be Lecturer in Voice Culture, George Bowden.

To be Edith Claypole Research Assistant in Pathology, Ruth L. Stone.

To be Assistant in Landscape Gardening and Floriculture, Katharine Jones.

To be Librarian in the Department of Jurisprudence, Rosamond Parma.

To be Secretary of the Summer Session and Instructor in English in the Department of University Extension, from February 15, 1916, Deborah Dyer.

To be Curator in the Department of Chemistry, H. N. Cooper.

To be Laboratory Assistant in Domestic Art, Gertrude Percival.

To be Martin Kellogg Fellow in the Lick Observatory, W. K. Green.

To be Fellow in the Lick Observatory, C. D. Shane.

To be Instructors: C. M. Conner, Agricultural Extension, and Farm Adviser in Stanislaus County; H. B. Frost, Instructor in the Citrus Experiment Station and Graduate School of Tropical Agriculture; H. J. Baade, Agricultural Extension; W. H. Heileman, Agricultural Extension; W. E. Lloyd, Poultry Husbandry, Davis; T. C. Mayhew, Agricultural Extension; H. A. Weinland, Agricultural Extension; C. S. McCowen, Clinical Instructor in Orthodontics; Fred R. Macaulay, Economics; G. A. Smithson, English (University Extension Division); Vivia Belle Appleton, Pediatrics; Jule B. Frankenheimer, Medicine; Edward F. Glaser, Ophthalmology; Louis P. Howe, Surgery; Howard Edwin Ruggles, Surgery; John Vaughan Leonard, Urology; Louis I. Breitstein, Obstetrics and Gynecology; William G. Moore, Obstetrics and Gynecology; Katherine J. Scott, Anatomy; J. Loewenberg, Logic; Marjorie John Armour, Physical Education.

To be Assistants: K. C. Leebrick, Chief Assistant in History; Esther Rosencrantz, Medicine; Dolores Bradley, Pathology and Bacteriology; Edward Topham, Obstetrics and Gynecology.

LEAVES OF ABSENCE

(Unless otherwise specified, the following leaves of absence are from July 1, 1916, to June 30, 1917.)

C. L. Cory, John W. Mackay, Jr., Professor of Electrical Engineering, Consulting Electric Lighting and Heating Engineer, and Dean of the College of Mechanics, July 1 to December 31, 1916.

George H. Boke, Professor of Law.

F. P. Gay, Professor of Pathology, July 1 to December 31, 1916.

Jessica B. Peixotto, Associate Professor of Social Economics, January 1 to June 30, 1917.

R. S. Holway, Associate Professor of Physical Geography, January 1 to June 30, 1917.

A. S. Eakle, Associate Professor of Mineralogy.

J. A. Long, Assistant Professor of Embryology.

R. C. Tolman, Assistant Professor of Chemistry, July 1 to December 31, 1916.

Carleton H. Parker, Assistant Professor of Industrial Economy.

C. E. Chapman, Assistant Professor of California History, July 1 to December 31, 1916.

Dr. Herbert W. Allen, Assistant Clinical Professor of Medicine, from March 11 to June 11, 1916.

Dr. J. V. Cooke, Assistant Professor of Pathology, from January 1 to June 30, 1917.

Clare M. Torrey, Secretary to the President, from July 1 to December 31, 1916.

Lewis Lilly, Instructor in Accounting.

C. B. Bennett, Instructor in Biochemistry.

Rudolph Alfred Kocher, Instructor in Research Medicine.

Caroline Singleton, Instructor in French.

RESIGNATIONS

(Unless otherwise indicated, the following resignations are from June 30, 1916.)

Assistant Professor of Zoology, J. F. Bovard.

Treasurer of the Regents, I. W. Hellman, Jr., from April 18, 1916.

Secretary of the Bureau of Information and Municipal Reference (in the University Extension Division), Joseph H. Quire, from May 15, 1916.

Librarian at the University Farm School, Margaret E. Mayberry.

Farm Adviser, Roland E. Mack, from December 31, 1915.

Instructors: V. C. Bryant, Agricultural Extension, from March 31, 1916; O. W. Israelson, Experimental Irrigation; H. H. Douglass, Dairy Husbandry; M. A. Klein, Soil Chemistry and Bacteriology; C. P. Clausen, Entomology (at the Citrus Experiment Station at Riverside), from April 1, 1916; Edward W. Alexander, Ophthalmology.

Assistants: George H. Wilson, Agricultural Extension, from February 29, 1916; Henry Mayer, Physics, from January 31, 1916; J. B. Leonard, Urology.

Teaching Fellows: F. E. Vaughan, Geology and Mineralogy; J. H. Levy, Argumentation.

UNIVERSITY MEETINGS

- March 3—Archbishop Edward J. Hanna of San Francisco.
 March 17—Regent Guy C. Earl, '83, Professor Charles Mills Gayley, and Bruce Wright, '03.
 March 31—Dr. Edward Elliott, Jean Queenie Watson, '16, and T. E. Gay, '16.
 April 14—Brigadier-General Woodruff and J. E. Sprunger, State Secretary of the Y. M. C. A.
 April 28—Representative members of the Senior Class. (See p. 414.)

LECTURES AT THE UNIVERSITY

- March 7—J. P. Buwalda, Instructor in Geography, "Practical Weather Forecasting" (before the Agricultural Club).
 March 8—F. J. Bates, "The Relation of the Engineering Professions to the Petroleum Industry."
 March 8—Miss Mildred Leo Clemens, '15, "The Message of the Yosemite" (before the Commerce Club).
 March 8—Dr. H. H. Hicks of the U. S. Bureau of Animal Industry, "Meat Inspection, Its Purpose and Practice."
 March 8—W. L. Sweet, "The Preparation and Use of Oil Emulsions;" M. R. Miller, Assistant in Insecticide Chemistry, "Tobacco and Its Use as an Insecticide" (before the Entomology Club).
 March 10—S. Waldo Coleman, President of the Coast Counties Gas and Electric Company, "The Methods of Development of Public Utilities."
 March 10—W. P. Roop, Instructor in Physics, "Experimental Data on the Limitations of Carnot's Principle."
 March 15—Dr. H. D. Curtis, Astronomer in the Lick Observatory, "Stellar Evolution."
 March 15—E. P. Lewis, Professor of Physics, "The States of Nitrogen Suggested by Its Spectrum and Chemical Activity" (before Sigma Xi).
 March 16—S. Waldo Coleman, "The Construction, the Operation, and the Business of Public Utilities."
 March 16—Dr. H. D. Curtis, "Stellar Evolution."
 March 16—Dr. F. W. Lynch, Professor of Obstetrics and Gynecology, "The Trained Nurse; a Profession for Women."
 March 17—Dr. H. D. Curtis, "Stellar Evolution."
 March 18—Dr. H. D. Curtis, "Stellar Evolution."
 March 21—Dr. R. G. Aitken, Astronomer in the Lick Observatory, "Binary Stars."

March 21—Dr. Shadworth O. Beasley of San Francisco, "The Campaign Against Typhus in Serbia" (before the Berkeley Chapter of the American Red Cross Society).

March 22—Dr. R. G. Aitken, "Binary Stars."

March 23—Charter Day Address in the Greek Theatre by George Edgar Vincent, President of the University of Minnesota.

March 23—Cornerstone exercises for Benjamin Ide Wheeler Hall; Speakers, Regent John A. Britton, Chairman of the Committee on Grounds and Buildings; President Oscar Sutro of the Alumni Association, Dean Armin Otto Leuschner, and President Benjamin Ide Wheeler.

March 23—Frederick Parker Gay, Professor of Pathology, "The Contribution of Medical Science to Medical Art as Shown in the Study of Typhoid Fever" (the Annual Faculty Research Lecture).

March 24—R. G. Aitken, "Star Clusters."

March 24—Dr. L. T. Jones, Instructor in Physics, "The Structure of Gamma Rays."

March 24—T. Arthur Rickard, Editor of the Mining and Scientific Press, "The Miner as the Pioneer of Civilization" (before Tau Beta Pi).

March 25—Dr. R. G. Aitken, "Star Clusters."

March 27—Dr. Joseph A. Long, "Cellular Basis of Sex Determination."

March 28—George H. Danton, Professor of German in Reed College and Pacific Coast Representative of the Simplified Spelling Board, "Spelling Reform, with Especial Reference to Simplified Spelling."

March 29—Bert D. Ingels, Chief Chemist of the Sperry Flour Company, "Breakfast Foods: What they are and how they are made."

March 31—Professor George Herbert Palmer of Harvard University, Mills Lecturer in Philosophy, "The Puritan Home" (before the Philosophical Union).

March 31—Clinic on phases of the cancer problem, conducted by Joseph C. Bloodgood, Associate Professor of Clinical Surgery in the Johns Hopkins Medical School, at the University Hospital in San Francisco.

April 3—Joseph Grinnell, "The Distribution of Plants and Animals in California."

April 5—Dr. H. C. Bryant, Economic Ornithologist of the California Fish and Game Commission, "The Common Game and Non-game Birds of California."

April 5—Bert D. Ingels, "Milling Wheat and Wheat Breakfast Foods."

April 6—Paul Thelen, Assistant Engineer of the Railroad Commission of California, "The Valuation of Public Utilities, with Special Reference to Gas and Electric Properties."

April 7—Regent John A. Britton, Vice-President and General Manager of the Pacific Gas and Electric Company, "Gas Engineering."

April 7—W. J. Raymond, Associate Professor of Physics, "A New Mechanical Device for the Elucidation of Alternating Current Phenomena."

April 10—H. C. Bryant, "The Economic Value of Birds."

April 11—Dr. H. C. Bryant, "The Relation of Birds to Insects" (before the Entomology Club).

April 12—Dr. H. C. Bryant, "The Game and Fur-Bearing Mammals of California."

April 12—Mark Daniels, '05, "The National Parks and the Sierras" (before the Forestry Club).

April 12—Thomas Hunt Morgan, Professor of Experimental Zoology in Columbia University, "A Revaluation of the Evidence on which the Theory of Evolution was Based" (the Hitchcock Lectures).

April 13—Willard E. Hotchkiss, Dean of the School of Commerce of Northwestern University, "Higher Education and Business Standards" (the annual Barbara Weinstock Lecture on "The Morals of Trade").

April 14—Thomas Hunt Morgan, "The Bearing of Mendel's Discovery on the Origin of Hereditary Characters Shown by Wild Species" (the Hitchcock Lectures).

April 17—Thomas Hunt Morgan, "The Factorial Hypothesis of Heredity and the Composition of the Germ Plasm" (the Hitchcock Lectures).

April 17—Dr. W. H. Pillsbury, "Rural Adaptations."

April 17—T. I. Storer, Assistant Curator of Birds, California Museum of Vertebrate Zoology, "Mammals in Their Economic Relations."

April 19—Dr. Frederick Parker Gay, "Specialization and Research in Science" (President's Annual Address before Sigma Xi).

April 19—Dr. Frederick Monsen, F.R.G.S., "Turbulent Mexico."

April 19—N. B. Scofield, "The Food and Game Fishes of California."

April 19—Thomas Hunt Morgan, "Sex Factors and the Mechanism of Sex Determination" (the Hitchcock Lectures).

April 21—Benjamin Jablons, M.D., Director of the Laboratories of the St. Francis Hospital, formerly Pathologist of the American

Ambulance Hospital in Paris, and Bacteriologist to the Second Morava Division of the Serbian Army, Balkan Wars, 1912-1913, "Emergency Medical Relief in War Time."

April 21—F. C. Jones, Chief Chemist of the Pacific Gas and Electric Company, "The Chemistry of Gas Manufacture."

April 21—E. P. Lewis, "The Photoelectric Effect and Quantum Theory."

April 21—Thomas Hunt Morgan, "Is Selection a Creative Process" (the Hitchcock Lectures).

April 21—Shakespeare celebration and literary exercises under the auspices of the Department of English, at Hearst Hall: Charles Mills Gayley, Professor of the English Language and Literature, read an original poem, "Shakespeare—Heart of the Race," and the other speakers were Regent Guy C. Earl, '83, who spoke on "Shakespeare, the Man"; Professor Walter Morris Hart, on "Shakespeare, the Writer," and Professor William Dallam Armes, on "Shakespeare's England."

April 24—Dr. H. C. Bryant, "The Past, the Present, and the Future of Game in California."

April 24—C. Wharton Stork, Assistant Professor of English in the University of Pennsylvania, "The Life and Poetry of the Swedish Poet, Gustav Fröding."

April 25—L. F. Smith, "Duties of the Forest Ranger;" E. O. Essig, Instructor in Entomology, "The Coccidea of California" (before the Entomology Club).

April 26—Dr. H. C. Bryant, "National Forests and Wild Life."

April 26—J. W. Swaren of the Pelton Water Wheel Company, "The Lake Spalding Development of the Pacific Gas and Electric Company."

April 27—Ernest J. Hopkins, Musical and Dramatic Editor of the San Francisco Bulletin, "Is Bacon Shakespeare?"

May 14—Baccalaureate Sermon in the Greek Theatre by Right Rev. William Hall Moreland, Bishop of Sacramento, "Cities of Refuge."

May 16—Annual Phi Beta Kappa address, John S. P. Tatlock, Professor of English Philology in Leland Stanford, Jr., University, "Literature and History."

May 17—Fifty-third Annual Commencement Exercises, in the Greek Theatre.

LECTURES ON TROPICAL MEDICINE

(At the University Hospital, Saturday mornings.)

March 4—Dr. H. F. Nichols, "Spirochaetiases."

March 11—Dr. Billings, of the Public Health Service, "The More Important Helminthiases."

March 18—Dr. K. F. Meyer, Associate Professor of Tropical Medicine, "Yellow Fever, Dengue, and Pappataci."

March 25—Dr. K. F. Meyer, "Typhus, Spotted Fever, and Veruga Peruviana."

April 1—Dr. Howard Morrow, Clinical Professor of Dermatology, "Leprosy and Tropical Skin Diseases."

April 8—Dr. Billings, "Beri Beri and Pellagra."

April 15—Dr. E. L. Walker, Associate Professor of Tropical Medicine, in the George Williams Hooper Foundation for Medical Research, "Parasitic Insects and the Role of Insects in the Transmission of Tropical Diseases."

April 22—Dr. K. F. Meyer, "Tropical Hygiene and Sanitation; a Summary of the Present-day Achievements."

LECTURES AT THE MUSEUM OF ANTHROPOLOGY

(At the Museum, on Parnassus avenue, San Francisco, on Sunday afternoons.)

March 5—E. W. Gifford, Associate Curator of the Museum of Anthropology, "The Culture of the Indians of Southern California."

March 12—E. W. Gifford, "Indian Cultures in California as a Whole."

March 19—E. W. Gifford, "The Religion of California Indians: Burial Customs."

March 26—E. W. Gifford, "The Religion of the California Indians: Mourning Ceremonies."

April 2—E. W. Gifford, "The Religion of California Indians: Adolescence Ceremonies."

April 9—E. W. Gifford, "The Religion of California Indians: Spirit Ceremonies."

April 16—E. W. Gifford, "The Religion of California Indians: Shamanism."

April 22—E. W. Gifford, "The Creation and the Destruction of the World."

April 30—E. W. Gifford, "The Religion of the California Indians: Mythology."

LECTURES ON LOCAL FAUNISTICS AND BIOLOGY

March 6—Dr. Joseph Grinnell, Director of the California Museum of Vertebrate Zoology, Assistant Professor of Zoology, "The Campus Bird Calendar in Early Spring."

March 13—Dr. Joseph Grinnell, "The Nesting and Eggs of Our Local Birds."

March 20—Dr. Joseph A. Long, Assistant Professor of Embryology, "The Development of the Chick."

April 10—Albert L. Barrows, Instructor in Zoology, "Methods and Aims of Oceanographic Research."

April 24—Dr. Barton W. Evermann, Director of the California Academy of Sciences, San Francisco, "The Golden Trout of the Mount Whitney Region."

READINGS FROM GREEK PLAYS

James T. Allen, Associate Professor of Greek, continued his series of public readings from Greek plays as follows: March 1, the "Oedipus the King" of Sophocles (translation of Sir George Young); March 3, the "Antigone" of Sophocles (translation of Sir George Young); March 8, the "Philoctetes" of Sophocles (translation of Sir George Young); March 15, the "Oedipus Coloneus" of Sophocles (translation of Sir George Young); March 22, the "Hippolytus" of Euripides; April 5, the "Bacchae" of Euripides; April 12, the "Frogs" of Aristophanes (translation of Professor Gilbert Murray).

MINING LECTURES

March 6—Charles W. Merrill, "Crushing Preparatory to Cyaniding."

March 7—Charles W. Merrill, "The Cyanide Process; Solution of Gold and Silver."

March 8—Charles W. Merrill, "The Cyanide Process; Filtration or Separation of Metal-bearing Solutions from Ore Residue."

March 9—Charles W. Merrill, "The Cyanide Process; Precipitation (Historical)."

March 10—Charles W. Merrill, "The Cyanide Process; Precipitation (Current Practice)."

SCOUT-MASTERS' TRAINING CLASS

March 7—C. E. Rugh, Professor of Education, "Work with the Adolescent Boy"; A. H. Singleton, U.S.N., "The Making and Reading of Maps, Judging Distance, Size, Number and Weight; the Compass; New Programmes."

March 14—Eustace Peixotto, Director of Physical Education for the San Francisco Schools, "Boys' Camps: Qualities, Methods, Supervision, Equipment, Preparation; Cooking in the Open."

March 21—Dr. J. N. Force, Assistant Professor of Epidemiology, "Use of the Knife and Hatchet; First Aid."

March 28—Dr. J. N. Force, "Firebuilding; Tracking; First Aid; Examination for the Red Cross Certificate."

April 4—Sidney Peixotto of the Columbia Park Boys' Club, "Indoor and Out-of-door Programmes and Games."

April 11—H. M. Hall, Assistant Professor of Economic Botany, "Local Tree and Plant Life."

April 17—Dr. J. P. Buwalda, Instructor in Geography, "Central California Rock and Geological Formations."

April 17—R. T. Crawford, Associate Professor of Practical Astronomy, "The Principal Stars and Constellations."

April 25—August Vollmer, Chief of Police of Berkeley, "Important City Ordinances and How to Help Keep Them;" G. S. Rose, Fire Chief of Berkeley, "How to Extinguish and Prevent Fires."

May 2—R. T. Crawford, "The Principal Stars and Clusters."

THE HALF HOUR OF MUSIC

(In the Greek Theatre on Sunday Afternoons.)

March 5—Miss Margaret Graham, soprano, accompanied by Frederick Maurer.

March 12—Miss Louise M. Lund, soprano, accompanied by Frederick G. Schiller, and Miss Alberta Livernash, pianist.

March 19—Ernest P. Allen, violinist, and Howard E. Pratt, tenor, accompanied by Miss Carrie Jones.

March 25—Wyman Garthwaite, '18, violinist; Charles Edwards, '19, 'cellist, and Elmore Roberts, '18, pianist.

April 2—Miss Zhay Clark, harpist; Richard Cook, tenor, and Miss Helen Beatrice Cooper, soprano, accompanied by Miss Laura Lundegaard, pianist.

April 9—California Cadet Band, led by Herman Trutner, Jr.

April 16—Signor Mario Rodolfi, tenor; Miss Daisy Foster, accompanist.

April 23—The University of California Glee Club and the De Koven Club, under the direction of Mr. Clinton R. Morse, '96, assisted by Miss Ruth Bowers, soprano, accompanied by Mrs. Mabel Hill Redfield, and the California Trio, consisting of Wymond B. Garthwaite, '18, violinist; Charles S. Edwards, '19, 'cellist, and Eugene Roberts, '19, pianist.

April 30—Gilbert Reek, violinist; Mrs. George C. Butler, soprano; Mrs. R. H. Chamlee, contralto; Felix Desimone, tenor, and Stanley Egenese, tenor, accompanied by Frederick Maurer, Jr.

May 7—Mr. and Mrs. Cedric Wright, violinists.

OTHER MUSICAL AND DRAMATIC EVENTS

March 14—Berkeley Musical Association Concert, Miss Florence Hinkle, soprano, accompanied by Charles Albert Baker.

March 17—Glee Club Concert, Harmon Gynasium.

March 25—Mask and Dagger Play, "The Devil's Disciple," by George Bernard Shaw, Oakland Auditorium Opera House.

April 7—Fifth Annual Partheneia, "Aranyani of the Jasmine Vine," by Maude Meagher, '17, with music by Catherine Urner, a graduate student.

April 11—The Kneisel Quartet, composed of Franz Kneisel, first violin; Hanz Letz, second violin; Louis Svecenaki, viola, and Willem Willeke, violincello (before the Berkeley Musical Association).

April 15—Shakespeare Tercentenary Celebration in the Greek Theatre, with the presentation of scenes from Shakespeare by the high schools of Oakland, Alameda and Berkeley.

April 21—Sixth Annual Good Friday Concert in the Greek Theatre: Rossini's "Stabat Mater," and other sacred music, rendered by a chorus of 200 from the Berkeley Oratorio Society, the Wednesday Morning Chorale of Oakland, and the San Francisco Choral Society, and an orchestra of fifty, with Choragus Paul Steindorff as Conductor, Emilio Meriz as concert-master, and the following soloists: Madame Johanna Kristoffy, Madame Claude Albright, Hugh Williams, Godfrey Price, and Miss Amy Ahrents, violinist.

April 22—Shakespeare Tercentenary Celebration, Production of "Julius Caesar" by students of the University, under the auspices of the English Club, Greek Theatre.

April 25—University Recital in 101 California Hall by Constance Edson Seeger, violinist, and Walter Handel Thorley, pianist.

May 2—University recital by Constance Edson Seeger, violinist, and Walter Handel Thorley, pianist.

May 13—Senior Extravaganza, "Absent on Leave," by Hazel Havermale, '16, and Roger Goss, '16, with original music by Lawrence Seymour, '17; E. B. Spofford, '18; H. P. Darling, '16; J. S. Taylor, '16; E. G. Dudley, '16; K. C. Kaufman, '16, and Roger Goss, '16.

UNIVERSITY OF CALIFORNIA CHRONICLE

VOL. XVIII

OCTOBER, 1916

No. 4

THE WESTERN PACIFIC*

WARREN OLNEY, JR.

The Western Pacific Railroad is of some little importance in this community. It has recently been much in the newspapers. It is entering upon a new period in its history, with new owners and new management and new hopes. I have thought the Club might be interested in a brief review of its vicissitudes up to this time and of its present condition and outlook.

The history of the Western Pacific really goes back to the acquisition of the Southern Pacific by Mr. E. H. Harriman. The situation at that time was this:

Mr. Harriman had a few years before acquired the Union Pacific. Mr. George J. Gould had for a number of years controlled the Denver and Rio Grande. Both these last mentioned lines crossed the Rocky Mountains and had their Western terminals at Ogden. Both were largely dependent on through business and were in direct competition for the same through business. Both were dependent for direct entrance into San Francisco and Northern California upon the same connection, namely, the old Central Pacific line from Ogden to San Francisco, which for many years had been and still is owned and operated by the Southern Pacific. This line was the only line into San Francisco and Northern California except from the far South and the far North. The importance of it as a connection to both of the Rocky Mountain roads was very great. If it chose to do so it could cut off from one or the other a very

* A paper read before the Berkeley Club. Mr. Olney was one of the receivers of the Western Pacific appointed by the courts.

large amount of the business which it enjoyed. Up to this time, however, it had treated both roads about alike.

After the death of Collis P. Huntington, who for years had dominated the Southern Pacific, his holdings in that company and its virtual control were for sale. It was exceedingly important to each of the Rocky Mountain roads to secure this control. It was important to each not only because of what its rival could do to it in case the rival got control but also because of what it could do to its rival if it should itself get that control. It was easily possible for whichever should acquire the Southern Pacific practically to shut out the other from the California business and to take it for itself.

Under these circumstances, the story goes, Mr. Harriman and Mr. Gould agreed to buy the Huntington holdings in the Southern Pacific on joint account, and upon the strength of this arrangement Mr. Gould departed for a pleasuring in Europe. On his return he found Mr. Harriman in possession of the Huntington holdings, and, as might be imagined, very loath to divide them up with his rival. The story then is that Mr. Gould and Mr. Harriman had a most decided break, and out of revenge Mr. Gould determined to build the Western Pacific. Just how much truth there is in this story I do not know. It is certain that there was a bitter breach between the two men. But how true the whole story is makes very little difference. The essential part of it—that Mr. Harriman by purchasing the Huntington holdings in the Southern Pacific had stolen a march on his rival—is clear. It is not necessary to seek any motive of revenge to explain the building of the Western Pacific.

When the Union Pacific—that is, Mr. Harriman—secured control of the only line then existing from Ogden to Northern California and San Francisco, the Denver and Rio Grande, as a practical matter, had either itself to build an extension to Northern California or else to give up in large part the transcontinental freight business, and to a

less extent, but still to some extent, through passenger business.

The Denver and Rio Grande had just had a taste in connection with the Oregon Short Line of what would naturally happen to it through Union Pacific domination of their common connection. The Oregon Short Line for years had constituted the common connection of the Union Pacific and the Denver and Rio Grande from Ogden to the Pacific Northwest in the same manner as the Central Pacific to Northern California, but when Mr. Harriman secured control of the Oregon Short Line, as he did shortly before securing control of the Southern Pacific, he closed it to the Denver and Rio Grande, and as a result the latter was, and is to this day, shut out of Washington, Oregon, Idaho, and Montana, whence it at one time received a very considerable business. The Southern Pacific, I believe, has, in fact, never cancelled its arrangements for the exchange of business with the Denver and Rio Grande, but the Denver and Rio Grande had every reason to believe it would do so when the Union Pacific secured control, and, furthermore, even if it did not, the Denver and Rio Grande had every reason to expect that the Southern Pacific would favor the Union Pacific as against it in the thousand and one ways in which this is possible. Even without an actual cancellation of divisions and through rates and other through arrangements, such a favoring would mean a very great handicap upon the Denver and Rio Grande. The situation was that it had to build to California or practically go out of business as a factor of substantial importance in transcontinental or through traffic.

Now it so happened that at this time there was in California a small railroad which its owners were anxious to dispose of. There was nothing peculiar about this. California seems always to have—at least in recent years—a few small railroads whose owners would gladly part with them. The peculiar thing about this particular small railroad was its smallness and lack of importance and the

character of one of its owners. The railroad I refer to was the Alameda and San Joaquin, running from a terminal on the Stockton water front southwesterly for twenty miles or so to the Tesla coal mines on the east side of the Coast Range, back of Livermore. The man I refer to was W. J. Bartnett. These mines and the railroad were owned by those in control of the California Safe Deposit and Trust Company, an old established bank of San Francisco. It was controlled by the two Treadwells (John and James), J. Dalzell Brown, who was the manager, and W. J. Bartnett, who was its attorney. Of these four men Bartnett furnished the brains and was the dominating spirit. The bank's funds had been used to assist the Tesla enterprise until the bank itself was seriously involved. It was probably actually insolvent. Those in control were striving desperately to improve its condition.

Bartnett was a man of force and real ability. Above all he had the ability of a genuine promoter. This means, at least to me, that he had two characteristics, imagination and persuasiveness. He had imagination in the real sense—the power to conceive. He also possessed in a marked degree the ability to make you see as he did the pictures and promises which his imagination conceived. He was a man of rather striking appearance, about medium height, rather slender, very dark, with long coal-black straight hair, and very nervous and restless. His appearance was quite out of the ordinary, and in any conference or gathering his ability to impress himself and his views on others was immediately made evident.

Some one connected with the Tesla enterprise (it must have been Mr. Bartnett, for no one else had the genius) conceived the idea of selling the railroad as a part of a new transcontinental road. It is difficult to see how or why he ever thought of it, but he did. Of course, if it could be done, it might pull the bank out of its difficulties.

At any rate, as I understand it, Mr. Bartnett went to New York and there approached Mr. Gould and Mr. Jeffery,

then president of the Denver and Rio Grande. The time, of course, was ripe. Those two men were ready and waiting for an opportunity to get into Northern California. Mr. Bartnett must have made some impression on them. At first, I believe, they made no actual commitment to him, but he returned to California, secured franchises and terminal options in Oakland and Stockton, made right-of-way locations through the Feather River Cañon and Beckwith Pass, and organized the Western Pacific Railway Company.

Mr. Gould and Mr. Jeffery in the meantime made investigations, had the route surveyed and preliminary estimates of the cost made. They finally determined to go ahead and build. For this purpose they took over the Western Pacific Railway Company from Mr. Bartnett, together with his Tesla railroad, his franchises, options, etc. Mr. Bartnett had actually succeeded in selling his little coal road as a part of a new transcontinental line, and this when in fact the coal road was actually utilized by the new line but for a short distance. It was certainly a remarkable feat. This is not detracted from by the fact that by the terms of sale the only cash paid was in reimbursement for cash actually spent. The consideration over and above this was the issuance to the bank and its people of a very considerable amount of Western Pacific stock. The getting back of the money sunk in the railroad was, of itself, no slight matter to the bank. As I remember it, the amount of cash paid for the Tesla road was \$720,000, which was judged to be what the road had actually cost. Practically all of this would have been lost but for the sale, as the coal mines were already giving out, and the railroad was of no use except to serve the mines. I have very little doubt that this \$720,000 and the heavy balances which the Western Pacific carried with the bank during construction, which shortly commenced, kept the bank going for some years.

As a digression I may say that I know of no more interesting and energetic struggle than Mr. Bartnett made to save the Tesla investment. In addition to selling its

railroad for what it cost, with a handsome bonus of Western Pacific stock, he also conceived the idea of establishing pottery works and glass works to utilize the clay and sand found in connection with the mines. This was actually done, and while both of these collateral enterprises went down when the bank collapsed, they really had considerable merit, particularly the pottery works.

Coming back, however, to the Western Pacific. It was determined to build the new road not from Ogden but from Salt Lake City, passing along the southerly edge of the Great Salt Lake, instead of along the northerly edge, as the Southern Pacific does. It was determined to enter California by the Beckwith Pass, crossing the Sierras at the head of the Feather River, and thence down the Feather River Cañon to the Sacramento Valley. Beckwith Pass is but little over 5000 feet high, 2000 feet lower than the elevation at Summit, on the Southern Pacific, and has the further advantage of lying east of and beyond the region of heavy snowfall. There is not a single snowshed on the line, and none is necessary. It was also determined that the road should not have a grade at any point in excess of 1 per cent compensated—that is, a 1 per cent grade on straight track, and a less grade on curves to allow for the additional friction due to the curve. At that time the maximum grade on the Southern Pacific over the Sierras was something over 2 per cent, and there were also some heavy grades in Eastern Nevada and Western Utah. The recent costly line changes of the Southern Pacific have reduced its grade only to $1\frac{1}{2}$ per cent. This difference in grade would be a great advantage to the new line.

The building of the road with this 1 per cent maximum grade, of course, enormously increased its cost, and upon this ground its adoption has been severely criticized. I am not engineer enough to have a real opinion on this point. The question is one of balancing interest on the increased cost of construction against the saving in cost of operation. The adoption of electricity as the motive power

on mountain divisions, where water power for its development is immediately at hand, seems now not to be a remote possibility. The experiment of the Chicago, Milwaukee and St. Paul in this respect on the portion of its line across the Rocky Mountains has apparently been quite successful. If electricity is adopted on the lines crossing the Sierras, the advantage of the low-grade line will be somewhat diminished. But it should be borne in mind that at the time the Western Pacific was projected the use of electricity for motive power instead of steam was hardly contemplated as something that would be adopted, except, possibly, in the distant future, on standard railroads outside of large cities where the traffic was dense and the conditions exceptional. But, whether the projectors of the new road were justified in so doing or not, the fact is that they actually did build the road with a 1 per cent maximum grade, and it has now this permanent advantage over its chief competitor.

It was estimated, as I remember it, that the road would actually cost to build, exclusive of interest during construction, about \$35,000,000, and would require from three to four years to complete. The necessary funds were arranged for by selling bonds of the company in advance of construction. An issue of fifty million dollars in bonds was made and sold to an underwriting syndicate made up of three New York private banking firms—Blair & Co., Reed & Co., and Salomon & Co. They took the bonds at 92½ and received a commission of 2½ per cent. In other words, the discount and expense equalled practically 10 per cent, and the company actually realized on its bonds about \$45,000,000. It was thought that this would be sufficient to build the road, allow \$3,000,000 for equipment, and pay interest during the period of construction and before there were any substantial earnings, or at least for most of this period.

It is to be noted that under this plan the Western Pacific stock represented practically no money put into the

property. I mention this fact because I think it should, in all fairness, be stated that there was never any claim that it did represent money. The stock was put out—at first an issue of fifty million par value, and later an additional issue of twenty-five million par value—simply for the acknowledged purpose of complying with the California law, which at the time did not permit of the issuance of bonds in a larger amount par value than the capital stock of the company. This law has since, and very properly, been changed.

The bonds were secured by a first mortgage on the road. In addition, they were guaranteed as to interest by the Denver and Rio Grande. The Denver and Rio Grande also agreed to supply any additional funds that might be necessary to complete the road in case the proceeds of the first mortgage bonds proved insufficient. It was, of course, the obligations of the Denver and Rio Grande in this respect that made the bonds saleable. While it was contemplated that there would be no money put into the road except the proceeds of the bonds, and therefore no margin of security in one sense so far as the mortgage lien was concerned, the obligations of the Denver and Rio Grande took the place of such margin, and there was sufficient confidence in them and in the new enterprise to make a market.

This confidence was by no means without justification. The Denver and Rio Grande had practically no floating debt. Its funded debt was a little over \$78,000,000 on 2477 miles of road. Its surplus, after paying interest on its funded debt, was for 1905 something over \$2,900,000, and for 1906 something over \$3,700,000. It looked as if it alone could take care of the interest on the Western Pacific bonds, when in fact the Western Pacific would itself earn something toward that end, and would also have the effect of increasing the earnings of the parent company.

There were two things that finally ruined any such expectations. One was the very heavy additional and unexpected cost of the road. The other was the coming on

of depressed business conditions throughout the country, and particularly in Colorado, which seriously impaired the earning power of the Denver and Rio Grande.

The bonds were issued and their proceeds made available for construction purposes some time in the summer of 1905. Contracts for the heavier portion of the work were let toward the end of that year, and for the remainder of the work shortly afterwards. Construction was under the immediate direction of Mr. Virgil G. Bogue, as vice-president and chief engineer. He was an engineer of long experience and deservedly high reputation. I came to have a very close and intimate association with him and desire to pay to him my tribute of respect and, I may say, affection. He is a man of character, ability, and force. The road was built absolutely honestly. It is my feeling also that Mr. Bogue directed and pushed the work as well and as rapidly as it was possible for any one to do under the circumstances. I speak of this because the road finally cost so much more than was expected and took so much longer in the building that Mr. Bogue has been severely criticized. To me it seems that these criticisms are unjust.

The road was finally turned over by the construction forces to the operating organization as ready for business on July 1, 1911. It had taken nearly six years for construction, instead of from three to four years, as expected. The interest bill for this additional time was in the neighborhood of seven and one-half million. In addition, and more important, instead of costing thirty-five million it had cost, exclusive of interest, between fifty-five and sixty millions.

For the most part, the reasons for this delay and heavy additional cost were quite plain. Immediately following the commencement of work came the San Francisco earthquake. This by itself alone did not so much delay progress, but it was followed by a period of great scarcity of labor, with the incidental result that labor was both high and inefficient. It was difficult to drive the contractors at top

speed under such circumstances. Nevertheless, by the fall of 1907 everything was in full swing. The company was expending over a million and a half dollars a month. I remember well how Mr. Bogue was pounding the contractors during this period to induce them to increase their forces. Then at the end of October of that year came the panic. The California Safe Deposit and Trust Company closed its doors, with a little over \$250,000 of the company's funds on deposit. This in itself was not a particularly serious blow. The amount, while large in one sense, was small relative to the company's expenditures and the magnitude of the undertaking. But the panic was nation-wide, and even if one had money in a presumably perfectly solvent bank it was impossible to get it out. Of necessity work was curtailed. Directions were given to the contractors to cut their forces at least in half. The stringency, so far as ready money was concerned, passed away in two or three months, but there ensued a long period of depression. For some reason, which I never knew, work was not pushed again with vigor as soon as the immediate financial stringency was over, although it was the time to do so if possible. Labor was abundant and efficient, but work was not resumed with full forces for about a year. Even when resumed it took time to get the work reorganized and going at top speed. The delay was expensive, not only because of time lost with interest running on but because of the heavy additional cost necessarily incident to a sharp stopping of work and its resumption later.

But the greatest factor in both the final delay and the increased cost of the work was the amount of work which it proved necessary to do as compared with what had been estimated. The big item, of course, was the grading. The time and money which this requires are dependent on the amount of material which has to be moved—earth or rock—and its character. In general, a railroad contractor is not paid a specified flat sum for his work, but is paid so much per cubic yard of material, according to the character of

the material, classified, usually, as earth, loose rock, and solid rock. This, at any rate, was the character of the Western Pacific contracts. I do not know that the material encountered differed much in regard to its classification from what had been expected, but it did as to the quantities involved. This was particularly true of the work in the Feather River Cañon and to a less extent in the hills back of Livermore crossing the Coast Range. The Feather River Cañon looked to be in large part a firm granite formation. When it came to actually doing the work this formation was found to be anything but firm. There were large and frequent slides which delayed the work and increased the difficulty of it, and also greatly increased its amount. In fact the cañon was a source of trouble on account of slides for years after the road was completed. Building a 1 per cent line, without excessive curvature, through a mountainous region, and particularly up a narrow, winding cañon, means a tearing up and disturbance of the whole country. It took several years for the hillsides in the cañon to reach a somewhat stable equilibrium again. The winter after the road was opened it was simply put out of business for a time by slides. We believe now, judging by the last two winters, that our troubles in this respect are over so far as anything out of the ordinary is concerned. To give you some idea of the cost of the work along the Feather River Cañon, I would say that for seventy-five continuous miles it cost over \$220,000 a mile, including its proportion of interest during construction and discount expense.

The additional money required to meet the interest and construction costs was furnished by the Denver and Rio Grande. It advanced \$18,750,000 on Western Pacific second mortgage bonds of the par value of twenty-five million. The balance it advanced on promissory notes or open account. To do this and take care of its own needs it had to strain its financial resources very seriously. It increased its outstanding preferred stock by over \$2,000,000. It in-

creased its funded debt from \$78,000,000 in 1906 to \$117,831,000 in 1911. At the same time its surplus earnings, after paying fixed charges, fell from \$3,700,000 for 1906 to \$2,300,000 for 1911. It was out of these surplus earnings, of course, that any deficiency in Western Pacific earnings to pay the Western Pacific first mortgage bond interest of \$2,500,000 a year had to be met. This was the situation in 1911 when the Western Pacific was formally turned over to the operating officials.

It was not a time of fatness for railroads in the United States. Business was poor and continued poor until about the middle of 1915. Railroad rates were being cut on the one side and wages and materials were going up on the other. The Western Pacific earnings were slight as compared with its interest debt. Its earnings for 1912 (that is, from July 1, 1911, to July 1, 1912) which might have been available for interest were \$594,000; for 1913, \$1,040,000; for 1914, \$321,000, and for 1915, \$621,000, while its interest debt was, as I have said, \$2,500,000 each year.

The railroad situation in Colorado, where most of the Denver and Rio Grande mileage lies, was particularly bad. The state was passing through a period of extreme business depression and social disturbance. The surplus earnings of the Denver and Rio Grande, after paying interest and all charges save Western Pacific interest, were for 1911, \$2,300,000; for 1912, \$1,000,000; for 1913, \$1,450,000; for 1914, \$1,055,000, and for 1915, \$934,000.

Up to March 1, 1915, the Denver and Rio Grande promptly and fully met its obligations with relation to Western Pacific bonds. It advanced for construction purposes a little under \$21,700,000. It advanced for payment of Western Pacific interest a little over \$13,500,000. It advanced on current bills, car service and traffic balances over a million. Altogether it advanced in cash, or the equivalent of cash, \$36,334,696.66.

But at the beginning of 1915 the burden became too great. It had been suggested by some of the Denver and

Rio Grande directors that it should default on the Western Pacific interest installment falling due the first of September of the preceding fall. While the almost inevitable outcome must have been clear to the Denver and Rio Grande management, this suggestion was opposed by other members of the board on the ground that there was money enough in the Denver and Rio Grande treasury to pay this particular installment of interest, and as long as this was the case the Denver and Rio Grande was morally bound to do so. This installment was, therefore, paid. But before the next fell due there was no longer sufficient money in the Denver and Rio Grande treasury, and default was, accordingly, made. I think I should say that even after it was determined to make default the Denver and Rio Grande advanced further money. The Western Pacific floating debt was not large, and the Denver and Rio Grande immediately before the appointment of the receivers, and after it was known that a foreclosure suit would be brought and receivers appointed, sent out to San Francisco something over \$130,000 to apply on Western Pacific indebtedness. The result was that the floating debt was all finally paid, and there is no unsecured creditor of the Western Pacific, other than the Denver and Rio Grande, who has not received his money in full.

With the default and consequent appointment of receivers the history of the old Western Pacific Railway Company practically comes to an end. It ended in a failure in a business sense, but its history and the history of the Denver and Rio Grande in its relations with it is an honorable one, and the failure was honorable. The Western Pacific was constructed and operated with scrupulous honesty. It failed simply because it could not carry an interest charge of two million and a half a year. The Denver and Rio Grande likewise failed to meet its obligations simply because it also could not carry the burden. It strained its resources practically to the breaking point in an attempt to do so. When the failure came there was no

attempt by any hook or crook to save something from the creditors. The Denver and Rio Grande indebtedness, approximating \$45,000,000, has, without contest, been simply wiped out. The bondholders have taken the property, all other creditors have been paid, and the Denver and Rio Grande alone remains with its claims for \$45,000,000 wholly unpaid and wholly worthless.

Concerning the operation of the railroad by the receivers little need be said. Owing largely to four factors, for which the receivers were in nowise personally responsible, their administration was most successful. These factors were the Exposition, the closing of the canal, the high freight rates by water due to the war, and the general improvement of business conditions. The surplus for the year 1915-16 under the receivers was \$2,100,000, or about twice the surplus for any preceding year.

The important thing during this period was the reorganization of the road. A bondholders' reorganization committee was formed, and after a long series of meetings and much discussion a reorganization plan was put out about the beginning of the year. The plan was favored by a large majority of the bondholders, and ultimately something over 95 per cent joined in it. It came very near to shipwreck at one time because of an attempt to delay the sale of the road under foreclosure until the bondholders' claims against the Denver and Rio Grande on its guaranty had been reduced to judgment. This would have put off the sale for years, and, as a reorganization could be effected only through a foreclosure sale, the plan for reorganization would necessarily have failed for the time being. This was at the bottom of the court proceedings which recently attracted so much attention, and in which there was a sharp contest, finally ending in favor of the reorganization committee by the decision of the United States Circuit Court of Appeals.

Coming now to the reorganization plan itself. There were three fundamentals which any proper plan had to

possess. It had to be strictly in the interest of the bondholders, against whom the default had been suffered. Nothing else would be really honest. It had to cut down the burden of fixed charges—that is, interest obligations—which the default had demonstrated were too great for the road to carry. It had to provide for new money necessary for the development of the property in the way of improving it, purchasing more equipment, and building feeders.

To these fundamentals the reorganization plan put out conformed. It was strictly in the interest of the bondholders, for they were to take the property absolutely, wiping out every other interest, and retaining their claim against the Denver and Rio Grande on its guaranty of interest. The propriety of this is obvious, yet I think the Western Pacific reorganization is well nigh unique in this respect among recent important reorganizations or attempted reorganizations in California. In all, or nearly all, of these junior lien holders, unsecured creditors, and stockholders have, one or more, been given an interest under reorganization, or it has been attempted to give them an interest, to the plain detriment of the bondholders themselves.

The plan cut down the fixed charges. The bondholders simply took stock in the new company and became the owners of the property, entitled only to such returns as it might actually earn. Here, again, the plan is somewhat unique. Railroad after railroad in the United States has had to suffer the throes of a second or even a third reorganization simply because the parties interested were not willing to face the situation frankly and wanted bonds or other fixed obligations instead of stock, with the result that the burden of fixed charges was not sufficiently lightened.

The plan provided new money for necessary improvements, equipment, and extensions, for it included a new bond issue of twenty million dollars, not to be issued as a substitute for old indebtedness, but for new money. This issue was actually underwritten as a part of the plan.

This plan has been strictly carried out, and the property has just been turned over to the new company organized for that purpose, The Western Pacific Railroad Company.

The present situation and the future prospects of this company may be generally stated about as follows:

The new company is not controlled or dominated by any single interest, railroad or otherwise. Its stock is all held by a holding company for purposes of management, and the holding company in turn is made up exclusively of the old bondholders, with the exception of small amounts of stock issued practically as a bonus upon subscriptions to the new bonds. The stock is widely scattered, and a very considerable portion is held by residents of California, where most of the business of the company must be found.

Its financial condition is sound. It has both the money needed for development and earnings sufficient to take care of its fixed charges. The new bonds were sold at ninety, or, in money, for \$18,000,000. About two million of this was, or will be, used in paying off the minority bondholders and the expenses of the reorganization and receivership. Of the sixteen million remaining for purposes of development, it is planned to use about ten million in building feeders, three million in purchasing equipment, and two million in betterments to the present property. In addition to this, the receivers turned over to the new company nearly \$2,200,000 in cash.

The interest charge of the new company will be only one million a year. It may not be even that for some time, for it is planned to call in the bond subscriptions only as money is needed, and it is planned to spend the money cautiously and without haste. At present there have been collected on the bonds less than ten million dollars, so that the present interest charge is less than five hundred thousand dollars per annum.

Last year the road earned over two million dollars. The conditions that made this possible were not normal; but

that the earnings should fall on an average below one million a year seems quite inconceivable. The natural growth of the country through which it passes is certain to keep its earnings up. Just at present they are exceeding those under the receivership, and the management of the road anticipates that the earnings for the current year will in all probability establish a new high mark.

The foregoing takes into consideration simply the earnings of the road as it stands at the present time. In addition, there should be considered the earnings which may be expected from the new money as it is put in, that is, from the new equipment and the new feeders, and, more important, from the additional business which the feeders are certain to bring to the main line.

Another element in connection with the new company, which, it seems to me, should not be omitted from consideration, is the character of its operating and managing organization. Naturally, I know it well. It is thoroughly loyal and efficient, and has the decided advantage of familiarity with the property and its problems. The receivers made very few changes in the personnel which they found. Those that were made were solely for the benefit of the service and, I may say, had that effect. They appointed as their general manager Mr. Charles M. Levey, who had been in charge of the operating department from the beginning. Whatever success in the receivers' administration is due to good administration is very largely due to him. He is the president of the new company, a deserved recognition of the ability he has shown.

The final element of which I wish to speak is the physical condition of the road. Any impression to the contrary notwithstanding, it is excellent. As might be expected of a property in difficulties, where each of the various interests naturally desires first-hand independent information, and all want to know what the matter is, the road has been experted until the operating officials have well-nigh expired. Expert after expert has gone over it and reported.

All, however, have commended its physical condition. Many of them have freely expressed their surprise at what they found in this respect.

To sum up the present condition of the new company and its prospects: It begins upon a sound financial basis, with money for its needs and development, and with fixed charges which its earnings should easily meet. It begins with an independence of any outside interest which might be tempted to use it for its own advantage. It begins with a good railroad, one in good condition, well located, and well suited in all respects to serve the public, and as to grade and snow difficulties, with decided advantages over its competitor. It begins with a competent and loyal organization, familiar with its duties and the difficulties to be overcome. It would seem as if there were every prospect of its proving to be an efficient instrument of service to the public, on the one hand, and a source of profit to its owners on the other.

EMILY CHAMBERLAIN COOK PRIZE POEM, 1916

THOMAS GORDON LUKE

THE FREEHOLDER*

I. HARVEST

In the gray dawn, out to the harvest field
The busy wagons rattle, one by one,
Along the roads, and when day has begun
To warm the hills, where sheaves lie packed and sealed
With sparkling frost, the shouting farmers wield
Their bending forks; until the laden sun
Turns down the broad, gleaned sky, and homeward run
The wagons down the roads. So meadows yield
Their harvests, till the hay is stacked, and grain
Heaps at the bin's high level, and the loft
Holds the red apples, where the sun slants still
And golden through a web-lined window-pane.
At last, like small white hands, the flakes rest soft
Upon the borders of the wind-swept hill.

* This poem was awarded the Emily Chamberlain Cook Prize for 1916 by a committee consisting of Professor Edward Bliss Reed, Professor Cornelius Beach Bradley, and Mr. Robert Frost.

II. INDIAN SUMMER

Weary with toil, I stroll beside a stream
Beneath the birches' gold and white, and pass
By winding eddies, and a pool's green glass,
Where startled trout dart swift, with flashing gleam
Of silver. Here on holidays I dream,
Until the sunset burns the meadow-grass
And the far-spreading forest is a mass
Of shadows. In the rising moon's white beam
Homeward I ride, and watch the mountain height
Grow brighter, while the breezes sing a psalm
And silver-floods surround the elm-tree grove;
And, in the darker hours of the night,
Through fields where gently flows the river, calm
As the peace of snows when skies are still above.

III. SEASON'S END

The harvesters have scattered, and the days
Are quiet. Long the first white flakes have fled
Across the fields, with willow leaves, sun-bled;
And sunsets burn the peaks with flaming haze.
The river-flecking birches are a maze
Of fluttering golden leaf-hearts, where the red
Stems of the willows by their spring-sides thread
And hold till dusk the auburn sunset's blaze.
With brooding forests rolling dark behind
And the deep valley spreading wide before,
Here at the borders of the woods, I dwell
In a small cabin, waiting for the wind
To drive the snowstorms to the valley floor
And charm the forest with enchanting spell.

IV. STORM WIND

At dusk the wind from cloudy skylines swept
 And sobbed and murmured in the elm-trees round
 My shaded cabin, shaking to the ground
 The aged leaves. And all the night it kept
 The branches tapping at the logs, which wept
 With giant tears; and lines of mist-web wound
 Across the hills. At dawn, with sudden pound,
 It rushed, and swung the cabin door, and leapt
 Into the room where like a creature wild
 It battered at the walls, and screamed, and broke
 Clay from the logs, and in the rafters crept;
 Then dropped to silence, like a sobbing child.
 That day the winter in the mountains woke;
 And long the fields in cloaks of snow have slept.

V. THE WIZARD

Old Winter is a wizard. First he turns
 The leaves to flakes of gold, then blows them down
 And rolls them up in heaps of sodden brown.
 Then, down the chimney, where my pitch-fire burns,
 He puffs the rising smoke, and swiftly churns
 The snowflakes past the panes. And like a clown
 He laughs and sings and dances through the town,
 A high, white whirlwind; till the rover yearns
 To seek the valley where the white streams run
 Beneath their floors of ice, to glide and track
 On smooth steel runners, while the sportive wind
 Snaps at his cheeks. At last the heavy sun
 Grins red through bars of trees, and birch limbs crack,
 And mountains shine like steel, with night behind!

VI. THE SLEEP

Earth cannot see the charms that round her lie,
Nor feel the icy winds that tear and sweep:
Beneath the winter snow she lies asleep.
Out of the frozen forest comes the cry
Of the gray timber-wolf; and snow-owls fly
Above the fir-edged gullies, and where deep
River-carved canyons stretch, and crags rise steep,
And mountain-pyramids soar black and high.
Yet, in the long and solitary night,
I love to ride on deep, uncertain trails,
And feel wild-staring Winter's frozen breath;
While the pure, moonlit hills shine calm and white,
And pines stand firmly, though the black wind wails,
Waiting the ending of the winter-death.

VII. THE MESSAGE

I found a note beneath my cabin door,
Above the steps, snow-rounded, soft and white;
And by the snapping fire, in the lantern light,
It told that the flake-hidden valley-floor
Now rang with sleigh-bells, and the songs and lore
Of the Christmas Spell spoke in the wind at night;
For, in dark kitchens, elf and fairy sprite
Baked secret pies and puddings; and the store
In the little village shone with trinkets striped
With gold and red, and shaped like eggs and bells
And spinning tops, in windows flaked and veiled.
Then in the night small mountain-voices piped,
And winds, with glorias like organ swells,
Over the sparkling hills and forest sailed.

VIII. THE RIDE

The road is broken to the town; and bright
 With pale blue fire upon the hardened snow
 Glisten the sleigh-tracks. Cabin windows glow
 From distant trees. As winter birds in flight
 Sail through the clouds, I glide on through the white
 High mounds and drifts. The silver bells sing low
 With streams that through their crystal ice-caves flow,
 To radiant groups of stars, that fill the night
 With silver showers. Through the light of dawn
 Rise spires, and smoke-lines rest, suspended still
 Beneath the clouds, where circling pigeons fly.
 And now the morning sun-fire strikes upon
 The spires, the snow-road, and the rounded hill,
 And wakes to day this City of the Sky.

IX. OLD FRIENDS

How sweet it is, in the lone settler's eyes,
 To see the village decked in Christmas green!
 And faces of old comrades, seldom seen—
 The hearty shakes, the smiles of bright surprise!
 To see, when from the sky the sunlight dies,
 Dark lines of shadow spread across the sheen
 Of snowy roofs, with edges cold and clean,
 From fretting elm-trees, when the ice-wind cries:
 Returning in the night through scattered pines,
 To see again the cabin, standing still
 And dark against the skies and heavy snows.
 A single star behind its chimney shines;
 The frozen trees stand out upon the hill:
 But now my furnace laughs and smokes and glows!

X. IN THE DEEP WOODS

Joy to run deep beyond the forest's edge!
Here stand deserted cabins with deep snow
Inside and out. Here with a long gray bow
A fir-tree stands. With crosscut saw and wedge,
Keen-bladed ax and heavy-pounding sledge,
I shape curved runners, and with heigh and ho
Deeper into the tamaracks I go
Over the snowfields. Here a willow hedge
Trims the low gully; now the valley floor
Gleams down afar; now dark the forest grows,
And pounding currents boom within the gorge.
Joy to be in the woods and hear the roar
Of flame that melts the ice, and screams and glows,
The woodman's hearth-fire, and the woodman's forge!

XI. SIGNS OF SPRING

All day I trimmed the logs within the pines,
And chained them to the sled in evening's blue,
When muscles hum, and ears are humming too,
And through the woods the yellow sun-glow shines
And strikes the mountain's rim, with hues like wines.
I watched the rainbow-circled moon, that grew
Like a winter flower, and thought of friends I knew
Before the heavy snows; and looked for signs
Of the new spring. O Spring, come soon, come soon!
I long to ride far, in my new-built sleigh,
Into the hills, where comrades meet again.
Come with thy music and thy warmer moon!
Far through the valley we will ride, till day
Gleams on the valley and the distant plain!

XII. THE BREAK-UP

Winter had bound the willow stems with locks
Of ice, and hung white horns on cabin walls,
Edged all the fir-trees in the forest halls,
And hid the bushes, fences, logs and rocks.
Winter had heaped the river's edge with blocks
Of ice; and birch-tree branches beamed with balls
And beads of crystal. Now the distant calls
Of pheasants drummed, and speckled grouse in flocks
Rested on turbaned fence-posts, and the sun
Rose earlier to bless the crystal morn.
The beating lines of flakes no longer sped
Across the fields, or in the willows spun.
Out of the forest sounded the silver horn
Of Spring; and snow-floods to the river fled.

XIII. RELEASE

Far in the forest woodmen's axes rang,
And lower strayed the long-imprisoned deer;
From broken skies smiled April, mild and clear;
The bluejays laughed, the wild canaries sang.
The log-saw hummed; the sledge's heavy clang
Mixed with the woodmen's shouts of mirth and cheer.
In the bright sunlight of the turning year
Gold-drinking buttercups in meadows sprang.
Beneath the glancing sun, my golden clock,
Daily I plowed, and turned fresh-sprinkled snow
Into the furrows, till the dusk fell gray.
At night, on roads of gleaming granite rock
I galloped to the village, deep below,
Where flute and banjo scorned the dawning day.

XIV. THE SUMMIT OF THE YEAR

From cherry orchards languid breezes bear
The blossoms, Summer's snowflakes, till they ride
And, fluttering, fall where, by the bunch-grass, hide
The waxen petals of the prickly pear.
And yellow butterflies go floating where
The clover field lies deep and green and wide,
Over the pink-frilled bitterroot they glide
Into the forest, in the noonday glare.
Yet soon again shall bend the stems of grain
Over still waters. Soon the full-blown rose
Shall fall apart, by autumn heat oppressed.
The restless wind shall beat and toss again;
Over the fields shall spread new sunset snows—
The millwheel of the year has reached the crest!

XV. DAY'S END

Deserted home in the forest! scattered leaves
Blown by the winds of autumn strew thy floors!
Broken thy windows and ax-carven doors,
Winter within, a weary exile, grieves,
And for the roof a snowy mantle weaves.
Between the logs the summer sunlight pours,
And into them the yellowhammer bores.
Upon the field no longer lie the sheaves.
Yet, still the lightning throws across the sky
Fast-bending steel. At eve the Northern Bars
Of flame arise in ranks of glowing white.
The rising robins from the valley fly
Into the shadowing forest. Pilgrim stars
Pick up their staves and travel through the night!

THE INFLUENCE OF THE MISSIONS ON PRESENT-DAY CALIFORNIA*

MARY PIUS CARROLL

Today California is a great and prosperous commonwealth with wonderful prospects for the future. Its history, since it sprang Phoenix-like into the Union in 1850, has been a story of the advance of an aggressive people who, by utilizing the unsurpassed advantages of soil, climate, position, and material resources, have made California one of the foremost states. There has been a steady increase in wealth, population, industrial activities, and culture since the American period began. But the earlier chapter of its history presents another picture. In the fertile valleys the Franciscan missions were centers of a different culture and of a different civilization. The present state of California did not develop from the Spanish settlements as did the Atlantic coast states from the thirteen colonies. The creation of the western commonwealth was wrought by another people with different laws, customs, and institutions. But the work of the early padres was not entirely obliterated in the rapid transformation, for the past still exerts an influence on the present conditions and life. To demonstrate the truth of this assertion is the purpose of this paper.

Without describing in detail the successful career of the missions which were at their height in the first quarter

* This essay won the prize awarded in 1915 by the Alumni Council of the Newman Club of the University of California.

of the nineteenth century, it is sufficient to say that the number of Indians who were baptized is recorded as 88,240, of whom as many as 25,000 were in residence at the missions at one time. These Indians, rescued from savagery, were making rapid strides toward civilization when the Mexican government ordered the secularization of the missions in 1833. With this change the moral support of the padres was withdrawn, and most of the Indians reverted to the free life of their forefathers. The land was soon occupied by the incoming settlers, and the once vast population of Indians decreased rapidly from starvation or disease. But were all the efforts of the padres wasted? No, for some of the mission Indians who survived continued to show the effects of their early training. They and their descendants clung to the Christian faith and, in numerous instances, to their habits of industry. Helen Hunt Jackson, the enthusiastic writer on the mission era, has described graphically the thrift of the remaining descendants of the neophytes of the old days who now live in the San Jacinto Valley and other sections of the south. She bears out the assertion of Father Engelhardt that the Catholic Indian of today is more self-sustaining than any of the other natives, due to the fact that the mission friars in their gospel of Indian salvation placed industry at the head of all human virtues.

These same authors demonstrate also beyond a doubt that the influence of the mission system is being felt in present educational methods, especially in those that deal with the Indian and other dependent classes. Not only is this noticeable in California but in the nation at large, for the United States government, after much investigation and many experiments, has adopted the same means of instruction as those that were followed in the missions. The national Indian schools, Haskell Institute and Carlisle, are now making industrial education the basis of their courses of study and, like the mission friars, are adding the intellectual culture only after the Indians have been taught to

be useful and self-supporting. The government has also taken some of the Indians of the Southwest from reservations and placed them again under Franciscans who continue the mission system.

The industries of the California missions were numerous and varied. Not only were the neophytes instructed in the industrial arts by experts and skilled artisans brought from Mexico for the purpose but, under the direction of the padres, the Indians constructed buildings and aqueducts, tilled the soil, planted orchards and vineyards, and raised vast herds of live stock. The work accomplished in sixty years by a few friars and their Indian converts is simply marvelous, and the direct influence it exerts today upon the economic life of the Golden State cannot be questioned.

The following few illustrations will amply prove this statement. The cattle industry of this state can be traced back to the two hundred head of cattle sent by the wise Gálvez in 1769. Sheep-raising in California began also at that time, and the horses for which many sections of the state are still famed are of the breed introduced by the early Spaniards. Kindred industries, such as the making of carved leather articles and hand-made bridles and saddles, still exist in the old Spanish towns of the state. Bee culture is another of the mission occupations that has survived to the present. The horticulture and agriculture of California also date back to the mission times.

The keen eye of the Franciscan padres for the qualities of soil and irrigation facilities is shown in the enthusiastic remarks about the agricultural advantages that are found in Crespi's diary. He also records the soils of different localities passed through as *emplastado*, heavy; *prieta*, dark; or *migajón*, friable; and the amount of the water supply was carefully estimated. Indeed, the missions might almost have been considered experiment stations where different plants were tested and only those that were most suitable to the soil and climate survived.

The padres brought trees and vines, as well as seeds,

from Mexico and Old Spain. Thus they greatly increased the plant life of the state, and these plants, particularly the palm, the orange, and the olive, then new to California, have been widely distributed. A few remnants of the once flourishing orchards still exist, such as the orange grove at Mission San Gabriel and the old olive orchard planted more than a century ago at San Diego. Today the olive culture has become one of the leading sources of wealth of this state, and the wine industry, founded by the missions, has reached a point where seventy-five thousand persons are dependent upon it for support. Fruit-raising and, in fact, all the rural pursuits have been directly or indirectly influenced by the knowledge and practical wisdom of the early padres, who always selected for the missions the most fertile land in the most favorably located valleys. This was due to the fact that the friars always settled where the Indians were most numerous. These latter had found out by long experience where the vegetation was most luxuriant and where the acorn and other seeds could be gathered with the least labor. Hence the missions have aided later-day settlers in choosing the best sections for their ranches. Besides adding to the variety of California plant life, the missionaries, by their study of the native herbs, discovered many new medicines, the best known of which are the *yerba santa* or holy plant, and the *casacara sagrada*, or sacred bark.

Not all of the time of the neophyte at the missions was occupied in religious observances and daily toil, but his life was relieved by social hours when he could enjoy leisure or engage in games and dancing. Much time was also devoted to music, which was extensively taught. On certain days great fiestas were held, when horse-racing and bull-fighting were the chief attractions. At such times whole beeves were barbecued, and the entire countryside turned out to enjoy the sports. The influence of these early celebrations reveals itself to-day when cities and towns add a romantic flavor to California outdoor life by spasmodically arranging old Spanish festivals, such as the Rodeo at Sa-

linas and the Portola celebrations at San Francisco. The carnival spirit, a heritage from the old Spanish times, is ever present in our people and is ready to burst forth and lend its gayety-loving and care-free attitude to any and all holiday celebrations.

The missions were the religious, social, educational, and economic centers of California, and, because of them, permanent military and civil settlements were made possible. San Francisco and Los Angeles, by their phenomenal growth of to-day, demonstrate the wisdom shown by the padres in the choice of localities. Several of the missions, on account of their attractive and advantageous situations, have become sites for present-day cities, such as Santa Clara and Santa Barbara, while many of the old Spanish settlements, notably San Diego and Monterey, are now showing signs of renewed prosperity. These historic towns stand as a concrete proof of the mission influence.

The civil establishments which grew indirectly out of the missions have not only affected the locality of cities but they have left their impress upon the laws of California, as John J. Boyce of Santa Barbara pointed out in an address before the Bar Association in San Francisco on January 12, 1895, when he said: "The municipal law of California contains proof of Spanish influences. Tribunals of conciliation, community property, separate property of the wife, domestic relations, descents, and distribution, trespass on land and proceedings in action may be mentioned as examples. To California is granted the distinguished privilege of uniting in her jurisprudence the common law of England and the civil law of Rome, each the product of a great civilization."

The mission system as an active force came to an end with the death of Prefect Narciso Durán in 1846, but it is not the purpose of this essay to discuss the story of the downfall and the widespread destruction of mission property that occurred after the Mexican government had passed, in 1833, the decree of their secularization. In 1842

the Mexican Republic confiscated the Pious Fund, which had been collected originally by the Jesuits for the benefit of the California missions. When Santa Ana, the president of Mexico, ordered that sum turned into the public treasury, he bound his government to pay six per cent annually to the church of California. This fund still exists, and in time it will be of great financial help in extending the Catholic faith. According to a decision rendered on October 13, 1902, by the permanent Court of Arbitration at the Hague, Mexico is bound to pay to the church in California \$1,460,682 back interest and the sum of \$43,050 annually forever.

Although the mission lands are held by other people and the Indian neophyte is no longer to be seen, yet the old mission buildings are the most conspicuous remnants of the early Spanish and Mexican domination. Consequently they continue to exert a spiritual and religious influence that cannot be estimated. Santa Barbara and San Luis Rey are occupied at the present time by Franciscan friars, who still work to spread the Roman Catholic faith in this state. Santa Clara is now another center of Catholic influence, and its university, although in the hands of the Jesuits, still maintains the early tradition of its founders for advancement and civilization.

The nomenclature of the mission era is so indelibly impressed upon California that it can never be effaced, and produces a fine spirit of toleration. Its influence has been lasting and uplifting beyond a doubt. Everywhere the mission and pueblo, the rancho and hacienda were baptized with the name of a saint of the church, and as the settlements grew and prospered the streets and public places were called after holy men and women. These names—Santa Rosa, Santa Ana, Santa Margarita, Santa Barbara, Santa Cruz, Santa Ynez, Santa Clara, Santa María, San Diego, San Francisco, San Gabriel, San Rafael, San Carlos, San Fernando, San Antonio, and many others that might be mentioned—are not only euphonious but also educational

and inspiring. Even the valleys and mountains, the rivers and harbors, in fact the whole land has been placed under the care and patronage of the saints of the Roman Catholic church.

For many years the missions were allowed to go to ruin, and no one thought of or cared for them. Nevertheless their subtle influences were slowly permeating the lives of the passive Californians, although unperceived, like a smouldering fire, until about two decades ago they suddenly burst into flame. All at once the people became conscious of their magnificent heritage, and their enthusiasm for everything of the old days began. The Californian saw in her past history wonderful possibilities to increase the picturesque charm and individualism of the Golden State, and he quickly brought about what might almost be called a Mission Renaissance.

This renewal of interest in the old missions was in no sense a religious revival, for the Roman Catholic church has done little, if anything, to further the movement. It was really a spontaneous burst of a growing state patriotism that sought concrete expression. After its inception it was not long before the most enthusiastic disciples of the new movement organized to obtain tangible results. There sprang up almost immediately numerous landmarks clubs, which were finally consolidated into the well-known California Historical Landmarks League, organized in 1902 for this avowed purpose: "To preserve the historical landmarks of the State, notably the missions, and to encourage research and study of Californian history." The fraternal orders of the Native Sons and Native Daughters of the Golden West, as well as the various women's organizations and outdoor art leagues, have joined in the work of saving old landmarks.

All the mission buildings are being repaired and restored, and along with this restoration of the old structures comes the revival of interest in the highway that once connected the missions like beads on a string. El Camino

Real, or El Camino del Rey, as it was called, had almost faded from existence. It is true that the Southern Pacific Railroad Company had chosen essentially the same route, but the precise trails traversed by the padres had been largely forgotten. Indeed, in some cases they are today still a matter of conjecture, and an association exists for the sole purpose of marking out as correctly as possible the original road by means of wayside bells hung from iron posts. The idea of reviving this old highway has caught the fancy of the present-day Californian and has stimulated popular imagination to an amazing degree. So intense has the interest in this historic trail become that, at the earnest solicitation of the various clubs and associations organized chiefly to effect its restoration, El Camino Real has been incorporated into and forms no unimportant part of the great State Highway now under construction.

In spite of all that is being done, the old mission buildings are fast disappearing before the relentless advance of a cynical and materialistic century. Some have already crumbled into decay, while others have been much transformed in the well-meant attempt to preserve them. Several of the mission churches are still used for worship under charge of parochial clergy. In all the secularization measures of the California governors the churches had been expressly reserved for worship, and the ownership of them and of the residences had been vested in the Catholic diocese. Bishop Alemany, who was appointed bishop of California in 1850, obtained possession of the few which had been occupied by squatters during the confusion of the American invasion. There was little difficulty in recovering a title to them because the material value was in every case inconsiderable.

The mission churches of San Buenaventura, Santa Ynez, San Miguel, San Luis Obispo, and San Juan Bautista are still in daily use, although more or less altered by repairs and additions of the last sixty years. At Carmel Mission, the burial place of Fathers Serra, Crespi, and Lasuen, and

at Dolores Mission in San Francisco the churches are preserved and are used for worship on certain occasions. At San Rafael and Santa Cruz the mission buildings have disappeared. Soledad and La Purísima exist only as adobe ruins and are deserted. At Sonoma the church and part of the other buildings are in use, but only as storehouses. Of the mission at San Diego, the oldest of them all, there remains only the front wall, but an Indian boarding school on the mission grounds maintains its old traditions. Mission San José has a new church on the site of the mission buildings. There is a chapel used for service at Pala, the dependent mission of San Luis Rey. Santa Clara has preserved still the old church much restored, in front of which is the original mission cross. Santa Barbara and San Gabriel stand today in their pristine glory as monuments to the greatness of the past. San Juan Capistrano and San Fernando are impressive sights with their churches in ruins, although in each case some of the adjoining mission buildings are used at the present time.

These historic landmarks are still a vital factor in California life, and yearly they attract thousands of tourists who contribute to the material well-being of the various sections of the state. The missions have been so broadly advertised by the transportation companies that they are now almost as well known as the cathedrals of England or the churches of Rome. Local communities and railroad companies reap material benefits, while the tourist, if he be of a reverent or romantic turn of mind, draws deep inspiration from the history of the past.

William Henry Hudson thus describes the charm that still hovers about the crumbling walls: "The missions of California passed away leaving behind them practically nothing but a memory—yet this is surely a memory to be cherished by all who feel a pious reverence for the past. . . . Alike for those who live beneath the blue skies of California and for those who wander awhile among her scenes of wonder and enchantment, the old mission buildings will

be objects of curious and unique interest—survivals from a by-gone era—not only of the purposes of their founders but of the faith which built the great cathedrals of Europe. A tender sentiment clings about them—in their enclosures we breathe a drowsy old-world atmosphere of peace. To linger within their walls or to muse in their graveyards is to step out of the noisy present into the silence of departed years where everything is of yesterday and whose marvellous natural beauty is but rarely touched by the associations of history or the charms of romance. These things have a subtle and peculiar power—a magic not to be resisted by any one who turns from the highways of the modern world to dream among the scenes where the old padres toiled and died, and as in his imagination he there calls up the ghostly figures of neophyte and soldier and priest—now busy with the day's task, now at twilight kneeling at the altar in the dimly lighted chapel as the murmur of strange voices and the faint music of bell or chant steal in upon his ears, he will hardly fail to realize that, however much or little the Franciscan missionaries accomplished for California, they have passed down to our prosaic after-generation a legacy of poetry, whereof the sweetness will not soon die away."

The influence of the outburst of admiration for the missions has affected even the business world. Clever farmers, merchants, manufacturers, and real estate men soon saw in it wonderful opportunities for novel advertising. The mission has almost become the symbol of California. As a result the old mission names are used to catch trade, and one can buy Pala peaches, a can of mission olives, a box of mission oranges, a "Sonoma Mission lot," or a home in St. Francis Woods. The realty company that placed the last-named tract on the market even went so far as to hold a competition for the best poster representing scenes from the life of the Saint of Assisi to be used on signboards. Curio dealers, too, have also taken advantage of this feeling, and as a consequence they have stocked their

shops with all sorts of souvenirs of the old missions. Photographers, as well as postal card and calendar dealers, likewise have reaped a golden harvest. This commercialism may be regarded as the superficial manifestation of the deeper influence that the Spanish missions are exerting on present-day life in California.

The most obvious and striking result, however, of the efforts of the pious friars is to be seen in the creation and development of the mission type of architecture, which has become so popular in recent years in this state. Many writers describe the style as Moresque or Moorish and say that the padres brought it with them from Spain, but this is not strictly true, because these early mission builders created an original type of architecture which was harmoniously adapted to the blue skies and lofty mountains of California. It is a native growth of the new soil, and there is nothing to resemble it elsewhere in America, or, as one writer has said, nothing to correspond with it in Spain. Indeed, it is a mixture of various elements that the designer used for convenience and adaptability.

The custom of building about a quadrilateral with the structures opening on interior court planted with gardens where trades could be plied in the open was universal. So great a hold has the mission architecture taken upon the people that it has become the favorite type of building in this state today. On every hand are to be seen edifices which, in their adaptation of the mission type, serve to recall the old times, and, as a result, mission architecture is observable in the construction of dwelling-houses, schools, churches, libraries, hotels, depots, courthouses, and even warehouses. To perpetuate a historic idea Leland Stanford had the mission architecture used in the construction of the magnificent Stanford University at Palo Alto, where the open court, the long colonnade, the round arches, the corridors, and the tile roofs present a style unique and picturesque, as well as commodious and convenient for the purposes designed. The architecture of

the Glenwood Mission Inn at Riverside, California, also conforms remarkably to that of the missions. The roofs are covered with red tiles and in the tower there is a chime of bells. Within the building the mission atmosphere is preserved in its decorations and furnishings.

On every hand, then, may be seen not only public buildings erected upon the old mission plan, but, as an offshoot from the mission type, has come the popular California bungalow.

This creative inspiration has made itself felt in letters and art as well as in architecture. Numbers of novels whose plots are laid in the old Spanish era have appeared from time to time, notable among these being *Ramona* and *For the Soul of Rafael*. John S. McGroarty in *The Mission Play* and Chester Gore Miller in his historical drama, *Father Junípero Serra*, have portrayed the early epoch for the stage. Many romantic, sentimental, and descriptive books about California have been published in recent years, and they nearly all mention the missions or mission life. Some authors, such as Helen Hunt Jackson, Laura Bride Powers, and George Wharton James, have devoted themselves almost entirely to the subject; and the poems of more or less merit that deal with the missions are legion. Indeed, one may say that almost every writer who has visited the old buildings and ruins has so felt their influence that he has penned a sketch or a poem about them.

The historiography of California forms no unimportant part in the state's literature. It includes not only the manifold works of recent authors but also many that are even more valuable and interesting, such as the *Life of Father Serra*, by Palou, and the diaries of the early padres, especially those of Father Palou and Father Crespi.

The picturesque mission ruins have also fired the imagination of artists, who have created anew on canvas the romantic scenes of the old days. Sculptors, too, have here found a worthy theme, and they have immortalized Serra

in bronze and stone. From the actual art work of the mission fathers, who decorated everything, a whole school of design has developed. This has been accomplished by the hand-crafts artists, for they have largely copied the patterns, colors, symbolism, and, in some cases, even the technique of the Franciscan pioneers. As a consequence hammered brass and copper, tooled leather, carved wood, and the bindings of books all suggest the mission art.

The spirit of restoring and preserving the memories and the traditions of the missions has found its highest and best expression in the impetus it has given to the study of local history. Today school children are taught the facts of California history and are conversant with the story of the missions. To meet this new demand various textbooks have been prepared. Sexton's *California Stories* can be mentioned as works suitable for the primary classes, while Hunt, Norton, and Bandini have published acceptable histories for the grammar grades. The year 1914, however, saw the culmination of this work when the regents of the University of California, in response to popular demand, established a chair of California history in that institution. The Native Sons of the Golden West have been the prime movers in encouraging the study of local history, and in 1910 they gave \$1500 to found a traveling fellowship for the study of Pacific Coast history. Later they added a like sum for the support of a resident fellowship, and so they are now contributing annually \$3000 to carry on research work. This action on the part of the Native Sons has been the result of the revival of interest in the missions.

Not only has the work of the historical students, who have had the advantage of the Native Sons fellowships, added much to the world's knowledge of Spanish institutions but it has aroused a closer friendship between Spain and California. A convincing illustration of this better understanding between the two countries is the fact that Governor Johnson thought it worth while to appoint an

official representative for California at the bicentennial celebration of the birth of Father Serra, held at the island of Majorca in 1913.

The Franciscan missionaries accomplished great things in their day. They did the pioneer work, introducing modern civilization into our state. They christianized and held in control for a time a vast savage people. The missions were centers of productive industries as well as communities of culture around which clustered the Spanish population. The period of their glory covered less than a century, yet in that brief time they broke the virgin soil, faced and overcame the dangers of the wilderness, and prepared the way for a newer, broader, and more enduring culture. Their greatest service to the present-day Californian was in their making Spanish, and later Mexican, ownership of the land possible by keeping off more aggressive and stronger nations until the United States, moved by her "manifest destiny," stepped in and took the land from the feeble hands of Mexico. Consequently the influence of the missions is the fundamental fact in Californian history.

True, indeed, are the following words of Mr. John F. Davis: "The work of these missions is not dead. Their very ruins still preach the lesson of service and sacrifice, and so every Californian, as he turns the pages of the early history of his state, feels at times that he can hear the echo of the angelus bells of the missions amid the din of money madness of the later days and can find a repose in the better angels of his nature."

Bells of the Past, whose long-forgotten music
Still fills the wide expanse,
Tingeing the sober twilight of the Present
With color of Romance.

THE PURPOSE OF UNIVERSITY STUDY*

RICHARD C. TOLMAN

Now that we have come to the end of the year, let me tell you once more what I believe to be the real reason for studying thermodynamics, or indeed any subject worthy of inclusion in a college curriculum. It is of course the enrichment of the inner mental life by satisfying those strong desires which we all have for systematic knowledge concerning the universe and the laws which describe its behavior. In other words, the main purpose of our studies is in its broader sense the promotion of culture.

It has sometimes seemed to me, however, that by its connotations culture has been made the most disgusting word in the English language. It is so often spelled with a capital C and pronounced Cull-chaw, denoting a sort of prize package which can be acquired by attending a course of Chautauqua lectures or by electing enough units in subjects which do not require exact thinking or close application. And the height of vulgarity seems to be reached by those colleges which blatantly advertise this commodity culture for the price of a few years' hazy thinking.

Now, culture is not a *thing* which you can go out and get as you would buy a banana at a fruit-stall; it is rather the by-product which accompanies a life of vigorous and worthy mental effort. It is the particular duty of colleges

* Remarks at the end of a course in thermodynamics applied to Chemistry.

to prepare men for this noble kind of life, and if they succeed in their task their students will leave the university capable and desirous of valuable and independent intellectual endeavor. The question which should interest us is to decide by what methods the college can best attempt the performance of this task.

For the performance of valuable intellectual work two things are necessary: first, a strong desire to do that kind of work, and, second, the necessary mental efficiency.

Colleges can help to create the desire only in very indirect ways. For example, they might bring together a company of scholars who are themselves really doing work that is worth while. Such a group of scholars might be as valuable a source of inspiration as a campanile, and at the current price of scholars far cheaper.

As to mental efficiency, the college can go to work in a much more definite way. The characteristics of mental efficiency are knowledge, and power to use it.

The knowledge part of the problem is only too easy. Even the so-called "culture colleges" seem to be very successful as reservoirs from which the intellectual pap shall flow down the unresisting throat of the undergraduate. If they fail at all in this regard it is perhaps because, in their attempt to create a so-called intellectual background, they spread the knowledge too thinly over many fields, not realizing that a truly deep and intimate acquaintance with one branch of knowledge will often supply analogies for the appreciation of intellectual progress in general. When the mental background gets spread out very, very thin they call it intellectual *atmosphere*.

With regard to the power of using knowledge, that is, mental efficiency in its narrower sense, the "culture colleges" fail most lamentably. What is needed for mental efficiency is an ability for sustained and continuous work, a power to think clearly and logically, and that originality of thought which distinguishes real intellectual progress from a mere rehashing of ideas that have long been evident.

Instead of these things the "culture college" will provide you with a gentlemanly interest and a lack of accurate information in any field of knowledge that does not require too much thinking.

Although I myself have no particular interest in *applied* science, and deeply regret the over-materialistic ideals which usually accompany such studies, yet I think that schools of engineering and applied science far surpass the "culture colleges" in promoting mental efficiency. By the comparative severity of their requirements they accustom students to habits of sustained and continuous mental work; the very nature of their work makes it necessary to lay more stress on the ability to think clearly and logically than on the mere acquisition of knowledge; and their continued insistence on the solution of original problems, both on paper and in the laboratory, at least develops within somewhat narrow lines what little God-given originality the student may have.

Perhaps I can make my feeling of distrust for the "culture colleges" clear by characterizing, perhaps caricaturing, their graduates. They usually seem to me shallow and superficial, with little power of continuous work. They are interested in ideas because of their *immediate and obvious* application to human affairs, rather than for their fundamental significance. For example, their insistence that the humanities are the only subjects which have cultural value means that they themselves lack those qualities of industry, clear reasoning, and power of abstract thought which are necessary for a mastery of mathematics and the sciences, and an appreciation of their fundamental meanings for human life. Finally, they seem to me more interested in *how* they do a piece of intellectual work than in the important question of whether that particular piece of work was worth doing at all. Thus in literature they are clever artisans who can neatly shape and fit their words around the commonplace, rather than real artists whose ideas stand forth true and naked.

You, however, are having a different sort of training. You are learning to think clearly, exactly, and impersonally; for without that kind of thinking a mastery of the complicated and abstract fields of mathematics, physics and chemistry is impossible. And further, you must learn to apply in the fields of more general human interest those same methods of exact and impersonal thought. When you can do this you will be able to analyze history and see if it is necessarily a mere collection of interesting anecdotes about kings and their mistresses; you will be able to analyze the religion of the churches and see if by some lucky accident there may not be a few grains of wisdom somehow concealed beneath that mass of nonsense and superstition; you will be able to view the structure and organization of society from an objective and impartial point of view and decide for yourself whether the rewards for business shrewdness and for administrative ability are not unduly out of proportion to the service rendered. And finally when your powers of impersonal analysis are well developed and you have become influential alumni of this university, and have forgotten the vague sentimentality of undergraduate college life, have forgotten the disgusting "golden bear with the Paderewski hair," and the absurd notion that athletic victories are somehow a credit to a university whose aims are intellectual, then I trust you will be able to turn your attention to the service of the real needs of the university, which are not more courses in hat-trimming, in poultry husbandry, or in dental porcelain, but an appreciation of the value of those high intellectual endeavors whose purpose is not so much the discovery of immediate practical applications as the permanent enrichment of the inner mental life.

THE SAGA OF FINN

LEONARD BACON

Out of the North is the story, and bitter is the tale;
 Saga of men that perish, of women that must wail.
 Of solemn deeds and shameful, of slaughter and of sin
 Tell the red-dabbled annals of the murder-debt of Finn.

King Finn that ruled the Frisians a wife to him had ta'en—
 Even the damsel Hildeburh, the daughter of the Dane.
 Little and light was the damsel, yet great was the heart of the Queen.
 Men and their ways she knew them, the whole of their thought had
 she seen.

Her voice was proven in statecraft; she counselled well and high.
 Ere they did, men asked her deeming, and still abode thereby.
 With her mirth was the palace gladdened, and men rejoiced in her
 laugh.

Was none but looked with favor on the sister of King Hnaef.

Men wot not why disaster with beauty still should bide,
 Nor why unto great goodness great evil should betide;
 The hands of fair endeavor and the brave heart of the strong
 Oft and oft given over to the hard behests of wrong.

Even at her very bride-feast broke out the sharp debate.
 With her brothers Hnaef and Hengist, King Finn her husband sate.
 And Snaebiorn the minstrel rose up to sing the lay.
 And dreadful was the burden of the song he sang that day:

“Loud is the great bride-feast. Ho! harpstrings cry aloud!
 This day the Danes are merry. This day is Friesland proud.
 This day the lords of Denmark have won a wider reign.
 This day is the beginning of the glory of the Dane.
 In the tempest of the trumpets, when the war-stallions neigh,
 The leaguers of our foemen shall think upon this day.
 Well may they dread in spirit when they hear the trumpet peal,

And Denmark comes to battle with Friesland at the heel.
Like a snow-slide from the mountains shall the men of war march
forth.

Against the Southern cities shall they thunder from the North.
'Tis the time of the new morning. Apace the dawn doth break.
All of the Earth's wide Empire is ours to give and take."

To Finn King Hnaef said straightway: "Take ye no force of
the song;

His head is turned with the wine-cup, he has drunken over long."

Naught said the King of Friesland, but his soul was wroth within
Till Hildeburh spake unto him, then at peace was the heart of Finn.
For he was a good sea-king and gentle in those days.
From Friesland to the Faroes the sailors sang his praise.

His name was a good chantey when they brought the white oars
home,

The hawk of the sea-highways, the falcon of the foam.
No man forgot his forays with him that sailed the sea,
And no man bitted stronglier the stallion of the tree.
Woe to mankind that changes the better for the worse.
The weakling of the spirit is many another's curse.

Said Unferth Finn his marshal: "O Danes, we have heard your
lay.

Much that was good of Denmark did your proud minstrel say,
But little enough of Friesland and he left all untold
The tale of the bride's dower, the silver and the gold,
The plowland and the pasture, and the great hold of war
That standeth on our borders, which ye promised furthermore."

Hnaef gave him an easy answer, though he brooked the speech
but ill,

For upon that tide to quarrel he had but little will.
But to bicker unto Hengist was meat and drink withal.
And his voice was a sharp weapon when he raised it in the hall.

"Frisian," said he, "thou speakest no wise a gentle word.

Ill it becomes thee, lightly at a Danish King to gird.

There is no man that liveth but were well enow apaid
Without a dower, if haply he might marry such a maid.
Lo I will double the silver and the gold in Finn his hand,
But he shall not have the fortress or a foot of Danish land.
The wealth of such a treasure, and the boast of such a kin—
Shall they not pay the Frisians? Are they not enow for Finn?"

At that arose the Frisians. At that the Danes rose up.

All men thought on the sword blade, all men forgot the cup.
But before a sword could flicker, before a stroke could fall

The voice of the Queen Hildeburh was heard within the hall:

“ ’Twas a great oath, my brethren, that ye did give and take.
 Keep it for Denmark’s honor and keep it for my sake.
 As yet no man has known you to be untrustful lords.
 Will ye make my very bride-feast a holiday of swords?
 God turn from them my brethren their word who keep not true.
 May he turn from Finn my husband if he break faith with you.
 Shall a minstrel and a braggart do the great kings a scathe?
 So be merry at my marriage and turn away from wrath.
 As for Snaebiorn the minstrel, he shall sing a better song.
 Let us forget in laughter the insult and the wrong.
 And as proof of my forgiveness to Friesland he shall ride
 To sing the songs of Denmark at all times by my side.
 The lips that were unlucky to the Danes shall speak no more.
 ’Mid the damsels of the Frisians he shall dream no dreams of war.”

They healed the strife for a season because of a girl’s laugh.
 But hard was the heart of Hengist and hard was the heart of Hnaef.
 To Finn they gave the stronghold, yet they forgave him not.
 And the issue of the word-war none of the kings forgot.

Hnaef showed not any counsel and no man knew his mind.
 He undertook no venture but another hid behind.
 When the hunt was given over then did he take the game.
 Where a better man had yielded in the fight he overcame.
 He was a pitfall for nations that were come unto their time,
 But his dark brother Hengist was a crag for them to climb.
 Never was foaled the stallion that Hengist dared not tame.
 Hnaef was unto his brother as the smoke unto the flame.
 His soul knew never a master. His will would brook no check.
 On the reefs of his desire the strong ships went to wreck.
 To him of little moment alike were might and right.
 In Hell would he take his pleasure in all the devils’ despite.
 Such a twain were the brethren and to balk them aye was ill,
 For the one wrought for the other the utmost of his will.

Yet pondered Hnaef: “This anger, in the morning it will pass.
 Hers is a gallant husband, and I wish no ill to the lass.”
 But the heart of Hengist was subtle. And black and bent were his
 brows,
 As he watched the bride and bridegroom depart from his brother’s
 house.
 Loud bayed the hounds about them. Echoed the Frisian horn.
 And Hengist thought of the bride-feast, how his sister brought him
 to scorn.
 The fury burned in his spirit till his very lips did parch

As he thought how they had yielded the stronghold on the March.
 He plowed the fields of anger to reap the crops of wrath.
 It was a mighty harvest that grew great about his path.
 Within him strove his spirit, as it were a serpent of flame.
 And Hengist could not o'ercome it and Hengist it overcame.

So strange a thing is anger, on earth is naught so strange.
 With love he is begetter of all the sons of change.
 Under the skies unaltering the thunder of his wings
 Troubles the inmost currents in the dread tide of things.
 So the whole world together moves onward like a flood.
 Unto the same destruction rush the evil and the good.
 Down comes the mountain-torrent, the grinding boulders growl.
 Afar the white foam flashes. The streams run swift and foul.
 Down the sheer banks come crashing where the new courses haste.
 The angels of disaster make merry in the waste.
 Never yet came a plowman where the strong cataract ran.
 In the violated cornfield reapeth no husbandman.
 But all the herbs most harmful, the tetter and the tare,
 The devilswort and fiendspurge, find savage flowering there.
 And underneath their shadow the children of the stone,
 The lizard and the rock-snake, find sustenance alone.

By parable and likeness, men seek the truth to tell.
 Even as a field was Hengist where such a storm befell.
 He rode out to the hunting; his mood it might not mend.
 Aye to the Frisian marches with his comrades would he wend.
 He pitched his broad encampment on a hill o'erlooking all.
 Afar off toward the sunset arose the hold and the hall
 Of the fortress of the dower. He looked thereon each day.
 A month in the encampment to nurse his wrath he lay.

One day he tracked a roebuck. An alder-clump within
 Like a blind man he stumbled on Snaebiorn and Finn.
 The same buck they hunted. It was not Hengist's day.
 King Finn with a broad arrow has smitten down the prey.
 Quoth Finn: "Take you the roebuck. I hunt but to make game."
 But Hengist would not take it for anger and for shame.
 For he thought: "Aye he runneth my purposes athwart.
 As he took from me my birthright, will he take from me my sport?
 His goings and his comings even as a snare are set
 About me in all places to take me in the net."

And Snaebiorn looking on them saw the flame was well alight
 And that death alone might alter their anger and despite.

No more King Hengist hunted, but he sate all day in the gate
 And men called the lost fortress the castle of Hengist's hate.

Autumn gave way to Winter. Winter to Spring gave way

And Hengist lay in his chamber at the ending of the day.
 And he dreamed men sate about him with their alehorns at the
 board,
 And Guthlaf and Oslaf his servants stood up with a broken sword.
 Said they: "Look once on the sword blade and your heart shall
 be glad within."
 And he looked and his heart was lightened, for it was the sword of
 Finn.
 From his dream awoke King Hengist. Swift he leaped from the
 bed.

Forth unto Hnaef his brother with the tale thereof he sped.
 For keen was the King's counsel. He knew the wheat and the chaff,
 And a strong sword in battle was the judgment of King Hnaef.
 Said Hengist:

"Yon Dane, our brother, hath stolen our strength away.
 He won it over lightly without a stroke in the fray,
 And I cannot heal my spirit until it be restored.
 Last night I dreamed in my chamber and I dreamed of a broken
 sword;
 And I looked upon the sword blade, and it was the sword of Finn.
 The storms of his destruction are lowering to begin.
 I care not if he perish. If he give us the fortress back,
 For the sake of the Queen our sister, he may scape this once from
 the wrack.

If he will not we will slay him though the devil stand his aid.
 How he shall stand against us and the sign of the broken blade?"
 Hnaef answered unto Hengist:

"Put up your sword to rust.
 Our friend and our sister's husband, we have him in double trust.
 Ours is the greater army, and ours is triple the might.
 But God and not the devil will stand his aid in the fight.
 And ill-luck is their rearward and misfortune rides before
 The marshals and the captains that make unrighteous war."

And Hengist stifled his anger, and his secret heart did hide
 And wearily he waited to see what might betide.

Now Snaebiorn dwelt in Friesland in service on the Queen.
 Grey enow were his shoulders but yet his head was green.
 With every man he bickered. And he quarreled and made game
 In the hall-feasts of the Frisians of all the Frisian name.
 They recked not of his flyting, but all laughed in his face.
 They called him a good japer. They mocked him in disgrace.
 For all his hosts of insult their anger would not rise.
 The wrath of his displeasure was grateful to their eyes.

In the midst of the next winter, at the feast of the young year,
 To Finnsburgh all the Frisians thronged in from far and near.
 When all had eaten and drunken, Unferth the marshal said:
 "Send for the minstrel Snaebiorn. Give us the featherhead."
 King Finn was fain of the japing. He gave them their behest.
 Came Snaebiorn the minstrel to jape for them and jest.
 Now a proud man was Snaebiorn like all that sing the song.
 And all his heart was bitter at their excelling wrong.

He swept the harpstrings backward. Forward he swept them
 again.

In fury and in anger he lifted up the strain:

"Low is the helm of Denmark, and Friesland's head goes high.
 In the country of the weaklings a banished man am I.
 Much I endure in exile and suffer grievous things,
 Far from the gracious presence of the givers of the rings.
 In Denmark men have honor. Here they dishonor men.
 The stag dwells in the upland, but the vermin in the fen.
 Oh for the days passed over! Then among Kings I dwelled,
 In a land where a Maker in good esteem was held.
 But one thing is most grievous. That I cannot forget.
 A Danish Queen is Hildeburh and she is childless yet.
 Hengist was a great stallion, Hnaef of a noble stud,
 And Hildeburh the lovely is a sister of that blood.
 Woe for the Danish madness, folly beyond compare.
 'Tis long enow to the foaling for the gelding and the mare."

This time the Frisians laughed not. Little enough they said.
 But they fell on him and beat him till his very soul was red.
 With the stave and with the ox-goad, with the buckle and the thong,
 They gave payment beyond measure to the singer of the song.
 The shrieking and the cursing, the clamor and the din,
 Roared upward like a battle in the great hall of Finn.

Blacker than heights of thunder the King stood in the crowd,
 Then to the Marshal Unferth fiercely he cried aloud:

"Call them off swiftly, Marshal, or the fellow will be slain.
 He is here as my house-guest, thereof I am not fain.
 But though great shame he speaketh the knave they shall not slay."
 Thereat the Frisian guardsman plunged into the affray.
 Battered and blind and gory, they lifted Snaebiorn up.
 And Finn himself thereafter gave him liquor from the cup.

When the broken man had drunken anew to him said he:
 "Get hence again to Denmark, where they will honor thee.
 Ill luck where'er thou comest thy lot it is to bring.
 I will not do his justice for my brother Hnaef the King."

Ever at dawn of Springtime King Hnaef in judgment sate

To try his peoples' causes, the little and the great,
 And to gather in his taxes. And there all Denmark came.
 And the King spake to his nobles, naming them all by name.
 "Now welcome, gallant Sigferth. Good Eawa, hail to thee.
 A fair sight are the heroes who bear thee company.
 And you, too, Oslaf and Guthlaf, my brother Hengist's men,
 In fair-time ever gladly I see you here again.
 Sit ye all down at table and drain the southern wine.
 Then help me count the tribute, the cattle and the swine."
 So went the talk and the bustle and men came out and in.
 There was laughter and rejoicing, greeting of kith and kin.
 Men gossiped by the high-seat; in the courts the cattle lowed.
 Ne'er was a merrier hour within King Hnaef's abode.
 Till the voices of a sudden were silent in the street,
 And a warder hastened swiftly to Hnaef on the royal seat.
 Unto his king for justice, blind and bloody and lame,
 Hobbling and gabbling wildly, Snaebiorn the minstrel came.
 And he cried to all his story in his anger and his pain.
 "Lo, King, see what in Friesland men do unto a Dane."

Hnaef was as wroth as Hengist on the high-seat where he sate.
 But he changed no whit his visage. He altered not his state.
 With a hard look and a heavy, bent brow and bitter eye,
 He sate there to do justice and he harkened Snaebiorn's cry.
 "Tomorrow I march southward to Friesland by the sea.

Tonight let all the hammers clang in the armoury.
 I go not for my pastime. I seek not peace or war,
 But they have had their pleasure and they shall pay therefor.
 I will show Finn our brother that there is naught to gain
 But the stroke of many sword blades from insult to the Dane.
 For the jape they played on Snaebiorn for the pure mirth of an hour
 They shall e'en pay back to Denmark the castle of the dower."

In the hall stood a Frisian all of the tale that heard.
 He halted not, he stayed not. He wheeled at the word.
 Ere the ruck of men beheld him that there about did wait,
 He had leaped on a stallion that was tethered by the gate.
 A Dane sprang at the bridle, but he rode down that Dane.
 On the neck he leaned forward and out he shook the rein.
 With the flat of his sword-blade he smote the stallion's flank.
 Into the horse's barrel the bloody rowels sank.
 A bowman rose behind and twice he loosed the shaft.
 The Frisian as he galloped shouted back at them and laughed.
 That was not well. He laughed not thereafter soon again.
 For the third arrow smote him, and he screamed with the pain.
 He swayed in the saddle, but he fled from their sight.

Loud, loud clanged the hammers in the armoury that night.

On the next day at sunrise, in a rainstorm grim and great,
Hnaef marched away to Finnsburgh to the hold of Hengist's hate.

On the second day thereafter they saw its gables bright,
Where the dying sun smote on it with last gleam of his light.
Under the night came Eawa and Sigeferth with him.

They drew nigh unto the fortress while yet the dawn was dim.

They swam the ditch; the warders at the first rush were slain.

Into his father's fortress once more came Hnaef the Dane.

Yet smoked the torches. Round him the ghastly dead were seen.

And white and stern before him stood Hildeburh the Queen,

Not like the little damsel he had stroked upon the cheek.

Like a Queen she stood before him to hear what he should speak.

And Hnaef keen from the slaughter, and with blood and dust defiled

Stood mute and dumb before her, for he saw she went with child.

But Hengist looked upon her and like a horse he neighed:

"Ho! here have we the warrant that our lendings shall be paid.

Here with your brother's sister a space shall you abide.

We are fain to watch beside you till your season shall betide.

The clanging shields of battle, the thunder and the din,

Shall welcome the deliverance of the first-born to Finn."

Said she: "True men may perish. Yet traitors get no grace."

Hnaef could not look upon her. Laughed Hengist in her face,

And strode to her and kissed her. He did not laugh again.

For she seemed as one that pitied and that knew herself no pain.

Forth from her slunk her brethren. They held their council there.

"King Finn will be upon us ere the next morning glare."

So Oslaf spake. Said Hengist: "Let the Dane-beater come.

We will give him a high welcome, here in our ancient home."

Said Hnaef:

"Our host is mighty and the place well-fenced and strong,

But theirs is a hard labor who battle for the wrong.

I have no skill this matter at this season to decide.

Would we had had more judgment or that less had been our pride.

Many a man will perish and many a woman grieve.

Through the warp of the disaster the woof of death we weave.

For a little lust and loathsome, men look Hell in the face.

Were it not for a fool's courage, I would give him back the place."

Hengist was wroth at his brother: "King's son and King art thou.

Ere thou putttest away thy kingship, let us end the council now.

God send I be not like thee, or that ever on a day

Such a word I should utter that a king could not say.

Henceforth let the Queen Hildeburh be kept unto her bower,

To be with Finn our warrant for the castle of the dower.
The solemn love he bears her, the life she bears within,
Shall be better than a buckler against the wrath of Finn."

They warded well the castle. At the end of seven days
On all the heights about them they saw his lances blaze.
He led a greater army than they had bargained for.
Three kings of the South Islands were in his host of war.
He would not give them battle, though they offered oft and fair.
But he closed in around them as it were some creature's lair.
Greater and ever greater his host came pouring in.
Hnaef and his brother Hengist were taken in the gin.
Day after day they sallied forth on a new attack.
Day after day Finn smote them with the arrows reeling back.
Month after month passed over. Summer grew sere and died.
It came to the end of autumn. 'Twas a black harvest tide.
The leaves fell in the courtyard. The bitter sleet blew o'er.
In labor of her first-born Hildeburh travailed sore.

Came the night black and stormy. She lay there in her pain.
The gale blew hard outdoors, driving the blasts of rain.
At the babe's very birth-hour arose the howl and yell.
At length in all his fury Finn upon Finnsburgh fell.

At the east gate they entered. Eawa and Sigferth stood
Like tigers in the gateway, yet might not make it good.
Down came the hacking axes. The arrows whistled in.
Like a horn through the battle roared the great voice of Finn:
"Have at them, Frisian berserks! Unferth, burst in the door!
We shall see now their mettle on women that make war."
Right through the Danish bucklers the sweeping onslaught stormed.
Into the heart of Finnsburgh the foremost Frisians swarmed.
But Hnaef and Hengist bode them. Within they smote them down.
There was none of all the vanguard that carried thence renown.
At length as came the morning like a storm the war blew by.
In the bower Hnaef and Hengist heard the women wail and cry.
Thither apace they hastened, the tapestry they drew.
Hildeburh lay before them, and smitten through and through
With an arrow shot at venture lay the babe upon her breast.
Softly she sang, and softly she touched it and caressed.
And she said: "O my brethren that are my rod and staff,
'Tis a fair child, the nephew of Hengist and of Hnaef."

That morning to the Frisians came a herald from the Dane:
"Too long endures the slaughter. Too many have we slain
In this a petty quarrel. We have done wrong for wrong.
We will yield the hold of Finnsburgh and all that doth belong.
Let the Kings go up to council yonder upon the height.

The matter to the utterance they shall decide aright.
 And for sign that we are honest and move no slight herein,
 Forthwith shall the Queen Hildeburh be given again to Finn.
 But to the Kings of Denmark swear now no ill to do.
 Let the chiefs meet together with a little retinue.
 Bring with thee sixty henchmen." Said Finn: "I will them bring
 And the man who harms you dieth and this is the word of the King."

Came Hildeburh out of Finnsburgh. Into the camp she came.
 Loud—loud the host of Frisians shouted upon her name.
 But she came empty-handed; weak and dumb she stood before
 The high-seat of her husband amid his men of war.
 And Finn rose up in anguish and embraced her as she said:
 "Thy son was born in the battle, and he lieth with the dead."
 Her maidens came about her, to the tent they led her in.

Grim was the face of Unferth as he looked on the face of Finn.
 Finn had no thought of evil, but the Marshal knew not shame:
 "On the height let us set an ambush. There will we take the game.
 Think not upon thine honor. This is a kingdom's stake.
 The oath that a king has given only a king can break."
 Wrath throve in the king's spirit, for grief consumed his soul.
 Yet dear he loved his honor and fain had kept it whole.
 Judgment departed from him. He broke the oath he gave,
 And his was a traitor's promise by the counsel of a slave.

He slept in his pavilion, dreaming strangely as he slept
 How the world told forever how king's word was kept.
 Changed the dream. His heart was shaken with fear that fell like
 frost,
 For he dreamed of a broken swordblade and he dreamed of a
 kingdom lost.

And the fire possessed his palace and the swordsmen smote therein,
 'Till the blood ran o'er the door-sill in the palace of King Finn.
 He leaped for fear and anger and wakened with a groan.
 The fire of the red sunrise in at the tent-door shone.
 His wife slept overweared. He kissed her where she lay
 And departed from her presence to murder and betray.

Hnaef and his brother Hengist arose to keep the tryst.
 Loomed up the sunshot summit of the hill above the mist.
 The whole world was royal with waves of scarlet light,
 And they saw the brazen helmet of Finn flash on the height.

Said Hnaef unto his brother: "Before thee will I ride
 Unto King Finn the sea-king to see what doth betide."
 And Hengist drew the bridle and descended from his horse
 And sate him on the hill-side 'neath a withered clump of gorse.
 The hill was brown and barren. The grass lay lax and dead.

The stiff and rustling thistles were higher than his head.
 But he looked up, and between them saw high on the hill-side
 Hnaef and his brother Hengist unto each other ride.
 Finn's marshal bode beside them. He saw that far debate
 And knew that all his empire lay on the knees of fate.
 But suddenly a henchman shouted to him: "My prince!
 Ride for your life. There is treason. Lo where the armour glints!"
 King Hengist caught the stallion. He leaped into the selle.
 Over and round about him the humming arrows fell.
 Finn's marshal galloped at him with his sword swinging wide.
 "Ho, treason for the traitors!" with a great voice he cried.
 Hengist the King looked upward to the hill-top over all.
 On the helm of Hnaef his brother he saw the axes fall.
 He would have turned unto him ere the Frisians smote him down,
 But he saw that they had slain him and rode for his life and his
 crown.

Right through a plump of spearmen the hurtling stallion lunged.
 Over the edge of a gully like a cataract he plunged.
 Hengist sate light in the saddle. He gave the beast the slack.
 Behind him Finn's fierce henchmen came howling down the track.
 Well for him he was a horseman rode with an easy rein,
 Or ne'er had he won backward into Finnsburgh once again.

Forth swarmed his men about him at the end of that wild race.
 They saw the sweating stallion and the mud on Hengist's face.
 He checked the horse among them and bitter was his laugh:

"This is the end of truces for me and for King Hnaef.

In the trap of the betrayer scant honor did we win,
 But all the stars in heaven shall turn away from Finn.
 He loves not faith nor glory nor honorable law.
 Your lives, an ye be not heroes, they are not worth a straw.
 Need's must when drives the devil and the arrow-tempest rains.
 Let us hasten to the battle and let us die like Danes.
 In the day of all the devils and infamy and sin
 Traitors shall pray to heaven for a judgment against Finn."

Slowly began the battle. It was no petty war
 Where a hero standeth forward and slayeth three or four.
 But front to front together the long battalions shocked.
 Under foot shrieked the wounded as the lines of bucklers locked.
 Like ships in the white tide-rip, forward and back they swayed.
 Horns blared in the black tumult. The smitten horses neighed.
 Men's white and lovely bodies stank with their blood and sweat.
 On agony and slaughter the sun untroubled set.

All day the sword of Hengist had found no time to rust.
 His armour shown no longer for the stains of strife and dust.

Ever he saw before him the lifted bucklers bend.
 As it were another's weapon he saw his sword descend.
 For glamour was all around him and the trampling feet of fate,
 And an ill dream was the battle and Hnaef and Finn and his hate.
 And afar his thoughts were wandering though the stroke fell ne'er
 so strong,

As a man's thoughts go hovering over great heights of song,
 When the world is but a picture with noble colours wrought,
 And he ranges at adventure on the high wings of thought.
 So hung the soul of Hengist o'er the battle like a bird.
 And all he saw was barren and empty what he heard.
 And he thought: Our evil fortunes, forever must it thrive.
 Shall they ask of us hereafter, "And wherefore did they strive?"
 And say our mirth and trouble, our pleasure and our dread,
 Are but as withered lilies in the place where we lie dead?
 Base enow was our quarrel, and Finn's revenge was shame.
 And I have defiled my birthright as he has fouled his name.
 And this eve the yellow planets that shine above the fight
 Shall mock the true and loyal that have died to feed our spite.
 Death holdeth all the future where he has ruled the past,
 But I will into this battle as long as life shall last.
 For a fair thing is courage, though it take the shameful side,
 And I will die hereafter as I have lived in pride.
 The crown of my damnation is on my head today,
 But the brand was given to Hengist to slaughter and to slay.

The glamour and prevision hindered no more his sight.
 With the eyes of a good captain he looked upon the fight.
 The silver moon had risen. On the battle fell her beam.
 Lightly might Hengist see it, that he strove against the stream.
 And the hope of Finn rose higher, as he saw beneath the moon
 The ranks of Danes give backward, and he saw the end was soon.
 Hengist fell back on Finnsburg. In his host arose great fear.
 As he strove in the blank panic, he was smitten with a spear.
 Out of the press and tumult Oslaf and Guthlaf bore
 King Hengist into Finnsburg. He had fought in his last war.
 And madness came on Hengist in the forecourt as he lay.
 The fires the Frisians kindled lit the gables bright as day.
 He would rally up the fliers. He cried with a great cry
 To the henchmen round about him: "The roof flames not on high.*"
 No dragon climbeth skyward. From eastward comes no morn.
 O'er the hall no fire of battle flames on the gable-horn.
 Here foes come in bright armour. Shrill cry the carrion fowl.
 And harshly dins the war-wood, and loud the grey wolves howl.

* This passage is a direct translation of a passage in the Old English fragment, "The Fight at Finnsburg."

Shaft upon shield resoundeth. And yonder breaks the moon
 Full from the cloud and peril shall whelm the people soon.
 Rise up! rise up! my warriors with the buckler at the side,
 Most steadfast in the forefront of the battle to abide."

In came the host of Frisians. Finnsburg they girt about.
 Against its every gateway arose their storming shout.
 As a tide through a breachway, a wave of steel and flame,
 At the last into Finnsburg, Finn and his army came.
 A knot of men before them withstood them back to back
 About the couch of Hengist. Finn halted the attack.
 Upon the couch rose Hengist, and bespoke him with a laugh:
 "Welcome, King Finn, from Hengist, though there be none from
 Hnaef."

Upon his lips was laughter when his last word was said.
 With a mock at the destroyer he fell back upon the bed.

Up came the Marshal Unferth. "Slay me those Danes," said he.
 Finn looked on Hengist's henchman and answered, "Let them be.
 For a little thing and scornful, over many have we slain.
 An I had not dealt with treason, well had the matter lain."
 Quoth Unferth: "It were folly to let his henchmen go.
 Who to the dead are faithful may bring the living low."

King Finn brooked not the saying. He bade the Danes depart.
 And he turned back from the battle in bitterness of heart.
 With darkness in his spirit, the trampling ranks between,
 He came not as in triumph to Hildeburh the Queen.
 All women have their sorrow. Is none upon the earth
 But of great grief hath knowledge, though she bear or give not
 birth.

By the lover or the brother, by the husband or the son,
 The thing that she desireth shall be hindered or fordone.
 Withered the heart of Hildeburh, as she stood at the tent-door
 Pondering upon her brothers, when Finn came back from war.
 She wept there in great anguish, and could not rede him aright—
 The slayer of her kindred or her husband come from the fight.
 The whitest flame of anguish with naked hand they touch
 Who have perceived their treason whom they love over much.
 Finn kissed her, and she trembled. In anger and in shame
 He turned him from his lady, and like steel his face became.
 Sharp is the cup of anger, bitter the wine of sin,
 And no man has so deeply drunken thereof as Finn.
 But all of that fierce liquor to the lees he needs must drain.
 And his heart was broken in him by the passion of her pain.
 Hope and desire they barter, the very soul they slay.
 To themselves they are the traitors who murder and betray.

Turn now to Oslaf and Guthlaf that departed by Finn's leave.
 Within the bound of Friesland they halted not to grieve.
 They came anew to Denmark and there they made them strong,
 For a winter and a winter brooding on Hengist's wrong.
 And Snaebiorn the singer dwelt with them in the hold.
 Only he plucked no longer the harpstring as of old.
 The singer when he sinneth casteth his strength away.
 Whoso the fool that playeth hath no more heart to play.
 But the two henchmen kept him and gave him bite and sup.
 He was to them a token to keep their anger up.
 The plot that they had plotted to Snaebiorn they showed.

On the evening that he knew it to Finn he took the road.
 For he thought: "If I avert it, and I may end the wrong,
 Yet it may be vouchsafed me to sing anew the song.
 Through me began the turmoil. Well may it end by me.
 And I shall pluck the harpstring in Friesland by the sea."

So he came into Friesland. He came to the hall of Finn.
 Finn was gone forth, but Unferth the marshal bode within.
 He looked but once on Snaebiorn. From the wall he snatched the
 thong.

They beat once more in Friesland the singer of the song.
 He sank beneath the scourges. The blood ran swift and red.
 On the dunghill of the palace they cast him forth for dead.

Finn came anew at nightfall, and weary was his face.
 Now was he never merry save in battle or the chase.
 And not the hunter's hallo or the clank of battle-gear
 Could drown the voice of Hengist yet echoing in his ear.
 The bosom of his lady was soft to him no more.
 So it is with them ever, on themselves that levy war.
 Nor sun nor summer pleased him nor ship upon the sea.
 Was not in all his kingdom so sad a man as he.

To Hildeburh her bower he wended as of old,
 And tenderly he kissed her though his heart was cruel cold.
 He lay in the bower a season and drowsed with his head on her
 breast,
 But he dreamed of a broken sword-blade and woke in fear and
 unrest.

In bitterness of spirit he sat him down to eat.
 But he dreamed of a broken swordblade and woke in fear and unrest.
 Who strives against the devil hath a hard fight to win.
 And the devil and his angels were entered into Finn.

Oslaf and Guthlaf the henchman had ripened well their plot.
 For Snaebiorn the minstrel they sought but found him not.

Without him straight on shipboard they mounted with their host.
 The next day in the morning they saw the Frisian coast.
 Night came. Upon the beaches they made their landing then,
 And marched to Finn his city with a thousand chosen men.

Finn woke at dead of midnight. Naught but the curtain stirred.
 To Hildeburh his lady he spake a little word.

And she woke and listened to him, and he said: "It is ill to bear
 This weight upon my spirit. My soul is ta'en in a snare."

Now Oslaf and Guthlaf the henchmen to the hall had entered in,
 And they stood behind the curtain and heard the speech of Finn.

Said Oslaf unto Guthlaf: "Shall we hold our hands this day?
 It is ill for men in armour a naked man to slay."

Said Guthlaf unto Oslaf: "Too well I remember my lord
 When ten men fell upon him and put him to the sword."

And again King Finn was speaking: "I shall waken in the morn,
 And look at my men out fishing and the poppy in the corn,
 And all things light and lovely, but evermore behind
 Comes as it were the trampling of a battle in my mind.
 When I wake at dawn, beloved, no more again to me
 Cometh the light of summer, or the joy of earth and sea.
 Yet I love thee, my beloved, and suffer and am fain."

Guthlaf tore down the curtain crying: "Traitor, not again
 Shalt thou see the summer dawning or earth or sky or sea.
 Vengeance for Hnaef and Hengist, and a dog's death for thee!"

Forthwith a hell of torches flamed upward in the hall.

There was a mighty shouting and the horns blared over all.

Right upon Finn Guthlaf and lifted high the brand.

Finn warded off the sword-stroke with the bolster in his hand.

From the wall he caught a long-sword and swung it over head.

The blood from Guthlaf's shoulder spattered on the royal bed.

The King drove Guthlaf backward and Oslaf fled aside.

Cried Finn aloud: "Ho! Frisians, they shall die as Hengist died."

But the great hall was silent. No voice gave back the cry.

No friend might give him answer, when Finn stood up to die.

Only he saw before him the brandished torches flame,

And the fierce eyes of foemen, and blood, and his own shame.

And he cast one glance on Hildeburh and his soul was torn apart,

As the world's wave of sorrow came breaking through his heart.

Then like a king he turned him, dreadless for mighty pain,

Where with seven chosen spearmen, Oslaf came back again.

They speared him like a salmon. On the floor the red blood ran.

King Finn had such an ending as became a gallant man.

Oslaf and Guthlaf with him looked a moment on the dead.

Then they got them upon horseback and like the wind they fled.

Hard over heath and barren they galloped to the ships.
As they launched forth the galleys the lightning cracked his whips.
Out from the pitch-black foreshore they beat against the rain.
Since they sailed into the tempest no man has seen the twain.

How were these fierce deeds woven, on what relentless loom,
The woof of the disaster through the changeless warp of doom?
The courage of the gallant and the strength of them that strove
Are overthrown and broken by the might of hate and love.

The fool caught in the meshes of the knave a tale may tell.
Rose Snaebiorn the minstrel from the dunghill where he fell,
That men who die hereafter the tale might come to know
Of other men who perished in the waste of long ago.

For good men die by folly, as by their truth they live
Girded by pain or splendor for a season fugitive;
But there is one deed for heroes, the greatest of the great,
Forever to be faithful, and stand unafraid of fate.
To go to the test unfeared despite the foe or the friend,
If the soul be in the venture, is to conquer at the end.

GOLDEN JUBILEE ADDRESS*

IRA WOODS HOWERTH

A traveler once greeted the poet Longfellow with the remark, "I find you have no ruins in this country, and so I have come to visit you!" Berkeley is not yet old enough to have any ruins, if we except North Hall on the University Campus, but it is old enough to have a history and certain traditions which warrant this celebration.

We have met, as I need hardly remind you, to celebrate the fiftieth anniversary of the naming of this city, and to dedicate a public and a permanent means of displaying on all suitable occasions our nation's flag. We thus combine, in the exercises of this day, an expression of civic interest with a manifestation of national pride.

The primary occasion of our coming together is more or less unique. It not infrequently happens that citizens assemble to celebrate the anniversary of the founding of a city; it rarely occurs that a holiday is declared and public exercises conducted to celebrate the fiftieth anniversary of the bestowal of a city's name. It must be, therefore, that the name of Berkeley has some unusual and special significance.

Shakespeare asks, "What's in a name?" and seems to imply that, so far as an individual is concerned, it is not important. There is a sense in which this is true. Doubt-

* Delivered on the occasion of the Golden Jubilee Celebration of the city of Berkeley, California, May 24, 1916.

less Romeo, were he not Romeo called, would still manifest to his fond Juliet that "dear perfection" which in her eyes he owns without that title. But in a deeper sense the names, both of people and of places, are always more or less significant.

In primitive times and among primitive peoples the name of an individual was regarded not merely as an attribute but as an integral part of himself. His power for good or for evil could be communicated through his name. Injury or contumely heaped upon his name reacted upon himself. Hence a name was a thing of power; it was not to be trifled with; it was not to be "taken in vain"; it was held as sacred.

The survival of this ancient notion with respect to the sacredness of names is exemplified by many expressions in religious literature and in modern worship. "Hallowed be thy name," "his name shall endure forever," "there is none other name given under heaven," etc., are all expressions which point to the primitive disposition to attach great importance to names. But that men today are disposed to attach importance to names, particularly to their own names, is indicated by the disposition of boys and of men to carve their names in public places, and by the propensity of modern tourists to leave their names at all points visited, as visible evidence of the more or less important fact that they have been there. No matter how obscure a name may be, it is none the less likely to be found decorating the scenery in places famed for natural beauty or historic interest.

Now these ancient and modern ideas with respect to names are not without a deep-lying cause. That cause is to be found in the actual and vital relationship which a name necessarily sustains to its object. Without a name it is hard to conceive a thing as having a separate and continuous existence. In the case of a person, the name distinguishes, if it does not create, the personality. "Consider what our lives would be," says one on considering

this subject, "if we had to change our names every year, how it would seem to obliterate our personality, how it would dissipate all dreams of posthumous glory and renown. Our consciousness of Self would suffer diminution and the keenest interest of our lives would be lost. Our name is really and truly a part of ourselves, and he who would rob us of it would leave us poor indeed."

We see, then, why the name of a city is important, and why the fiftieth anniversary of the naming of this city is a fitting occasion for a public celebration.

The name of Berkeley, however, both on account of the character of the man who bore it, and particularly on account of the circumstances of its selection as a name for this city, has more than the usual significance. Why is it, one might ask, that here among so many cities and towns having names indicative of the early history and prominent men of the state, or names of merely local significance, is one bearing the name of a Bishop and philosopher, a foreigner dead more than a hundred years before the city was born?

Cities are like men—some are born named, some achieve names, and some have names thrust upon them. The original name of West Berkeley, I have been told, was Jacob's Landing. This must have been thrust upon it. Later it was called "Ocean View," a name doubtless achieved through the lively imagination of some dealer in real estate, for at Ocean View there is a very restricted view of the ocean. How many cities have thus been named almost by contraries—or on the principle of assuming a virtue if you have it not. "Mount Liberty," "Angel Heights," or "Pleasant Ridge" is likely to be found in a perfectly flat country, possibly in a vale, and "Port-Something-or-other," in some out-of-the-way place, where there is neither water nor wine. Such names are "achieved." Berkeley, however, was born named, and no better example of the conscious and intelligent selection of a municipal name is to be found in the history of American cities. To recall the

circumstances of that selection is not only to appreciate the better the special significance of this day but also to perceive the peculiar appropriateness of the co-operation of town and gown in the exercises we are today conducting.

On April 16, 1860, a little more than fifty-six years ago, a small company of men assembled at Founder's Rock, on the northern side of the present University campus. These men had driven over from Oakland and tied their teams under the spreading trees. They were the Board of Trustees of the College of California, an Oakland institution and the prototype of the University of California. They met to set apart and dedicate the final location of this college. The site had for some time been agreed upon. It had been selected after a most careful consideration. The whole bay region had been explored to find the most suitable location for a college. Many other places had been carefully examined and reported upon. Among them were Martinez, Sunol, Mission San José, San Pablo, East Oakland and the valleys of Petaluma, Napa, and Sonoma. All of these locations were excellent, but this particular site had been selected as combining the excellences of them all. The climate was superb, the view magnificent. It was easy of access. It was remote, but not too remote, from centers of population. It had an abundant water supply. By unanimous vote a formal resolution was passed setting apart the grounds as the location of the college, later to become a university. "Thereupon," says the record, "the President, standing upon the rock with head uncovered, offered prayer to God for His blessing upon what had been done, imploring His favor upon the college it was proposed to build there, asking that it might be acceptable to Him and ever remain a seat of Christian learning, a blessing to the youth of the state and a symbol of usefulness in this part of the world."

The grounds of the college having been selected, a town was laid out. The streets were named for American men of science and of letters. But, as yet, the town itself was

unnamed. What should be the name of the town? Many times the question was considered and many suggestions were made. For one reason or another all proposed names were rejected until finally one of the members of the board, Mr. Frederick Billings, while ruminating upon the question of a name appropriate and unobjectionable, and while reflecting upon the far western location of the college, happened to think of the famous lines of Berkeley:

“Westward the course of empire takes its way;
The four first acts already passed,
The fifth will close the drama with the day,
Time’s noblest offspring is the last.”

“Berkeley!” he said, “the author of those famous lines! Why wouldn’t Berkeley be a good name for the town?” He proposed the name. The more it was considered the more appropriate it seemed to be, and so on May 24, fifty years ago today, it was unanimously adopted.

Thus Berkeley was named. It was named by men intent upon founding an institution of learning, but these men were consciously naming a town. The town and the university thus owe their existence in large part to the same men and to the same motive. These men determined and perceived the spatial relationship of the town and the institution. They left it to the disposition of the future college community and the future citizens of the town to determine whether this closeness of relationship should be manifested in space alone. I am not specially authorized to speak for either group, but speaking for myself as a present member of that community and as a citizen of the town, I would express the hope that the connection of city and university, of town and gown, may always be spiritual as well as spatial, and that our common life may ever be typified by that of a happy family, all of one accord, harmonious in spirit and united in purpose.

“An institution,” said Emerson, “is but the lengthened shadow of one man.” Often this is true, but a public institution, whether it be a university or a city, must neces-

sarily represent the shadows of many men—the aspirations, the labors, and the sacrifices of all those whose thoughts and lives have contributed directly or indirectly to its growth and development. This is particularly the case with both of these institutions. In original conception, college and city were one. Practically the same men planned them both. In their wonderful progress there has been mutual interest and mutual effort on the part of college men and business men, and today college life and the business and social life of the city are woven into a single fabric. What the founders and builders, the pioneers and public spirited citizens have joined together let no man put asunder!

Most if not all of the men immediately connected with the early history of the college and the city have passed to their reward. Founders of the University and of the city, pioneers of education and of empire—Anderson, Willey, Cheney, Lacey, Durant, Billings, Goddard, McLean, Rankin, Stebbins, Shattuck, Hillegass, and many others. Many of their names are perpetuated in the nomenclature of our streets and our buildings. Their deeds, their faith, their vision, their unselfish purpose and the remembrance of their benefactions to university and city should ever be cherished in the hearts of a grateful people. Would that today they could assemble on the spot made famous by the assembly of fifty years ago. What emotions of joy and gratitude would be awakened by what they might now behold! There would be the same lofty and furrowed hills rising to the eastward, the same long slope of land to the bay, the same undulating line of hills on the western horizon, the same gateway to the ocean. But what a change in the general aspect of things! Before them a city of more than sixty thousand people where then there were only a few scattered farms, and this city merging imperceptibly into other cities extending many miles along the bay! Beyond the broad expanse of water, San Francisco, now grown to be one of the great cities of the world, and

crowned with the triumphant achievement of an unequaled world exposition; and on the grounds they had selected, not merely a college but a university surpassing in equipment, in largeness of faculty, in number of students, and possibly in influence, anything perhaps of which they had dared to dream.

“O small beginnings, ye are great and strong
When backed by a faithful heart and weariless brain,
Ye build the future fair, ye conquer wrong,
Ye win the crown, and wear it not in vain.”

Having observed how the city of Berkeley came to be named as it is, let us now note the peculiar significance of the name selected. This significance cannot be appreciated without some knowledge of the man who bore it.

Born in Ireland in the latter part of the seventeenth century, George Berkeley was educated in Trinity College, Dublin, and early achieved a reputation for purity and nobility of character and for the profundity of his thought. He became Bishop of Cloyne and the author of many philosophical works, the most celebrated among them being, *A New Theory of Vision* and *The Principles of Human Knowledge*. From 1728 to 1731 he was in America, in Rhode Island, drawn hither by his interest in a plan to establish a college for the promotion of Christianity and civilization in America. It was the inspiration of the prospect of thus extending the blessing of civilization which prompted the verses closing with the prophetic words which suggested to Mr. Billings the name Berkeley.

Few men in history have gained a more enviable reputation for learning, piety and public spirit than Berkeley. He was the first philosopher of his age; among the first of any age. He was the philosophic idealist *par excellence*. He endeavored to show that, since we can perceive by our senses only appearances or phenomena, and not external objects themselves, matter has no substantial existence independent of mind. We need not now concern ourselves

with this philosophy. "What is matter? Never mind. What is mind? No matter." Dr. Johnson endeavored to confute it by vigorously kicking a stone, with no disastrous consequences to the stone itself. When a gentleman who had been defending Berkeley's view was about to leave Johnson said, "Pray, sir, do not leave us, for we may perhaps forget to think of you and then you will cease to exist." Byron declared:

"When Bishop Berkeley said there was no matter,
And proved it, 'twas no matter what he said."

But we need only remark that Berkeleian idealism is today in some respects the predominant system of philosophic thought, and no philosopher would deny to Berkeley a high place among the thinkers of the world.

But Berkeley was not merely a dreamy philosopher and churchman. Pope ascribed to him "every virtue under heaven." A great bishop said of him, while yet a youth, "so much understanding, so much knowledge, so much innocence, and such humility, I did not think could be the portion of any but angels till I saw this gentleman." He was not an unworldly man, blinded by the light of his own virtue and knowledge. He was interested not only in ideas but in men, not only in the progress of thought but also in the well-being of society.

Such was the man for whom Berkeley was named. Because of the character of the man the name is a most honorable one. It is a name suggestive of learning, of faith, of idealism, and of patriotism. It is a name which may well awaken in every citizen a sense of pride, and stimulate and strengthen in him the determination to make and keep the city—physically, morally, and educationally—worthy of the name it bears. In the old camp meetings we used to sing, "A charge to keep I have, a God to glorify." Citizens of Berkeley, without irreverence, might well paraphrase that old song and sing, "A charge to keep I have, a Name to glorify."

Now the name "Berkeley" cannot be truly glorified, cannot be properly honored, by a narrow manifestation of mere civic pride. Such pride is justified, but it ought not to exist, certainly it ought not to be encouraged and expressed, independently of that broader sentiment, that love of country, which is as yet one of the highest products of human association.

It is appropriate therefore that today, as an integral part of these exercises, we dedicate to its honorable purpose, not after the fashion of the ancients, "a column trophied for triumphal show," but a plain flagstaff; that we spread to the breeze our national emblem and pledge anew our allegiance to those principles of government and of associated life which it so happily symbolizes, not only in our own country but also, as we hope, throughout the entire world. It is fitting, I say, that in giving expression to our civic patriotism we at the same time express also our national patriotism, and that we make sure that our national patriotic sentiments are of the highest kind.

Berkeley himself was the author of a little paper entitled, "Maxims Concerning Patriotism." In one of these he said: "Every man, by consulting his own heart, may easily know whether he is or is not a patriot. But it is not so easy for the bystanders." It would seem, however, that both the bystanders and the man himself may sometimes be deceived. For patriotism is an ambiguous term; it is a sentiment hard to define. It is usually described as love of country. A cynic has said it is "the love of one's country and the desire to make as much out of it as possible!" But Berkeley truly said, in another of his maxims, "A patriot will never barter the public money for his private gain." Bluff old Dr. Johnson declared it is the "last refuge of a scoundrel." We know also that it is sometimes the first. It is by some regarded as the loftiest social sentiment, by others as a mere prejudice to enable quarreling rulers of different countries to set their subjects to cutting each other's throats. Some have even declared that it is

a sentiment which bars the way to future progress, and which finds no place in the highest type of man. It may be worth while, then, to consider for a moment the nature and significance of patriotism.

First of all it should be observed that fundamentally it is a feeling of identification with the group or the political unit to which one belongs. This feeling is found among all living creatures which have developed a social life. In man it is universal.

“Man, through all the ages of revolving time,
Unchanging man through every varying clime,
Deems his own land of every land the pride,
Beloved of heaven o'er all the world beside,
His own dear home a spot supremely blessed,
A dearer, sweeter spot than all the rest.”

Historically this feeling began in the family, the family being the first among social groups in the order of their development. This derivation of the patriotic sentiment from family life is indicated by the very word patriotism which literally means of or belonging to the father. In the primitive social group, the father, the *pater*, the patriarch, represented authority, support, and protection. Loyalty to the father therefore naturally grew out of family life and was the first form of patriotism. In the course of social evolution the family enlarged into the clan, the clan into the tribe, the tribe into the state and the state into the nation. Accompanying this enlargement there was necessarily an expansion of the patriotic sentiment so as to include the interests of each successive group. Loyalty to the father and the family exclusively was inconsistent with clan or tribal life. With the formation of the state and the nation a larger patriotism became a necessity. But from the beginning until now the patriotic sentiment has been at bottom the feeling which incites the individual to identify his interests with those of his social group; it is fundamentally the feeling which leads us to identify our-

selves with our land and country, and to speak and act in a manner which is supposed to illustrate this identification.

But here I may pause to remark that this evolution of patriotism is suggestive of its future development. It had its origin in association, and association has been the main factor in its growth. If this association should be enlarged and extended through the future affiliation and federation of countries, the patriotic feeling must necessarily extend itself in the direction of cosmopolitanism. "The Parliament of man, the federation of the world" would as certainly conduce to cosmopolitanism or political humanism as tribal association conduced to tribalism and the consolidation of tribes into states and states into nations, conduced to the patriotic sentiment of today. Love of country would gradually develop into love of kind. Even today in men of the highest type differences of country, speech, and race are insufficient to bar the generous recognition of each other's worth. This is what Kipling indicates by the well-known lines:

"O East is East and West is West,
And never the twain shall meet
Till Earth and Sky stand presently
At God's great judgment seat.
But there is neither East nor West,
Border nor breed nor birth,
When two strong men stand face to face
Though they come from the ends of the earth."

This does not mean, of course, that the patriotism of today is a sentiment to be outgrown as quickly as possible, a sentiment which the educated man should be ashamed of. He who does not love his country, who denies the patriotic sentiment, who professes to love all men as he does his own people, probably does not love anybody or anything very well. And a man who loves nobody, as Berkeley himself remarked, will hardly love his country. A man need not love his country less because he loves humanity more. There is perhaps no country without elements worthy of

the highest devotion, and these elements may become a part of a cosmopolitan ideal. It does mean, however, that our patriotism is not a lofty virtue if it means loyalty to country and disloyalty to truth and humanity. The true patriot must be loyal to right everywhere against wrong anywhere; must stand for justice to all and against injustice to any. When the actions or demands of his country conflict with the rights of humanity, he must stand for humanity.

But, as I have said, patriotism is fundamentally a mere feeling or sentiment. Now, it is characteristic of all feeling that it is blind, unreasoning, irreflective. And so the patriotism of feeling alone, while it may thrill, does not necessarily stimulate to wise speech or action. It may lead the citizen to hurrah, to boast, to fight, or to die without calmly considering what it is all about; to resent a fancied national insult without stopping to ascertain whether it is real; to fly to the defense of the supposed interests of his country without inquiring whether the interests are worthy or the danger is actual. The patriotism of feeling differs in no essential respect from the impulse of the tiger to defend its young, or from that of the wild cattle of the prairie to defend the herd. It is easily aroused and easily stamped.

Much of the patriotism manifested today is of the emotional kind. It acts upon impulse, it is "touchy," it goes off "half cocked," and by a process of spontaneous combustion; it manifests itself in racial prejudice, indulges in national bombast and braggadocio, chauvinism, jingoism, and a disposition merely to whip somebody. I was once conversing with a man, a stranger to me, who in the course of the conversation remarked, "I do wish we would get into war with England." I asked him, "Why?" "Well," said he, "I'd just like to show her we can lick her out of her boots!" I was amazed. I said: "You're a fool; you haven't any more sense than a rabbit!" I said this to myself, of course, not to him, but I plainly perceived that his patriotism was merely a feeling without the control of

intelligence; it was patriotic zeal without patriotic knowledge. Under the promptings of such patriotism the patriotic is sometimes the idiotic. The utterances and actions evoked by it are sometimes illustrative of the fact that a man may be a patriot and still be a fool.

But the patriotism to which we would give expression today is not merely emotional. It is a patriotism of feeling under the control of the intellect. It is intelligent patriotism. Our emotions are subject to the control of the intellect. It is the function and power of the intellect to inhibit, restrain and sometimes eliminate an instinct or emotion. Even the instinct of self-preservation is sometimes wholly inhibited by a duly informed and reflective mind. Social intelligence, then, may sometimes modify, even reverse, the actions springing from patriotic feeling. The feeling may be wholly subject to a thorough knowledge of national and social conditions and the sense of justice. This is what I mean by intelligent patriotism—patriotic feeling under the control and guidance of knowledge and reflection. It is love of country, and the disposition to serve it, coupled with a knowledge of how to serve it well. It does not yield to impulse. It looks before and after. It restrains a people from fighting when there are no real interests at stake. It is a patriotism which does not end in thrills and kindly wishes for the public weal, but in intelligent action to promote the public good. "A patriot," said Berkeley, "is one who heartily wisheth the public prosperity and doth not only wish but also studies and endeavors to promote it."

This is the kind of patriotism, this is the kind of civic interest (for civic interest is itself a form of patriotism) by which alone Berkeley as a man or Berkeley as a city may be honored. This is the kind of patriotism we would manifest in the celebration of this day and particularly in the dedication of this flag and flagstaff. The day is not well spent unless it promotes in us, and is well spent only as it promotes in us, a more intelligent interest in the well-being of the city and the affairs of the country, closer co-operation

between city and university, an integrated municipal consciousness, and a purified and developed democracy. The honorable name which the city bears, the renown of the university located here and the present position of our country among the nations of the world, should stimulate us all to higher citizenship in all its manifestations, so that when, fifty years hence, another day is set apart to celebrate the hundredth anniversary of the naming of this city those who then assemble may be inspired by visible manifestations of our earnest and intelligent labors in behalf of our city, our university and our country. To that end let us labor

“In the undoubting faith, although
It be not granted us to see,
Yet that the coming age shall know
We have not wrought unmeaningly;
When gold and chrysoprase adorn
A city brighter than the morn.”

UNIVERSITY RECORD

VICTOR H. HENDERSON

In all the half-century since the University of California was founded no member of its faculty has been so productive of disciples who have risen to eminence in the University career as George Holmes Howison, Mills Professor of Intellectual and Moral Philosophy and Civil Polity from 1884 to 1909, and now Professor of Philosophy, Emeritus.

Now, through the endowing of the "Howison Foundation" by Professor and Mrs. Howison, an act as wise and creative in idea as it is generous in purpose, Professor Howison's life work, that of discovering and training young philosophers and setting their feet on the pathways of intellectual freedom and distinction, will be continued through all the generations to come, by means of an endowment one primary purpose of which is the full professional training of men who look forward to a university career in philosophy.

The Howison Foundation, now created by the gift of Professor Howison and Lois Caswell Howison, his wife, is a fund of approximately \$70,000, and the income is allotted to various excellent university purposes.

"The undersigned, husband and wife," said the letter of gift of July 14, 1916, from Professor and Mrs. Howison to the Regents, "mindful of their advancing age and of the long and satisfying years they have passed in connection with the University, and impressed by the fidelity and skill, especially in financial administration, which your Board has constantly displayed in its management of the University affairs, and having no descendants, hereby agree to convey to you the following described property, upon your promise to accept the same and perform the trusts hereinafter mentioned."

The property so given included their home, with a frontage of 150 feet on Piedmont avenue, near Derby street, and bonds of a value of approximately \$50,000. The Regents are granted full liberty to sell the property and to reinvest the proceeds, subject, however, to the following trusts: that the capital of the Howison Foundation shall be kept undiminished and its income only used, a specified income to be paid to Professor and Mrs. Howison so long as either shall survive; their home to be theirs so long as either shall live; \$600 per annum to be devoted to the maintenance of an allowance to be known, in commemoration of Mrs. Howison's maiden name, as the Lois Caswell Fund for the Dean of Women, for the aid of deserving women students, and the remainder of the income to be devoted to the following purposes: \$1200 for the maintenance of the Howison Fellowship—a traveling fellowship open to such students in the graduate school of the University of California as shall have taken their A.B., either here or in some other university of equal rank, with honors in Philosophy, found thoroughly grounded in mathematics, physics, chemistry, and biology, and possessed of a free reading command of Greek, Latin, German, and French, the Howison Fellowship to be held by each appointee for three years, one or more of which may be spent at some other university approved by the Mills Professor and his department colleagues of full professorial rank (these men to select the candidate); the income on \$2000 to be devoted to the maintenance of beds in the Infirmary; after the death of Professor and Mrs. Howison certain small annuities to be paid to relatives of Mrs. Howison; when these annuities cease, three or four Anne Sampson Scholarships or Fellowships are to be maintained in the Department of English, in honor of Mrs. Howison's mother, these scholarships to be open to women students in such studies of English literature and criticism as the chief professor in the English Department and his principal associates may determine, the appointees to be selected and nominated to the Board of Regents by the said professors, and each scholarship to carry a stipend of \$300 or \$400 per annum; the income of the Howison Fellowship is then to be raised to \$1500 per annum; any surplus of income is to go to the general uses of the Department of Philosophy, in such allotments as the Mills Professor and his department colleagues of full professorial rank may advise, "provided that such allotments to the department shall always be additional to its support from other sources and in no case a substitution therefor"; any surplus resulting from non-use of the income of the Dean of Women's Fund, or to vacancy in the Traveling Fellowship in Philosophy, is to be added to the capital of the Howison Foundation; should the Howi-

son Fellowship fall into continual disuse, then the income provided for it is to be appropriated to the general use of the Department of Philosophy, in such distribution as the Mills Professor and his department colleagues of full professorial rank may advise to the Regents, provided that such allotments are to be additional to the department support from other sources and not a substitute therefor.

The Regents on August 8, 1916, voted to agree to perform the trusts laid upon them, and to express their deep appreciation of the generous spirit of the founders.

DEATH OF PRESIDENT DAVIS

Horace Davis, President of the University from 1887 to 1890, died on July 12, 1916, in San Francisco, after an operation. Mr. Davis was born in Worcester, Massachusetts, on March 16, 1831. He was the son of John Davis (long known as "Honest John Davis"), Governor of Massachusetts, and Eliza Bancroft Davis. After studying for a time at Dartmouth he graduated from Harvard in 1849. He had planned to become a lawyer, but after he had pursued his law studies for some time he was told by a physician that continuance would threaten loss of eyesight. Many years later he was told by specialists that this advice was entirely mistaken. but meanwhile he had come to California—in 1852—and had become a highly successful business man and flour manufacturer, and a leader of the community in all good things. In 1875 he was married to Edith Starr King, the daughter of the Rev. Thomas Starr King. Mrs. Davis died in 1909.

Mr. Davis served in the Forty-fifth and Forty-sixth Congresses, from 1877 to 1881; was a member of the Republican National Committee from 1880 to 1888; a presidential elector in 1884; President of the University of California from 1887 to 1890; for many years a Trustee of Stanford University and long President of the Board; President of the Board of Trustees of the California School of Mechanical Arts; at one time President of the National Conference of the Unitarian Church, and Vice-President of the American Unitarian Association; a member of many learned societies and civic organizations, and always untiring in his services to the intellectual and political good of the community. He had published volumes on "American Constitutions" and on "Shakespeare's Sonnets." He was three times given the degree of LL.D., by the University of the Pacific in 1889, by Harvard in 1911, and by the University of California in 1912.

Until the end of his days he was full of abounding vigor, intellectual enthusiasm, and joy of life.

Emanuel Benjamin Lamare died in Berkeley on September 6. From January 1, 1902, to 1906 Mr. Lamare was Assistant in French, and from 1906 to 1911 and again in 1913 Instructor in French in the University. He was born at Dunkerque, France, in 1846, studied at Haffreingue College in Boulogne-sur-Mer, served in the French army, in the 66th of the line, from September, 1870, to March, 1871, and for many years taught in various California schools.

Robert Belcher, '00, a member of the Central Council of the Alumni Association from 1913 to 1916, was drowned on July 24 in the San Joaquin River, just above the mouth of Evolution Creek, a refractory saddle-horse having taken water below the proper ford, and having lost its footing in the swift current. He had won much success in his profession of mining and oil engineer, and had long given unstintingly of loyal service to the University.

A NEW REGENT

His Honor William Dennison Stephens, Lieutenant-Governor of California by appointment by Governor Johnson on July 22, 1916, has thereby become a Regent *ex officio*, as successor to the late John Morton Eshleman.

Lieutenant-Governor Stephens has served as a Congressman since 1911. Born in Eaton, Ohio, in 1859, he was as a young man in engineering corps for railway construction for seven years, in 1887 came to California and engaged in business and later in banking, was a member of the Los Angeles Board of Education in 1906-07, Mayor of Los Angeles in 1909, in 1910 President of the Board of Water Commissioners and member of the advisory committee for building the Owens River Aqueduct, and he has served as President of the Los Angeles Chamber of Commerce and as Major and Commissary of the First Brigade of the California National Guard.

MIGRATION OF PROFESSORS

Several visitors from other universities are for the first half-year of 1916-17 members of the faculty of the University of California, including Paul Shorey, Professor of Greek in the University of Chicago, here for the year as Sather Professor of Classical Literature; Mary Whiton Calkins, Professor of Philosophy in Wellesley College, at Berkeley for the fall semester as Lecturer in Philosophy on the Mills Foundation; and Cassius Jackson Keyser, Professor of Mathematics in Columbia University, here for the year through exchange of chairs with Professor M. W. Haskell.

SUMMER SESSION OF 1916

The Summer Session of 1916 was the largest in the history of the University, save only for the abnormal expansion of the Exposition year 1915. For 1916 the Summer Session enrolled 3976 students as compared with 5394 in the Exposition year, 3101 in 1914, 2462 in 1913, and 2273 in 1912. That is to say, in four years the attendance increased by three-fourths.

As always, a number of men of distinction from other universities were members of the faculty of the Summer Session. Among the visitors were Frank William Taussig, Henry Lee Professor of Economics at Harvard; Morris Jastrow, Jr., Professor of Semitic Languages and Librarian of the University of Pennsylvania; Edmund Kemper Broadus, Professor of English Language and Literature, University of Alberta; Moses Gomberg, Professor of Organic Chemistry, University of Michigan; Kuno Francke, Professor of the History of German Culture, Harvard; Leon Nelson Flint, Assistant Professor of Journalism, University of Kansas; Robert Clarkson Brooks, Joseph Wharton Professor of Political Science, Swarthmore College; Isaac Joslin Cox, Professor of American History, University of Cincinnati; Colin V. Dymont, Professor of Journalism, University of Oregon; Ian C. Hannah, late President of Kings College, Nova Scotia, now Lecturer on Art of the Oxford and Cambridge University Extension Systems; Roscoe R. Hill, Professor of History, University of New Mexico; I. B. Stoughton Holborn, Lecturer of the Oxford and Cambridge University Extension Systems; and Roy Edwin Schulz, Professor of the Spanish Language, University of Southern California.

A step in the democratization of the Greek Theatre was that all the students of the Summer Session were admitted without charge to all the plays, concerts, and other events held there during the Summer Session. When all the world is going, all the world wants to go, and the result was great outpourings not only of Summer Session students but also of the community in general.

The California High School Teachers' Association met in annual convention at the University from July 10 to 14 during the Summer Session.

MINING DEVELOPMENTS

Vigorous new life has been breathed into the College of Mining by the new Professor of Mining, Frank H. Probert. Never before a teacher, and for twenty years engaged in the active practice of his profession as a mining superintendent, as a field expert, as a consulting mining engineer, and as a scientific investigator of

mining problems, Professor Probert is emphasizing strongly the importance of the understanding of the economic aspects of mining. Believing that the time-honored custom that the mining student should spend his summers doing unskilled labor below ground in a mine has the defect of confusing the difference between being a miner and being a mining engineer, but regarding it as essential that a mining student should none the less understand just what back-breaking toil means, and should be master of the mechanical operations of the craft, Professor Probert is providing opportunity to acquire practical skill in drilling, blasting, timbering, and the like, by having his students drive the "Lawson Adit" deep into the Berkeley Hills, east of the Hearst Memorial Mining Building. Already in some 150 feet, Professor Probert expects to continue this adit for approximately two thousand feet into the range. Not only will valuable opportunity for practice result but it is hoped also to develop water.

FORESTRY WORK

A new four-year course in "Forest Utilization" has been added to the existing course in "General Forestry." Its purpose will be special training for forest or logging engineers. With twenty-eight million acres of forest in California, including twenty million acres of national forest, and with an existing supply which would last three hundred years at the present rate of cutting, even making no allowance for growth, the development of forestry in the University of California is particularly appropriate. The ground for scientific investigation is still unbroken. To train specialists in tropical forestry to solve the problems of Central and South America and the Orient is an opportunity of particular value which lies before the University.

TO IMPROVE CALIFORNIA HERDS

A "State Dairy Cow Competition" for \$7500 in cash and various special prizes will be inaugurated by the University on November 1, to help in rousing California dairymen to the fact that good blood pays and that they cannot afford to waste time, land, and labor on inferior stock. The competition will be for a maximum production of butter-fat during ten months—the normal lactation period—whereas most breed associations make a year the period for record, with consequent danger of upsetting regular breeding. Common or grade cows will compete among themselves for cash prizes of \$10 to \$300 each, aggregating \$1900, and for a number of special prizes in the way of dairy apparatus, bull calves, etc.

There will also be special competitions for pure-bred Jerseys and Guernseys and for pure-bred Holsteins.

With October 1, 1916, a new state law will go into effect, forbidding the sale in California of milk from any other than tuberculin-tested herds (or of butter made from milk from untested herds) unless the milk has been pasteurized by heating it uniformly for twenty-five minutes at a temperature of 140° to 145° Fahrenheit. There is, therefore, a special timeliness in the experiments recently completed by Dr. Jacob Traum, Assistant Professor of Veterinary Science, and Dr. G. H. Hart, City Veterinarian of Los Angeles. They found a dairy in Los Angeles which had put all its tuberculous cows into one herd, of 400 head, and its non-tuberculous cows into a separate herd. The milk from 400 cows every single one of which was tuberculous was being sold in Los Angeles after pasteurization in a commercial creamery. Twenty-four samples of the raw milk from this tuberculous herd, taken at intervals during a period of six months, were used to inoculate guineapigs. In every instance except one these twenty-four samples of milk produced tuberculosis in the guineapigs. Fourteen samples of this milk, clarified but not pasteurized, were tested, and these produced tuberculosis in all but three guineapigs inoculated. However, twenty-three samples of this same milk, taken after it had been pasteurized on a large scale under ordinary commercial conditions, when inoculated into guineapigs did not produce tuberculosis in a single instance. Gratifying as is this evidence of the value of pasteurization when properly done, nevertheless it points to the need of careful public supervision, lest pasteurization measures produce a false sense of security.

KEARNEY LANDS FOR A SCHOOL

The Regents have agreed to deed to the Madison School District, in Fresno County, three acres of the land bequeathed to the University by M. Theo. Kearney, subject to the provision that the land is to revert should it cease to be of use for school purposes.

PRAISE FOR MILITARY TEACHING

The University of California is one of the fifteen American universities and colleges placed by the United States War Department upon its list of "Distinguished Colleges" as a result of the last annual inspection of the military departments of educational institutions.

"This is by far the best instructed cadet corps I have seen."

Such is the official report rendered to the United States War Department by Captain Tenney Ross of the General Staff on his inspection on May 1, 1916, of the University of California Cadets.

"The military training at this institution is of a high order," reported Captain Ross. "Special attention appears to have been given to minor tactics, fire control and distribution."

To the War Department's question, "What was the general appearance of the cadets on inspection?" Captain Ross replied: "Excellent; the best I have seen." He commented on the cordial support given by the University to the Professor of Military Science and Tactics and reported that the military instruction given at the University of California is of such an extent and thoroughness as to qualify the average graduate for a commission as a lieutenant of volunteers.

It is to the admirable service of Major J. T. Nance as Professor of Military Science and Tactics that these gratifying results are due.

HEATING PLANT ENLARGED

A contract has been let to C. C. Moore & Co., at \$49,589, for equipment for the additional unit of the Central Heating and Power Plant, including a 750 kw. Turbo-generator and a 600 h. p. boiler, this additional equipment being necessary to carry the lighting and heating load of the new buildings being erected from the University Building bonds—Benj. Ide Wheeler Hall, the classroom building; Hilgard Hall, the second unit of the agricultural group; the first unit of the Chemistry Building, and the completion of the University Library, work on all of which is now in progress.

DENTAL INFIRMARY ADDITION

A contract has been let for an addition to the Dental Infirmary of the College of Dentistry, on Parnassus avenue, in San Francisco, at a cost of \$15,300. More than 3000 people will receive dental treatment from the students there every year, at practically the cost of materials used.

CHILDREN'S HOSPITAL ARRANGEMENT

On August 8, 1916, the Regents voted to authorize the faculty of the Medical School to make an arrangement with the Hospital for Children and Training School for Nurses as to co-operation therewith for the purposes of medical education, provided, however, that no expense is to be involved to the University of California in such co-operation. Such an arrangement was immediately thereafter effected by the medical faculty.

CALIFORNIA SCHOOL OF FINE ARTS

"The California School of Fine Arts"—such is to be the name hereafter of the school heretofore known as the California School of Design. The change in name was approved by the Regents on August 8, 1916, through approval of a recommendation presented by the Directors of the San Francisco Art Association.

SCRIPPS INSTITUTION DEVELOPMENTS

Dedicatory exercises were held at the Scripps Institution for Biological Research on Friday, August 11, for the new thousand-foot concrete pier and the new library and museum building and other improvements just completed through the generosity of Miss Ellen B. Scripps. A number of Pacific Coast scientists of distinction were present on this occasion, which constituted also a session of the annual convention of the Pacific Coast Section of the American Association for the Advancement of Science. The speakers and addresses at the dedicatory exercises were: President Benj. Ide Wheeler, Right Rev. Joseph H. Johnson, Bishop of Los Angeles; "The Training of Scientific Men," David Starr Jordan, Chancellor Emeritus of Stanford University; "Biological Research Institutions: Organization, Men, and Methods," D. T. McDougal, of Tucson, Director of the Department of Botanical Research of the Carnegie Institution of Washington; "The Sources of the Nervous System," G. H. Parker, Professor of Zoology, Harvard; "What the Scripps Institution is Trying to Do," William E. Ritter, Scientific Director of the Scripps Institution for Biological Research.

SOME FACULTY MATTERS

The return of David P. Barrows, Professor of Political Science and Dean of the Academic Faculties, from a half-year's leave of absence, during which for six months he had charge of the work in Brussels of the American Commission for Relief in Belgium, after which he was in the military training camp at Plattsburg and then a member of the Summer Session faculty at Columbia, was the occasion for a dinner given in his honor by the Berkeley Chamber of Commerce and his associates in the faculty.

Charles E. Chapman, Assistant Professor of California History, has recently represented the University at the American Congress of Bibliography and History, held in Buenos Aires. He is one of five scholars from other countries than the Argentine Republic appointed members of the Permanent Council of the Historical Congress, which is to be organized as a permanent body, to meet

again in Montevideo on August 16, 1917, and to maintain an American Institute of Bibliography, with the Ateneo Nacional of Buenos Aires as its central and directing body.

Many foreign-born students of the University of California have been greatly handicapped by their lack of skill in English. The Department of English has now established a new course in "Oral and Written English for Foreigners," for special training in pronunciation and idiom.

The Republic of China has conferred the decoration of the Order of the Golden Sheaf upon Edmond O'Neill, Professor of Chemistry in the University of California, in recognition of aid and courtesy which he was able to extend to the Chinese nation on the occasion of the Panama Pacific International Exposition.

Ernest Linwood Walker, Associate Professor of Tropical Medicine in the George Williams Hooper Foundation for Medical Research, has been sent by the Foundation to carry on medical explorations on the upper reaches of the Amazon. He has gone 1500 miles up the river to the region of Porto Zelho, Rio Madeira, Amazon, Brazil, a region as yet scientifically unexplored. His researches as to parasitic and other infections of man will be aided by the hospitality of the hospital maintained there by the Madeira-Mamora Railroad. The medical director of that company is Dr. Allen M. Walker, a graduate of 1907 of the University of California Medical School.

"Leave your automobiles at home—be one of us!" was one of the texts on which President Wheeler spoke to the students at the opening University Meeting of the year. To forward the good cause of preventing the noise and disturbance which results from the presence of automobiles in the campus, not only has the roadway between the Sather Gate and the University Library been closed to automobiles during the hours when classes are in session but also removable posts have been placed in the roadway southeast of North Hall, so as to prevent disturbance of academic peace.

CARNEGIE RETIRING ALLOWANCES

The Carnegie Foundation for the Advancement of Teaching has found that its resources are inadequate to carry permanently the burden of providing pensions for the members of the faculty of even the universities already admitted to the list of approved institutions, of which the University of California is one. The Foundation has been engaged for some time, therefore, in actuarial and other investigations as to a contributory pension plan by which the cost of a pension system shall be borne by contributions

from the individual professor, his university, and the Foundation. The new plan would have the advantage that the individual would have a definite contract and definite right to the "deferred wages" which he is eventually to receive as a retiring allowance, and that he could not be deprived of rights already earned either by migration from one university to another or by leaving the teaching profession. The new plan is not as yet ready for definite inauguration.

ALUMNI ACTIVITIES

Departing from the old-time custom of having the annual meeting of the alumni at Commencement, the Alumni Association this year held a luncheon under the oaks in Strawberry Cañon on Commencement Day, but deferred the annual meeting until June 3, holding it then at Kearney Park, the great 5400-acre estate near Fresno bequeathed to the University by the late M. Theo. Kearney. A special train carried 142 alumni from the San Francisco Bay region to Fresno, and six hundred others gathered at Kearney Park, coming from all over central California. At the out-of-door barbecue dinner which preceded the annual meeting 632 sat down together, and many others came for the open-air meeting and the out-door dancing.

The alumni re-elected as President and Secretary, respectively, Oscar Sutro, '94, the San Francisco attorney, and Harvey Boney, '15, of Berkeley, under whose administration the number of members of the association and the number of subscribers to the Alumni Fortnightly have more than trebled in the past year, the members by May, 1916, numbering 2905 and the subscribers 2624. The income of the Alumni Association for the year ending June 30, 1916, was \$4632.18, as compared with \$1099.50 for 1912-13.

E. G. Sproul, '13, was re-elected treasurer. The other officers for 1916-17 are: First vice-president, Wigginton E. Creed, '98; second vice-president, Samuel M. Haskins, '93; Councillors: Matthew C. Lynch, '06, Douglas Brookman, '10, Chaffee E. Hall, '10, Frank Otis, '73, Stuart L. Rawlings, '99, Samuel C. Irving, '79, Charles W. Merrill, '91, William H. Waste, '91, Margaret Hayne, '08, and Rose Gardner Marx, '11.

CANDIDATES FOR HONORS

The new plan of "Candidacy for Honors" has been launched by the announcement of the names of 396 Juniors and Seniors in the College of Letters and Science, of twenty in the College of Chemistry, and of eleven in the College of Commerce who are eligible to register as "Candidates for Honors."

FRATERNITIES EXCEL IN SCHOLARSHIP

Fraternity and non-fraternity men, alumni, and parents have welcomed with great interest the first public announcement, made at the request of the fraternities themselves, of the comparative standing in scholarship of all the men's fraternities and house clubs. The figures, as compiled by Professor Thomas M. Putnam, Associate Professor of Mathematics and Dean of the Lower Division, and Recorder James Sutton show that for the half-year ending May, 1916, the undergraduate men who are members of fraternities or house clubs were better in scholarship than the other male undergraduates, their average scholarship being 2.362 as compared with 2.3906, the mean average grade for all male undergraduates counted together. For the house clubs the average grade was 2.416. Twenty-two fraternities and house clubs, or just half of the list, won a place on the "Honor Roll" by scoring an average scholarship above the mean average of male undergraduates as a whole.

In the following figures the lower the index number the higher the standard. The comparative standing in scholarship for the past half-year and for the past four years was as follows:

	January-May, 1916		Four years ending May, 1916	
	Rank	Average	Rank	Average
Abracadabra	16	2.337	11	2.331
Acacia	22	2.411	26	2.4329
Achaean	13	2.319	8	2.305
Alpha Chi Sigma	*	2.174	*	2.075
Alpha Delta Phi	5	2.160	7	2.299
Alpha Kappa Lambda	1	2.006	1	2.115
Alpha Sigma Phi	25	2.438	13	2.3545
Alpha Tau Omega	40	2.574	33	2.5106
Bachelordon	42	2.763	39	2.688
Beta Theta Pi	8	2.182	6	2.2738
Casimir	21	2.375	9	2.316
Chi Phi	24	2.431	30	2.456
Chi Psi	17	2.354	12	2.346
Dahlonga	11	2.268	10	2.231
Del Rey	39	2.565	32	2.4903
Delta Chi	23	2.420	24	2.4209
Delta Kappa Epsilon	41	2.635	41	2.705
Delta Sigma Phi	36	2.506	18	2.383
Delta Tau Delta	14	2.330	21	2.408

	January-May, 1916		Four years ending May, 1916	
	Rank	Average	Rank	Average
Delta Upsilon	27	2.442	23	2.416
Dwight	26	2.440	17	2.381
Kappa Alpha	37	2.539	34	2.551
Kappa Sigma	7	2.179	20	2.390
Lambda Chi Alpha	18	2.360	4	2.2707
Phi Delta Theta	19	2.362	16	2.379
Phi Gamma Delta	15	2.336	36	2.59067
Phi Kappa Psi	29	2.451	25	2.427
Phi Kappa Sigma	10	2.265	5	2.2733
Phi Sigma Kappa	30	2.459	31	2.481
Pi Kappa Alpha	4	2.132	3	2.2159
Pi Kappa Phi	20	2.367	27	2.436
Psi Upsilon	6	2.172	15	2.362
Sequoyah	38	2.564	*	2.567
Sigma Alpha Epsilon	*	2.637	40	2.691
Sigma Chi	34	2.483	37	2.613
Sigma Nu	12	2.307	29	2.455
Sigma Phi	9	2.264	14	2.3548
Sigma Pi	2	2.059	2	2.201
Sigma Phi Epsilon	31	2.460	28	2.452
Theta Delta Chi	28	2.443	22	2.414
Theta Chi	32	2.463	38	2.626
Theta Xi	33	2.478	19	2.387
Tillicum	3	2.129	*	2.283
Zeta Psi	35	2.504	35	2.590608

* No Freshman members, so not strictly comparable.

Every one of the twenty-three women's fraternities and house clubs was better in scholarship for the second half-year of 1915-16 than the average for the male undergraduates as a whole. The women's fraternities scored an average of 2.0048 as compared with 2.0788 for the women's house clubs, 2.033 for the undergraduate women who belonged neither to fraternities nor house clubs, and 2.3906 for undergraduate men as a whole. The women's fraternity which made the best record scored an average of 1.828, as compared with 2.006, the highest record for any of the men's fraternities. There were nine women's organizations which scored a higher record than the best of the men's fraternities, the second and sixth of these nine being house clubs and the other seven fraternities.

SOME UNDERGRADUATE MATTERS

The new plan that the Graduate Manager shall be chosen by the Executive Committee of the Associated Students, reinforced for this purpose by three alumni appointed by the Central Council of the Alumni, as adopted by the Associated Students last spring, has now been put into effect. John A. Stroud, '13, has been reappointed for 1916-18.

The football season began with eighty-five candidates out for the 'Varsity and 114 for the Freshman eleven. The coaching squad consists of Andrew Smith, Pennsylvania, '06, head coach; Edward Mahan, Harvard, '16, for the past three years named as a member of the All-American team, assistant coach; A. B. Zeigler, Pennsylvania, '07, line coach; B. F. Cherrington, Nebraska, '11, coach of the second team; and R. Davis Elliott, Chicago, '09, coach for the Freshmen.

The University Y. M. C. A., besides its two permanent secretaries, now has associated with it three assistant secretaries, whose salaries are provided for respectively by the Congregational, Baptist, and Methodist denominations.

The youngest Freshman ever admitted to the University of California is Harrison Cabot Brown (son of Dr. Philip King Brown, the San Francisco physician), a graduate of the Potter School in San Francisco. He matriculated August 16 at the age of 14 years three and a half months.

GIFTS TO THE UNIVERSITY

The Alumni of the University of California Medical School have offered to maintain for five years a scholarship worth \$400 a year, to be awarded to some worthy medical student and to be known as the William Watt Kerr Scholarship in Medicine for their honored teacher, Dr. Kerr, Clinical Professor of Medicine.

The American Institute of Architects has given a medal and prize for the best student of the graduating class. It has been awarded for 1915-16 to Ephraim Field, '14.

The American Law Book Company has given a 43-volume set of the Cyclopaedia of Law and Procedure as a prize for the highest scholarship in the School of Jurisprudence. James S. Moore, Jr., '14, is the winner of this prize for 1915-16.

Frank M. Anderson, M.S., '97, the holder of a scholarship in 1897-98, has given \$500 for a graduate fellowship, preferably in Geology.

The Argentine Republic has given to the University a number of valuable specimens from its exhibits at the Exposition for the use of the departments of Agriculture and Vertebrate Zoology.

Mrs. Emilia Field Ashburner has presented to the law library of the School of Jurisprudence four volumes of miscellaneous pamphlets collected and bound by Justice Stephen J. Field and formerly part of his law library, and also one volume of "Legislative and Judicial Work of Justice Field," and six volumes of "Opinions and Papers of Judge Field."

F. W. Bradley, '86, has given \$250 for research work in the Department of Biochemistry.

Mr. Bradley during the year ending June 30, 1916, made gifts to the amount of \$5582.30 for the development of the mechanical equipment of the Department of Mining.

The California State Dental Association has offered to give \$300 a year for co-operation in research work with the University of California.

J. C. Cebrian has made another rich addition to the collection of Spanish books which he has been building up at the University of California. His latest gift includes some 1280 volumes of works old and new. Besides a great number of works of general literature, there are about 170 volumes on history, 140 on law, 100 on medicine, and 160 on various scientific subjects. About a hundred volumes are of the sixteenth, seventeenth, and eighteenth centuries (printed in nineteen Spanish cities), some in their original bindings; there are a few first editions of valuable works, and also some facsimiles of old manuscripts, one being the "Books of Astronomy of King Alfonso the Sage," of the thirteenth century, in five folio volumes.

The founder of the Edith Claypole Memorial Research Fund in Pathology has given \$8000, in pursuance of previously expressed intention as regards the creation of an endowment for the furtherance of medical research, in memory of Dr. Claypole's own services to science. Professor Gay's successful researches, which have resulted in the discovery of a method of aborting typhoid in a large percentage of cases by injecting killed sensitized typhoid bacilli, have been greatly furthered by the aid of a series of Claypole Research Fellows.

The Crane Company of San Francisco and Chicago has presented to the Department of Mechanical Engineering a large exhibit of the products of that company, including representative specimens of the large valves, steam traps, etc., used on steam-generating plants and distribution lines. The larger valves are mounted on steel pedestals with revolving tops and are sectioned to enable the

students to view their construction and to make use of them in connection with their design work. The exhibit represents an outlay in money of approximately \$1500. It has given also a cabinet containing sample bars of castiron, malleable iron, ferro-steel, and cast steel, used by the company in the manufacture of valves and pipe fittings, together with tubes containing the exact proportions of each of the ingredients to be found in each of the materials.

The University has just received a check for \$6000 in fulfillment of the bequest of the late William E. Davis, '74, long a leading member of the California bar, for the endowment of an undergraduate scholarship.

Regent Phoebe A. Hearst has given \$1200 for the maintenance of the Phoebe A. Hearst Scholarships for women students from July 1 to December 31, 1916, and \$500 as her semi-annual contribution toward the salary of the Supervising Architect, for the period from July 1 to December 31, 1916.

The Hercules Powder Company has given a thousand pounds of dynamite to be used toward driving the Lawson Adit into the Berkeley Hills for the instruction of the mining students.

An account of the Howison Foundation established by the generosity of Professor and Mrs. George H. Howison appears at the beginning of the University Record in this number of the Chronicle.

George L. Hurst has given an electrically driven working model of a Bidson Gold Dredge, complete in all details and accurately built on the scale of half an inch to the foot, at a cost of \$750. It illustrates mechanical and electrical devices extensively used for the recovery of gold from California sands and gravels.

The H. W. Johns-Manville Company, through the courtesy of Mr. John Crawford, Jr., Manager of the Asbestos and Magnesia Department, has given to the Department of Mechanical Engineering various non-conducting materials, together with standard specifications for their use.

Frederic A. Juilliard, '91, of New York has presented to the University \$350 for a marble chair in the Greek Theatre in memory of Félicien Victor Paget, formerly Professor of Romanic Languages and a member of the faculty from 1887 until his death in 1903. The gift is made on the occasion of the twenty-fifth anniversary of Mr. Juilliard's graduation from the University.

Mr. S. C. Kiang Kang Hu, Assistant in Chinese, has given to the University a valuable library of Chinese books. Of these ten thousand volumes many are exceedingly rare and could not be purchased at any price. Mr. Kiang has made this gift to further the

study of Oriental Languages and Literatures and aid in acquainting the western world with the treasures of Chinese civilization.

Charles W. Merrill, '91, \$100 for research work in the Department of Biochemistry.

Dr. Harry East Miller, '85, \$250 for research work in the Department of Biochemistry.

Regent James K. Moffitt, '86, \$100 for research work in the Department of Biochemistry.

By bequest of Bernhard Nathan the University has now received \$5000 as endowment for a scholarship to assist deserving students, with particular consideration for those of Jewish parentage.

The Prytanean Society has given \$366 for eventual use for a student union, or for some other University purpose later to be determined by the Society.

The Prytanean Society has given \$50 for the Infirmary.

The San Francisco Architectural Club has offered free membership for one year from graduation to the student graduating with highest honors in the course in architecture.

The Swedish-American Patriotic League of California, Inc., has renewed its provision of \$125 for the maintenance for 1916-17 of a scholarship for a graduate with distinction of some California high school, born in California of Swedish parents, or whose parents are Swedish and live in California.

Regent Rudolph J. Taussig has given \$100 as the Bryce Historical Essay Prize for 1916.

Arthur G. Towne has given \$377.11, in addition to his original subscription of \$2000, for the construction and equipment of the University of California Hospital.

APPOINTMENTS

(Unless otherwise specified the following appointments are from July 1, 1916.)

Lecturer on the Mills Foundation (in Philosophy), from July 1 to December 31, 1916, Mary Whiton Calkins, Professor of Philosophy and Psychology in Wellesley College.

Associate Professor of Law, Austin Tappan Wright.

Assistant Clinical Professor of Obstetrics, Reginald Knight Smith.

Assistant Professors: V. C. Bryant, Agricultural Extension; Lee Randolph, Anatomy (in the California School of Fine Arts); Henry Poor, Drawing and Painting (in the California School of Fine Arts); Armin Hansen, Drawing and Painting (in the California School of Fine Arts); Leo Lentelli, Modeling (in the California School of Fine Arts); W. W. Cort, Zoology.

Lecturer in Law, Herman H. Phleger.

Instructors: C. C. Staehling, Accounting (one year); L. J. Fletcher, Agricultural Engineering, from August 1, 1916; G. C. Kreutzer, Agricultural Extension; H. H. Severin, Entomology, from August 1, 1916; Mrs. D. M. Willis, Costume Design (in the California School of Fine Arts); Mrs. Katherine Gillespie, Design (in the California School of Fine Arts); Xavier Martinez, Drawing (in the California School of Fine Arts); Agatha Van Erp, Handicraft (in the California School of Fine Arts); Kurt Heller, German (one year); F. W. Cozens, Physical Education for Men; Ethel E. Taylor, Textiles (one year); V. de Mari, Water Color; H. N. Gould, Zoology (one year).

Instructor in the Hooper Foundation for Medical Research and Instructor in Research Medicine in the Medical School, from July 15, 1916, Alice Rohde.

Assistants: Mrs. Matilda Newson Fowler, Agricultural Extension; M. A. Rice, Agricultural Extension; John Edwin Stiles, Agricultural Extension; Donald E. Martin, Soil Chemistry and Bacteriology; James R. Zion, Viticulture; Eugene Scofield Heath, Botany; E. W. Hodgson, Botany; P. Borgstrom, Chemistry; T. B. Brighton, Chemistry; A. L. Caulkins, Chemistry; G. W. Clark, Chemistry; E. D. Eastman, Chemistry; A. G. Loomis, Chemistry; J. N. McGee, Chemistry; Miss I. G. Morse, Chemistry; R. F. Newton, Chemistry; G. S. Parks, Chemistry; S. L. Peck, Chemistry; M. H. Schlesinger, Chemistry; E. C. Scott, Chemistry; A. L. Morse, Clinical Operative Dentistry; F. C. Bettencourt, Clinical Prosthetic Dentistry; F. W. Rubke, History; A. A. Scott, D. O. Mills Expedition at Santiago; Elizabeth J. Easton, Mathematics; I. H. Betts, Surgery (Resident University Hospital); Frank Blaney Eaton, Ophthalmology; R. O'Connor, Ophthalmology; Mildred Lemon, Physical Education for Women; Hallam Hans Anderson, Physics; Ira L. Jones, Physics; William C. Pomeroy, Physics; Leo A. Wadsworth, Physics; J. A. Larsen, Physiology; S. W. Symons, Psychology.

Research Assistant in Dental Pathology, Adah R. Holmes.

Voluntary Assistant in Orthopedic Surgery, A. L. Fisher.

Office Assistant in the Wilmerding School, Mrs. Carrie D. Howland.

Teaching Fellows: J. E. Johnston, Argumentation; George S. Monk, Astronomy; R. H. Clark, English; Norbert Scheele, German.

Fellows in Research Medicine in the Hooper Foundation: Marjorie G. Foster (from September 1, 1916); William J. Kerr (from January 1, 1917).

Helper in Zoology, Ralph Steele.

PROMOTIONS AND CHANGES IN TITLE

To be Assistant Director of the Scripps Institution for Biological Research, as well as Professor of Zoology, C. A. Kofoid.

To be Professor of Design and Applied Arts and Director of the California School of Fine Arts, Pedro J. Lemos.

To be Professor of Drawing and Painting in the California School of Fine Arts, Frank Van Sloun.

To be Instructors: Lillian M. Moore, Physiology; J. R. Douglas, Political Science.

To be Zoologist and Librarian at the Scripps Institution for Biological Research, Olive Swezy.

To be Curator of Birds, Harry S. Swarth.

To be Assistant in Pharmacology, Mary Delprat.

To be Teaching Fellow and Secretary of the Committee on Students' English, A. F. Anderson.

To be Teaching Fellows in Chemistry, W. G. Horsch and G. A. Linhart.

To be University Fellows in the Lick Observatory, F. J. Neubauer (from January 1 to June 30, 1917) and Roscoe F. Sanford.

To be Native Sons Traveling Fellow in History, G. L. Albright.

LEAVES OF ABSENCE

(Unless otherwise specified the following leaves of absence are from July 1, 1916, to June 30, 1917.)

Gilbert Chinard, Professor of French, July 1 to December 31, 1916, to serve in France as intermediary between the government and American relief contributions.

Howard S. Fawcett, Associate Professor of Plant Pathology, from September 1, 1916, to August 31, 1917.

Thomas H. Reed, Associate Professor of Government, to serve as first City Business Manager of San Jose, under the new charter which he himself had written.

L. J. Demeter, Assistant Professor of German, to engage in relief work in Germany.

H. A. Mattill, Assistant Professor of Nutrition, June 24 to August 15, 1916.

Frank Irwin, Instructor in Mathematics, July 1 to December 31, 1916.

RESIGNATIONS

(Unless otherwise indicated the following resignations are from June 30, 1916.)

Professor of Law, Barry Gilbert.

Assistant Professors: R. C. Tolman, Chemistry; L. M. Davis, Dairy Industry.

Lecturer on the Business Side of Pharmacy, Val. Schmidt.

Curator of Mammals in the California Museum of Vertebrate Zoology, Walter P. Taylor.

Instructors: E. W. Rust, Entomology (Citrus Experiment Station and Graduate School of Tropical Agriculture); J. Koeber, Farm Mechanics; Aurelia Henry Reinhardt, English (in the University Extension Division, to become President of Mills College); H. W. Seawell, Water Color.

Senior Assistant in the Library, Evelyn A. Steel, from July 17, 1916.

Assistants: H. E. McMinn, Botany; C. B. Porter, Dental Porcelain; Flora H. Heinz, German; G. L. Albright, History; H. G. Cloud, Physics; C. G. Thompson, Physics; Dr. Thornton Stearns, Surgery.

Native Sons Traveling Fellow in History, T. B. Kittredge.

Fellow at the Lick Observatory, Hugh B. Wilcox.

Fellows: C. R. Christiansen, Research Medicine (in the Hooper Foundation); Z. Ostenberg, Research Medicine (in the Hooper Foundation); F. H. Rodenbaugh, Research Medicine (in the Hooper Foundation).

UNIVERSITY MEETINGS

August 21—President Benj. Ide Wheeler. (This meeting, to welcome the Freshmen, crowded the Greek Theatre.)

LECTURES AT THE UNIVERSITY

June 26—Arthur W. Ryder, Assistant Professor of Sanskrit, "The Vedanta Philosophy."

June 27—Ramón Jaén, Professor of Spanish in the United States Military Academy, "Toledo, la ciudad imperial."

June 28—Louis Allard, Assistant Professor of French in Harvard University, "Alfred de Musset, poète d'amour."

June 29—James C. Elsom, M.D., Assistant Professor of Physical Education in the University of Wisconsin, "The Educational Significance of the Boy Scout Movement."

June 31—Mildred Leo Clemens, "The Message of the Yosemite" (in the Greek Theatre, illustrated with motion pictures).

July 3—A. W. Ryder, "The Sankhya Philosophy."

July 5—Louis Allard, "Alfred de Vigny, le poète philosophe du romantisme."

July 6—Kuno Francke, Professor of the History of German Culture in Harvard University, "Mysticism of the Fourteenth Century."

July 10—A. W. Ryder, "Buddhism."

July 12—Louis Allard, "Victor Hugo: La Légende des Siècles."

July 12—Morris Jastrow, Jr., Professor of Semitic Languages in the University of Pennsylvania, "The Position of the Priest in the Religion of the Hebrews."

July 14—Chevalier C. Formilli, constructor of the Italian Building at the Panama-Pacific International Exposition, "Color in Architecture."

July 17—A. W. Ryder, "The Indian Epics."

July 18—Ford Ashman Carpenter of the United States Weather Bureau, "Meteorology and Aviation."

July 18—Ramón Jaén, "La Mancha, la tierra de Don Quijote."

July 19—Louis Allard, "Le réalisme en poésie et Leconte de Lisle."

July 19—Morris Jastrow, Jr., "The Prophet in the Religion of the Hebrews."

July 20—Ford Ashman Carpenter, "The Meaning of Cloud Forms."

July 24—Perham W. Nahl, "Prints and Reproductions of Pictures."

July 24—A. W. Ryder, "Indian Fables and Epigrams."

July 25—L. N. Flint, Professor of Journalism in the University of Kansas, "Wasteful Advertising."

July 25—I. B. Stoughton Holborn, Lecturer for the Oxford and Cambridge University Extension Systems, "The True Spirit of University Extension."

July 25—Ramón Jaén, "La conciencia de España en dos escritores de hoy día: Bio Baroja."

July 26—Louis Allard, "La littérature et la société."

July 26—Morris Jastrow, Jr., "From Prophet to Rabbi."

July 26—Perham W. Nahl, Instructor in Free-hand Drawing and Art Anatomy, "The Modern Theory of Color."

July 26—Walter Raymond Spalding, Chairman of the Division of Music in Harvard University, "Great Symphonists."

July 31—Dr. Aurelia Henry Reinhardt, President of Mills College, "American Pageantry of Today."

July 31—A. W. Ryder, "Indian Lyric Poetry."

August 1—Addresses on "Standards of Medical Education and Medical Research," given by Regent Chester H. Bowell, editor of the Fresno Republican; Dr. George H. Whipple, Director of the George Williams Hooper Foundation for Medical Research, and

Dr. George E. Ebright, President of the California State Board of Health.

August 1—Colin V. Dymont, Professor of Journalism in the University of Oregon, "The 'Colyum' in the American Newspaper."

August 1—J. C. Elsom, Assistant Professor of Physical Education in the University of Wisconsin, "Physical Education" (at a reception in honor of the Pacific Coast Physical Education Association).

August 1—Ramón Jaén, "La conciencia de España en dos escritores de hoy día: Azorin."

August 1—Tracy I. Storer, Assistant Curator of Birds in the California Museum of Vertebrate Zoology, "The Birds of the Yosemite."

August 2—Louis Allard, "Quelques réflexions sur la comédie de moeurs en France de 1890-1914."

August 2—Walter Raymond Spalding, "Leading Tendencies in Contemporary Music."

August 3—Tracy I. Storer, "The Mammals of the Yosemite."

August 21 to 26—Roscoe Pound, Dean of the Harvard Law School, "Modern Juristic Thought and its Significance for America."

August 28—Henry Hurwitz, Chancellor of the Intercollegiate Menorah Association, on the work of that association, and A. L. Kroeber, Associate Professor of Anthropology, "Are the Jews a Race?" (before the Menorah Society).

SUMMER SESSION LECTURES

Among the features of the Summer Session were a series of evening lectures from June 26 to July 14 by Ian C. Hannah, Lecturer in Art of the Oxford and Cambridge University Extension Systems, on "The Appreciation of Art," and from July 17 to August 4 by I. B. Stoughton-Holborn, Lecturer for Oxford and Cambridge University Extension Systems, on "The Inspiration of Greece"; a series of special lectures by Kuno Francke, Professor of the History of German Culture in Harvard University, on "German Literature"; a series of lectures by Dr. R. Meyer-Riefstahl, the textile expert, on "The History of Tapestry"; a series of dramatic readings by Mrs. George L. Bell (Rose von Schmidt), and a series of lectures on the "History of Music" given by Charles Louis Seeger, Jr., Professor of Music, with musical illustrations by Professor Seeger, Winnifred Christie, Mrs. Lucia Dunham, Miss Estelle Milliette, Miss Amy Holman, Mr. Lawrence Strauss, Mr. H. L. Perry, Mr. Charles H. Case, Choragus Paul

Steindorff, Mr. Stephen Wyckoff, Professor Walter Raymond Spaulding, Mrs. Charles Louis Seeger, Mr. Walter Handel Thorley, and Mr. Vladimir Shavitch.

Dr. Isaac M. Rubinow, President of the Casualty Actuarial and Statistical Society of America, through the courtesy of the Social Insurance Commission of California, gave Summer Session lectures on "Social Insurance" from July 10 to 14. Dr. Rubinow had come to California to spend six months in advising the commission regarding the framing of legislation to be proposed at the next session of the Legislature with a view to inaugurating in California a system of state sickness insurance such as has already been successfully developed in Germany, England, France, the Scandinavian countries, Australia, New Zealand, etc.

During the Summer Session a series of five lectures each by six experts in problems of public health were given, as follows:

June 26-30—George L. Bell, Secretary of the California State Immigration and Housing Commission, "Housing."

July 3-7—Dr. Louise Morrow, Assistant in Pediatrics and Assistant in Social Economics, "Medical Social Service."

July 10-14—Dr. Allan F. Gillihan, member of the Berkeley Board of Health, "Welfare Work in Factory and Shop."

July 17-21—Edith L. M. Tate, Director of the Bureau of Tuberculosis of the California State Board of Health, "Tuberculosis."

July 24-28—Dr. Ernest Bryant Hoag, Medical Psychologist to the Los Angeles Juvenile Court, "Medical Inspection of Schools."

July 31 to August 4—Anna C. Jamme, Director of the Bureau of Registration of Nurses of the California State Board of Health, "The Health Visitor."

LECTURES AT THE MUSEUM OF ANTHROPOLOGY

(At the Museum, on Parnassus avenue, San Francisco, on Sunday afternoons.)

June 25—T. T. Waterman, Assistant Professor of Anthropology, "The California Indian Collection."

July 9—Paul Lewis Faye, "A Navaho Mystery."

July 16—E. W. Gifford, Associate Curator of the Anthropological Museum, "The Incas, the Romans of America."

July 23—T. T. Waterman, "The Mayas, the Greeks of the New World."

July 30—E. W. Gifford, "The Original Rulers of the Canal Zone."

August 20—E. W. Gifford, "The Mound Builders."

August 27—E. W. Gifford, "The Prehistoric Californians."

THE HALF-HOUR OF MUSIC

(In the Greek Theatre, on Sunday afternoons.)

July 2—Band of the California Grays.

July 9—Stephen N. Wyckoff, baritone, and Mr. Thomas Frederick Freeman, accompanist.

July 16—Annie Louise David, harpist; Gabrielle Chapin-Woodworth, lyric soprano, and Mildred Turner, accompanist.

July 23—Players' Club Trio: Bernice Sternberg, violinist; Gertrude Graham Adams, 'cellist; Emelie Nelson, coloratura soprano; Alice Seckels, accompanist.

July 30—Miss Lena Frazee, mezzo-contralto; Miss Beatrice Clifford, accompanist; assisted by Miss Ruth Gibbs, soprano; Mrs. Malcolm S. Morris, mezzo-soprano; Mr. Elias M. Hecht, flutist, and Mrs. Paul Jarboe, accompanist.

August 27—The Band of Islam Temple, Nobles of the Mystic Shrine, and L. A. Larson, baritone.

OTHER MUSICAL AND DRAMATIC EVENTS

July 7—Symphony concert by the San Francisco Peoples' Orchestra: conductor, Giulio Minetti; soloists, Miss Cecil Cowles, pianist, Mr. Harald Pracht, baritone.

July 15—Shakespeare's "King Lear," presented in the Greek Theatre by the Players' Club of San Francisco.

July 21—The Byron-Schumann Manfred, in the Greek Theatre; the poem was read by Leo Cooper and the Schumann music rendered by an orchestra and chorus conducted by Choragus Paul Steindorff.

July 25—Charles Keeler, in a reading of his own poems.

July 28—A reading of "The World and His Wife" (El Gran Galeoto), by Echegaray.

July 29—Dance pageant illustrating the life and the beliefs as to the after-life of Egypt, Greece, and India, produced in the Greek Theatre by Ruth St. Denis, Ted Shawn, a company of one hundred, and an orchestra conducted by Louis Horst.

July 29—A "Children's Festival," embodying a story of Indian and pioneer life in the Yosemite Valley, produced at the LeConte Oak under the direction of Miss Mary Shafter.

August 3—A "Pageant of Social Preparedness," written by Miss Alice Joy and presented under the direction of Bessie Abbott-Howland, Instructor in Pageantry in the Summer Session, with exhibitions of folk-dancing, athletics, singing games, Swedish gym-

nastics, and aesthetic dancing by students of the Department of Physical Education.

August 4—A reading by Leo Cooper of "The Goal," by Henry Arthur Jones; "The Bracelet," by Alfred Sutro; and "The Day of Dupes," by J. Hartley Manners.

August 28—Katherine Jewell Everts, a reading of Percy Mackaye's play, "Jeanne d'Arc."

Princeton University Library



32101 065400515



~~XXXXXXXXXX~~
~~XXXXXXXXXX~~
~~XXXXXXXXXX~~
~~XXXXXXXXXX~~
~~XXXXXXXXXX~~

