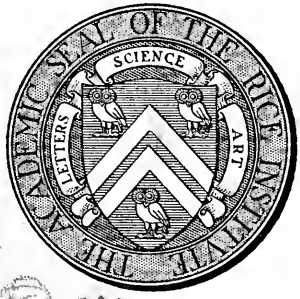
THE
RICE INSTITUTE

HOUSTON, TEXAS



ANNOUNCEMENTS FOR THE ACADEMIC
YEAR BEGINNING SEPTEMBER FOURTEENTH
NINETEEN HUNDRED AND
THIRTY-SIX

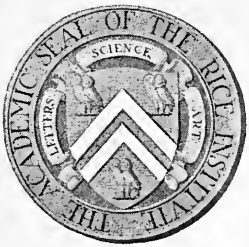
THE RICE INSTITUTE

A UNIVERSITY OF

LIBERAL AND TECHNICAL
LEARNING

FOUNDED IN THE CITY OF HOUSTON, TEXAS
BY WILLIAM MARSH RICE
AND DEDICATED BY HIM TO THE
ADVANCEMENT OF LETTERS
SCIENCE AND ART

OPENED FOR THE RECEPTION OF
STUDENTS IN THE AUTUMN OF
NINETEEN HUNDRED
AND TWELVE



CALENDAR

1936

September 14–17	Entrance Examinations
September 17–18	Registration
September 21	Opening of Courses
September 23	Matriculation Address
November 26–29	Thanksgiving Recess
December 16–22	December Examinations
December 22	Beginning of Christmas Recess

1937

January 4	Resumption of Courses
January 27–February 4	February Examinations
February 22	Washington's Birthday
March 2	Texas Independence Day
April 21	San Jacinto Day
May 10–15	Entrance Examinations
May 24–June 4	Final Examinations
June 5–7	Twenty-second Annual Commencement

THE RICE INSTITUTE

OFFICERS OF ADMINISTRATION

EDGAR ODELL LOVETT, PH.D., SC.D., LL.D.
President

HARRY BOYER WEISER, PH.D.
Dean

SAMUEL GLENN McCANN, M.A.
Registrar

JOHN THOMAS McCANTS, M.A.
Bursar

THE RICE INSTITUTE

THE NAME

THE institution bears the name of the founder, the late William Marsh Rice. It aspires to university standing of the highest grade. Dedicated to the advancement of literature, science, and art, its educational programme of liberal and technical learning may justify the designation "Institute" as representing the functions of a teaching university and, at least in some of its departments, those of the more recent research institutions established in this country and abroad.

BRIEF HISTORICAL SKETCH

MORE than forty years ago several public-spirited citizens of the community asked Mr. Rice to bear the expense of building a new public high school for the city of Houston. This direct gift to the city's welfare Mr. Rice was unwilling to make, but a little later, taking into his confidence a half-dozen friends, he made known to them his desire to found a much larger educational enterprise for the permanent benefit of the city and state of his adoption. These gentlemen were organized into a Board of Trustees for the new foundation, which was incorporated in 1891 under a broad charter granting the trustees large freedom in the future organization of a non-political and non-sectarian institution to be dedicated to the advancement of letters, science, and art. As a nucleus for an endowment fund, Mr. Rice at this time

made over an interest-bearing note of two hundred thousand dollars to the original Board of Trustees, consisting of himself, Mr. James A. Baker, and the late Messrs. J. E. McAshan, E. Raphael, F. A. Rice, A. S. Richardson, and C. Lombardi. Under the terms of the charter, the board is a self-perpetuating body of seven members elected for life: vacancies since its organization have been filled by the election of Messrs. William Marsh Rice, Jr., Benjamin Botts Rice, Edgar Odell Lovett, John Thaddeus Scott, Alexander Sessums Cleveland, the late Edward Andrew Peden, and Robert Lee Blaffer.

It was the unalterable will of the founder that the development of the work which he had conceived should progress no further during his lifetime. However, in the remaining days of his life he increased the endowment fund from time to time by transferring to the trustees the titles to certain of his properties, and in the end made the new foundation his residuary legatee. Upon the termination of the long years of litigation which followed Mr. Rice's death in 1900, the Board of Trustees found the Institute in possession of an estate whose present value is conservatively estimated at approximately ten million dollars, divided by the provisions of the founder's will into almost equal parts available for equipment and endowment respectively. It may be remarked in passing that it is the determined policy of the trustees to build and maintain the institution out of the income, thus preserving intact the principal not only of the endowment fund, but also that of the equipment fund. While proceeding to convert the non-productive properties of the estate into income-bearing investments, the trustees called Mr. Edgar Odell

Lovett, a professor in Princeton University, to assist them in developing the founder's far-reaching plans. Before taking up his residence in Houston, the future president visited the leading educational and scientific establishments of the world, returning in the summer of 1909 from a year's journey of study that extended from England to Japan. About this time negotiations were completed by which the Institute secured a campus of three hundred acres situated on the extension of Houston's main thoroughfare, three miles from the center of the city—a tract of ground universally regarded as the most appropriate within the vicinity of the city.

Another early decision of the trustees of the Institute was the determination that the new university should be housed in noble architecture worthy of the founder's high aims; and upon this idea they entered with no lower ambition than to establish on the campus of the Institute a group of buildings conspicuous alike for their beauty and for their utility, which should stand not only as a worthy monument to the founder's philanthropy, but also as a distinct contribution to the architecture of our country. With this end in view they determined to commit to Messrs. Cram, Goodhue, and Ferguson, of Boston and New York, the task of designing a general architectural plan to embody in the course of future years the realization of the educational programme which had been adopted for the Institute. Such a general plan, the work of Mr. Ralph Adams Cram, L.H.D., exhibiting in itself many attractive elements of the architecture of Italy, France, and Spain, was accepted by the board in the spring of 1910. Immediately thereafter plans and specifications for

an administration building were prepared, and in the following July the contract for its construction was awarded; three months later the erection of a mechanical laboratory and power-house was begun, and by the next autumn the construction of two wings of the first residential hall for men was well under way. In the preparation of preliminary plans for its initial building operations the Institute enjoyed the coöperation of an advisory committee consisting of Professor Ames, director of the physical laboratory, and now president emeritus, the Johns Hopkins University; Professor Conklin, director of the biological laboratory, and at present professor emeritus and special lecturer, Princeton University; the late Professor Richards, chairman of the department of chemistry, Harvard University; and the late Professor Stratton, director of the National Bureau of Standards, subsequently chairman of the corporation of the Massachusetts Institute of Technology. In 1911, on the seventy-fifth anniversary of Texas Independence, the corner-stone of the administration building was laid by the trustees. This building, the mechanical laboratory of the engineering quadrangle, the power-house, and the first two wings of the first residential hall for men were ready for occupancy at the beginning of the first academic year in the fall of 1912. The third wing of this residential hall, begun in 1913, was first occupied by students in the autumn of 1914; while the construction of the physics laboratories and lecture amphitheatre, begun also in 1913, was completed in the summer of 1914 from plans prepared by Messrs. Cram and Ferguson under the direction of Mr. H. A. Wilson, D.Sc., F.R.S., resident professor of physics in the Institute. In January, 1916, ground was broken

for the first wing of the second residential group for men; the construction of this wing was completed by September, 1916. Further building operations were suspended during the war. In the meantime the athletic field house and other structures of the exhibition field were completed in 1920. At the commencement exercises of 1923 ground was broken for the new laboratory for chemistry, the plans for which were prepared by Messrs. Cram and Ferguson and Mr. W. W. Watkin, associate architects, under the direction of Mr. H. B. Weiser, Ph.D., resident professor of chemistry in the Institute. The construction of this laboratory was completed during the academic year 1924–25.

The actual work of instruction of the first academic year began on the 23d day of September, 1912, the anniversary of the death of the founder. In the presence of the trustees of the Institute, members of the teaching staff, and representative citizens of the community, the first class of students was received in the faculty chamber of the administration building with appropriate ceremonies on September 26th. The scholastic work of the first academic year was limited to a single class of Freshmen of a standard of preparation as high as the best public and private high schools were capable of attaining.

In the early autumn of 1912, an academic festival in observance of the formal opening of the Institute was held under altogether favorable conditions of weather, most generous coöperation of the community and commonwealth, and the heartening encouragement of several hundred scholars and scientists who came to Houston to assist in the launching of the new university. Chief among these distinguished representatives of life and learning were the

twelve foreign savants who had consented to participate in the inaugural programme by preparing series of lectures in the liberal humanities of philosophy, history, letters, and art, and in the fundamental sciences of mathematics, physics, chemistry, and biology. A complete account of the proceedings of the four days devoted to this celebration has been embodied in three commemorative volumes, in which there appear, in particular, responses and addresses from many foreign and American universities and learned societies; addresses delivered by Governor Colquitt, of Texas, Chief Justice Brown, of Texas, and Bishop Gailor, of Tennessee; the inaugural poem of Dr. Henry van Dyke, of Princeton; the dedicatory sermon of Dr. Charles F. Aked, of San Francisco; and the inaugural lectures of Professor Rafael Altamira y Crevea, of Madrid, Spain; Professor Emile Borel, of Paris, France; Senator Benedetto Croce, of Naples, Italy; the late Professor Hugo de Vries, of Amsterdam, Holland; the late Professor Sir Henry Jones, of Glasgow, Scotland; the late Privy Councilor Baron Dairoku Kikuchi, of Tokyo, Japan; Professor John William Mackail, of London, England; the late Privy Councilor Professor Wilhelm Ostwald, of Gross-Bothen, Germany; the late Professor Henri Poincaré, of Paris, France; the late Professor Sir William Ramsay, of London, England; Professor Senator Vito Volterra, of Rome, Italy; and Professor Carl Størmer, of Oslo, Norway.

ANNOUNCEMENTS

THE FACULTY[1]

Virgil Charles Aldrich, B.A. (Ohio Wesleyan), Ph.D. (California), formerly Teaching Fellow in Philosophy at the University of California; Instructor in Philosophy.

Edgar Altenburg, Ph.D. (Columbia), formerly Assistant in Biology at Columbia University; later Instructor in Biology at the Rice Institute; Assistant Professor of Biology.

Joseph Lloyd Battista, B.A. (Michigan), M.A. (Washington Univ. and Harvard), Diplomé d'Études supérieures (Bordeaux), formerly Assistant Professor of Spanish and Italian at Washington University; Instructor in Spanish and Italian.

Edwin Ford Beckenbach, Ph.D. (Rice), formerly Fellow in Mathematics at the Rice Institute and later Fellow of the National Research Council; Instructor in Mathematics.

Tom Wilkerson Bonner, B.S. (Southern Methodist), M.A. and Ph.D. (Rice), formerly Fellow in Physics at the Rice Institute and later Fellow of the National Research Council; Instructor in Physics.

André Georges Bourgeois, Bachelier ès Lettres (Paris), Certifié d'Études supérieures de lettres (Paris), Bachelier en Droit (Paris), M.A. (Texas); Instructor in French.

Hubert Evelyn Bray, B.A. (Tufts), M.A. (Harvard), Ph.D. (Rice), formerly Instructor in Mathematics at Tufts College and at Lafayette College; Fellow in Mathematics and later Instructor in Mathematics at the Rice Institute; Assistant Professor of Mathematics.

[1] Arranged in alphabetical order, with last appointment before receiving academic appointment at this institution.

Arthur Houghton Burr, B.S. (Worcester Polytechnic Inst.), M.S. (Pittsburgh), formerly Research Engineer in the Westinghouse Research Laboratories; Instructor in Mechanical Engineering.

Carroll Camden, Jr., Ph.D. (Iowa), formerly Instructor in English at the State University of Iowa; Instructor in English.

Lynn Marshall Case, Ph.D. (Pennsylvania), formerly Instructor in History at the University of Pennsylvania; Instructor in History.

Asa Crawford Chandler, B.A. (Cornell), Ph.D. (California), formerly Assistant Professor of Zoölogy and Physiology at Oregon Agricultural College; Instructor in Biology at the Rice Institute; later Research Associate of the School of Tropical Medicine, Calcutta, India; Professor of Biology.

James Chillman, Jr., M.S. in Arch. (Pennsylvania), F.A.A.R., M.A.I.A., formerly Alumni Fellow in Architecture at the University of Pennsylvania; Instructor in Freehand Drawing at the University of Pennsylvania; Instructor in Architecture at the Rice Institute; later Burnham Fellow in Architecture at the American Academy in Rome; Assistant Professor of Architecture.

Robert Rae Crookston, B.S. in M.E. (Carnegie Inst. Tech.), formerly with the Westinghouse Airbrake Company of Pittsburgh; Instructor in Mechanical Engineering.

Lester R. Ford, B.A. (Missouri), Ph.D. (Harvard), formerly Lecturer in Mathematics at the University of Edinburgh; Sheldon Fellow of Harvard University at the University of Paris; later Instructor in Mathematics at Harvard University and Instructor in Life Insurance in

the Graduate School of Business Administration of Harvard University; Assistant Professor of Mathematics.

Max Freund, Ph.D. (Leipsic), formerly Assistant Lecturer in the German Language and Literature at Liverpool University College; Royal Professor of German and Teutonic Philology in Queen's University of Belfast, Ireland, and Examiner in the Royal University of Ireland; later Professorial Lecturer in Modern English at the Universities of Giessen and Marburg, Germany; Professor of German.

Joseph Stephen Gallegly, Jr., M.A. (Rice); Instructor in English.

Allen Darnaby Garrison, Ph.D. (Rice), formerly Fellow in Chemistry at the Rice Institute under appointment of the National Research Council; later Instructor in Physical Chemistry at the Rice Institute; Assistant Professor of Physical Chemistry.

Arthur J. Hartsook, M.S. (Mass. Inst. Tech.), formerly Instructor in Chemistry at the University of Nebraska; later Instructor in Industrial Chemistry at the Rice Institute; Assistant Professor of Chemical Engineering.

Claude William Heaps, B.S. (Northwestern), Ph.D. (Princeton), formerly Class of 1860 Experimental Science Fellow of Princeton University; Instructor in Physics at the University of Missouri; Instructor in Physics and later Assistant Professor of Physics at the Rice Institute; Professor of Physics.

Joseph William Hendren, Ph.D. (Princeton); Instructor in English.

Gilbert Leslie Hermance, B.S. (Oregon), M.A. (Columbia), formerly Instructor in Physical Education at the University of Oregon; Instructor in Physical Education.

Claude Edgar Hooton, B.S. in Arch. (Rice), M.A. (Rice), formerly Traveling Fellow in Architecture of the Rice Institute; Instructor in Architecture.

Joseph Estil Jones, B.A. (Indiana), M.A. (Chicago); Instructor in Spanish.

Irwin Clark Kitchin, B.S. (Wake Forest), Dr.Rer.Nat. (Freiburg), formerly Theresa Seessel Research Fellow in Biology at Yale University; Instructor in Biology.

Floyd Seyward Lear, B.A. (Rochester), M.A. and Ph.D. (Harvard), formerly Instructor in History at Harvard University; later Instructor in History at the Rice Institute; Assistant Professor of History.

Edgar Odell Lovett, Ph.D. (Virginia and Leipsic), Hon. LL.D. (Drake, Tulane, Baylor, and Bethany), Hon. Sc.D. (Colorado College), formerly Professor of Mathematics in Princeton University, and later Head of the Department of Astronomy in the same institution; Professor of Mathematics and President of the Institute.

Jarmon Alvis Lynch, B.A. (West Texas State Teachers), Ph.D. (Chicago), formerly Scholar at the University of Chicago; Instructor in Education.

Samuel Glenn McCann, Ph.B. (Wooster), M.A. (Rice), formerly Fellow in History at the Rice Institute; Instructor in Jurisprudence and Registrar of the Institute.

John Thomas McCants, M.A. (Virginia and Yale), formerly Scholar at the University of Virginia and University Fellow at Yale University; later Instructor in English at the Rice Institute; Instructor in Business Administration and Bursar of the Institute.

Alan Dugald McKillop, Ph.D. (Harvard), formerly Instructor in English at the University of Illinois; Instructor

in English and later Assistant Professor of English at the Rice Institute; Professor of English.

Heinrich Meyer, Ph.D. (Freiburg); Instructor in German.

Walter Peter Miksch, M.A. (Stanford), formerly Instructor in French and Spanish at Reed College, and later Assistant in French at Stanford University; Instructor in French.

John Marshall Miller, B.S. in E.E. (Kansas State Agricultural College); Instructor in Engineering Drawing.

Marcel Moraud, Agrégé de l'Université de France, Docteur ès Lettres (Paris), formerly Instructor in French at the University of Minnesota and at Princeton University; later Associate Professor of French at the University of Toronto; Professor of French.

Lewis Morton Mott-Smith, Ph.D. (California Inst. Tech.), formerly Teaching Fellow at the California Institute of Technology; Instructor in Physics.

Henry Oscar Nicholas, B.A. (Oberlin), Ph.D. (Yale), formerly Fellow and Assistant in Chemistry at Yale University; Instructor in Analytical Chemistry at Yale University; later Instructor in Analytical Chemistry at the Rice Institute; Instructor in Chemistry.

Addison Stayton Nunn, B.S. in Arch. (Rice), M.A.I.A., formerly Fellow in Architecture at the Rice Institute; Instructor in Architectural Construction.

Eugene Jean Oberlé, M.A. (Stanford), formerly Instructor in Romanic Languages at the Leland Stanford Junior University; Instructor in French.

Frank Acklen Pattie, Jr., B.A. (Vanderbilt), M.A. (Harvard), Ph.D. (Princeton), formerly Fellow in Psychology,

Gordon Macdonald Fellow, and Charlotte Elizabeth Procter Fellow of Princeton University, and Fellow of the National Research Council at Harvard University; Instructor in Psychology and Tutor in the Division of Philosophy at Harvard University; later Instructor in Psychology at the Rice Institute; Assistant Professor of Psychology.

Louis Albert Pipes, Ph.D. (California Inst. Tech.); Instructor in Electrical Engineering.

Joseph Horace Pound, B.S. in M.E., and M.E. (Missouri), formerly Instructor in the School of the Westinghouse Machine Company; Instructor in Mechanical Engineering and later Assistant Professor of Mechanical Engineering at the Rice Institute; Professor of Mechanical Engineering.

George Holmes Richter, Ph.D. (Rice), formerly Fellow in Chemistry at the Rice Institute and later Fellow of the National Research Council at Cornell University; Instructor in Organic Chemistry.

Lewis Babcock Ryon, Jr., C.E. (Lehigh), formerly Instructor in Civil Engineering and later Assistant Professor of Civil Engineering at the Rice Institute; Professor of Civil Engineering.

Arthur Ferdinand Scott, B.S. (Colby), M.A. and Ph.D. (Harvard), formerly Assistant in Chemistry at Harvard University; Sheldon Fellow of Harvard University; later Assistant Professor of Chemistry at Reed College; Instructor in Analytical Chemistry.

Harry Alexander Scott, Ph.D. (Columbia), formerly Instructor in Physical Education at Columbia University, and Professor of Physical Education at the University of Oregon; Professor of Physical Education.

Fred Vernon Shelton, M.A. (Rice); Instructor in French.

Verne Franklin Simons, M.A. (Kansas), C.P.A., formerly Instructor in Economics at the University of Kansas, and later Assistant in Accounting at the University of Chicago; Instructor in Economics.

John Willis Slaughter, B.A. (Lombard), Ph.D. (Michigan), formerly Lecturer on Sociology in the School of Economics at the University of London; Lecturer in Civics and Philanthropy.

Joseph David Thomas, M.A. (Chicago); Instructor in English.

Radoslav Andrea Tsanoff, B.A. (Oberlin), Ph.D. (Cornell), formerly Sage Fellow of Cornell University; Instructor in Philosophy at Clark University; later Assistant Professor of Philosophy at the Rice Institute; Professor of Philosophy.

James Stephen Waters, B.S. (Rice), formerly Instructor in Electrical Engineering at the Rice Institute; Assistant Professor of Electrical Engineering.

William Ward Watkin, B.S. in Arch. (Pennsylvania), M.A.I.A., formerly Scholar in Architecture in the University of Pennsylvania; Associate Architect with Messrs. Cram and Ferguson, the supervising architects of the Institute; Instructor in Architecture and later Assistant Professor of Architecture at the Rice Institute; Professor of Architecture.

Harry Boyer Weiser, M.A. (Ohio State), Ph.D. (Cornell), formerly Assistant Instructor in Chemistry at Cornell University; Assistant Professor of Chemistry in the University of Tennessee; Instructor in Chemistry and later

Assistant Professor of Chemistry at the Rice Institute; Professor of Chemistry and Dean of the Institute.

Hugh Clayton Welsh, M.D. (Texas), F.A.C.S.; Instructor in Biology.

Russell Eugene Westmeyer, Ph.D. (Iowa), formerly Assistant in Economics at the State University of Iowa; Instructor in Economics.

William Erickson White, C.E. (Iowa State), formerly Research Assistant in Highway Engineering at Iowa State College; Instructor in Civil Engineering and later Assistant Professor of Civil Engineering at South Dakota State College; Instructor in Civil Engineering.

George Wesley Whiting, B.A. (West Virginia), M.A. (Harvard), Ph.D. (Chicago), formerly Assistant Professor of English at the Michigan State College, and later Assistant in English at the University of Chicago; Instructor in English.

George Guion Williams, M.A. (Rice), formerly Instructor in English at the Rice Institute; later Teaching Fellow in English in New York University; Instructor in English.

Harold Albert Wilson, F.R.S., M.A. (Cambridge), M.Sc. (Victoria), D.Sc. (London), formerly 1851 Exhibition Scholar of Leeds University; Allen Scholar and Clerk Maxwell Student of Cambridge University; Scholar in Physics of London University; Fellow of Trinity College, Cambridge University; Professor of Physics in King's College, London; Professor of Physics in McGill University; Professor of Physics at the Rice Institute; later Professor of Natural Philosophy in the University of Glasgow; Professor of Physics.

ANNOUNCEMENTS

ASSISTANTS AND FELLOWS

Walter Goode Appleby, B.S. in Ch.E. (Rice); Fellow in Chemistry.

Nolan Ellmore Barrick, B.S. in Arch. (Rice); Fellow in Architecture.

Weldon Burk Cabaniss, B.A. (Rice); Assistant in Jurisprudence.

William Joseph Coppoc, B.S. (Ottawa); Fellow in Chemistry.

Raymond Howard Cramer, B.A. (Rochester), M.A. (Harvard), formerly Thayer Fellow in Mathematics at Harvard University; Fellow in Mathematics.

Joseph Ilott Davies, M.A. (Rice); Assistant in Biology.

Alice Crowell Dean, M.A. (Rice); Fellow in Mathematics.

Wilton Monroe Fisher, B.A. (Oklahoma), formerly Assistant in Bacteriology at the Baylor College of Medicine; Fellow in Biology.

Henry Edward Gabler, B.Ch.E. (Clarkson College of Tech.); Fellow in Chemistry.

Martin James Gould, M.A. (Rice); Fellow in Physics.

Lee Hodges, B.S. (Harvard), M.A. (Rice); Assistant in French and Spanish.

Wilson Mathis Hudson, M.A. (Texas); Assistant in English.

Frank House Hurley, Jr., M.A. (Rice); Fellow in Chemistry.

Eby Nell McElrath, B.A. (Rice); Fellow in Chemistry.

Ernest Carlton Kennedy, M.E. (Texas College of Mines and Metallurgy), M.A. (Texas); Fellow in Mathematics.

Winfred O. Milligan, B.A. (Illinois College), Ph.D. (Rice); Research Assistant in Chemistry.

John Purcell Nash, B.A. (California); Fellow in Mathematics.

Edward Preble Offutt, Jr., B.A. (Dartmouth); Fellow in Biology.

Fred Terry Rogers, Jr., M.A. (Rice); Fellow in Physics.

Walter Tandy Scott, M.A. (Rice); formerly Fellow in Mathematics at the Rice Institute; Samuel Fain Carter Fellow.

Edward Howard Smith, B.A. (Rice); Fellow in Physics.

Floyd Edward Ulrich, M.S. (Union), M.A. (Harvard), formerly Instructor in Mathematics at Union College; Assistant in Mathematics.

SCHOLARSHIPS

WHILE seeking to develop its students in character, in culture, and in citizenship, the Rice Institute will reserve for scholarship its highest rewards and in particular for evidences of creative capacity in productive scholarship. To encourage this devotion to learning there have been devised through the donations of friends of the Institute a number of undergraduate scholarships to be awarded preferably to those students who have been in residence at the Institute for at least one year. Moreover, honorary scholarships without stipend may be granted to students whose scholastic standing shows marked ability.

THE GRAHAM BAKER STUDENTSHIP

The first of these undergraduate scholarships to be established at the Institute is the Graham Baker Studentship,

founded by Captain and the late Mrs. James A. Baker, of Houston, in memory of their eldest son, the late Frank Graham Baker. This studentship is awarded annually to a student of the Rice Institute upon the basis of highest standing in scholarship, and the holder is known as the Graham Baker Student for the year. The award is announced at the commencement convocation in June, and the annual stipend is $200. The first award was made for the academic year 1918–19.

The Hohenthal Scholarships

The Hohenthal Scholarship Fund is a gift to the Rice Institute made through the good offices of Mr. William M. Rice, Jr., from the estate of the late Lionel Hohenthal, of Houston, who in his last will and testament instructed his executor, Mr. Rice, to devote the residue of his estate to the founding of a permanent memorial to Mr. Hohenthal's mother, father, and brother. The scholarships provided by this fund are known as the Hohenthal Scholarships, and the holders as the Hohenthal Scholars of the Institute. These scholarships are awarded annually to students of high standing in scholarship who are earning a substantial part of their college expenses. Each of the six now available carries with it an annual stipend of $133.33. The first awards were made for the academic year 1918–19.

The D.A.R. Scholarship

The John McKnitt Alexander Chapter of the Daughters of the American Revolution has provided an endowed undergraduate scholarship at the Rice Institute. Under the present conditions of this scholarship it is awarded to

a young woman student on admission to the Institute and carries with it an annual stipend of $200. The first award was made for the academic year 1919–20.

The Ellen Axson Wilson Scholarship

The Axson Club, an organization of Houston women in the interests of literary pursuits, recently concluded a successful campaign for the endowment of a permanent scholarship at the Rice Institute in memory of Ellen Axson Wilson (the late Mrs. Woodrow Wilson), the scholarship to be awarded from year to year to a young woman student of the Institute. The annual stipend of the Ellen Axson Wilson Scholarship is $500, and the first award of the scholarship was made for the academic year 1922–23.

The Elizabeth Baldwin Literary Society Scholarship

The Elizabeth Baldwin Literary Society of the Rice Institute is maintaining annually a scholarship with a view to providing permanent endowment therefor. This scholarship is available to a student of the Rice Institute, either a young man or a young woman, the candidate to be chosen by the Faculty on grounds of scholarship, personality, and physical vigor. The present annual stipend of the Elizabeth Baldwin Literary Society Scholarship is $300, and the first award of the scholarship was made for the academic year 1926–27.

The Pallas Athene Literary Society Scholarship

The Pallas Athene Literary Society of the Rice Institute is providing an annual scholarship at the Rice Institute, with the intention of raising a permanent endowment for

the scholarship. This scholarship is open to a young woman student of the Rice Institute, to be selected by the Faculty on grounds of scholarship, personality, and physical vigor. The present annual stipend of the Pallas Athene Literary Society Scholarship is $300, and the first award of the scholarship was made for the academic year 1926–27.

The Daniel Ripley Scholarship

In memory of her husband, the late Daniel Ripley, for many years a prominent citizen of Houston, Mrs. Edith Ripley established by the donation to the Institute of $10,000, the Daniel Ripley Scholarship. The annual income of this trust fund is to be awarded to that self-supporting young man or woman student completing the Freshman year at the Rice Institute who receives the highest grades, and the candidate is to be selected by the Faculty. The first award of the Daniel Ripley Scholarship was made for the academic year 1927–28.

The Junior Engineering Scholarship

To foster interest in engineering education at the Rice Institute and to provide for recognition for work well done, an anonymous donor is contributing to the Rice Institute the sum of $200 annually as a stipend for the Junior Engineering Scholarship, to be awarded to that male student in a regular engineering course of the Junior year who has the highest scholastic standing in his courses taken that year. This scholarship is restricted to no particular field of engineering, the selection of the scholar is made by the Faculty, and in making the selection account is taken of individual qualifications of character and personality, but no consider-

ation is to be given to the financial circumstances of the student. The first award of the Junior Engineering Scholarship was made for the academic year 1928–29.

The Edith Ripley Scholarships

Mrs. Edith Ripley, of Houston, established three Edith Ripley Scholarships by the donation of $10,000 to the Rice Institute, the income of which is to be distributed equally and annually to three young women students of the Institute to be selected by the Faculty. In selecting the beneficiaries of this donation, consideration is to be given to the mental, moral, and womanly qualities of the candidates, as well as to their financial necessities. The first awards of the three Edith Ripley Scholarships were made for the academic year 1928–29.

The Mary Parker Gieseke Scholarship

Mr. Fred A. Gieseke, of Houston, and his daughter, Mrs. James Carter Boone, a graduate of the Rice Institute, established the Mary Parker Gieseke Scholarship in memory of the late Mrs. Fred A. Gieseke, by a gift to the Rice Institute of $5000. This memorial scholarship is to be awarded annually for high standing in scholarship to a student of the Rice Institute who has been in residence at least one year. The first award of the Mary Parker Gieseke Scholarship was made for the academic year 1929–30.

The Thomas Aubrey Dickson and Pauline Martin Dickson Scholarships

The late Mrs. Pauline Martin Dickson, of Houston, in execution of the wishes of herself and her husband, the late

Dr. Thomas Aubrey Dickson, bequeathed to the San Jacinto Trust Company a sum of $10,000, the income of which is to be paid semi-annually to the Rice Institute for the support of scholarships to be known as the Thomas Aubrey Dickson and the Pauline Martin Dickson Scholarships, to be awarded by the Faculty, on the basis of scholarship, to self-supporting students of the Institute, young men or young women. The first awards of the Dickson Scholarships were made for the academic year 1932–33.

The Traveling Scholarship in Architecture

Provision for a Rice Institute Traveling Scholarship in Architecture has been made by the Architectural Society of the Rice Institute, and Messrs. W. L. Clayton, George S. Cohen, F. A. Heitmann, J. A. Kiesling, E. L. Neville, Cleveland Sewall, and William Ward Watkin, who have individually pledged the amount of $150 each year for five years to a stipend of $1200 to be given each year to a student in architecture for the purposes of European travel and study. The selection of the holder of the Traveling Scholarship is to be made by the Faculty by means of a formal competition, arranged each year for such purpose by the Faculty, in which students or graduates of the Rice Institute are eligible to participate. The first award of the Traveling Scholarship in Architecture was made for the academic year 1928–29.

The Friends of Rice Scholarships

The Friends of Rice, an association dedicated to the encouragement and perpetuation of the purposes, activities, and ideals of the Rice Institute on the part of an extensive

group of men and women of this community, is maintaining three annual scholarships in the sum of $200 each. The Friends of Rice Scholars are selected by the Faculty on grounds of scholarship, general intelligence, and physical vigor. The first awards of these three scholarships were made for the academic year 1935–36.

The Chapman-Bryan Memorial Scholarship

By bequest of the late Miss Johnelle Bryan of Houston made on behalf of herself and her sister, the late Mrs. Caro Bryan Chapman, the Rice Institute has received the sum of $2500 for the endowment of the Chapman-Bryan Memorial Scholarship at this institution. The scholar on this foundation, a student of the Institute, is to be selected by the Faculty on the basis of high standing, personality, and physical fitness. The first award of the scholarship will be made for the academic year 1937–38.

The Lady Washington Texas Centennial Award

From the Lady Washington Chapter of the Daughters of the American Revolution the Rice Institute has received the sum of $1000 in endowment of the Lady Washington Texas Centennial Award. This award is to be made yearly for scholarship to a young woman student of the Rice Institute, preference to be given to Houston students of Sophomore standing. The first award will be made for the academic year 1937–38.

The Lady Geddes Prize in Writing

The Right Hon. Sir Auckland Geddes, British Ambassador to the United States, Godwin Lecturer of the

Rice Institute in 1921, has endowed at Rice a prize in writing, which is to bear the name of Lady Geddes. This prize is to be awarded annually from the income of the endowment of one thousand dollars.

The first award of the Lady Geddes Prize in Writing was made at the end of the academic year 1922–23, the competition of this award being open to members of the Freshman and Sophomore classes of the Rice Institute, and the subjects assigned pertaining to the relations between Great Britain and the United States.

The Owen Wister Literary Society Fund

The Owen Wister Literary Society of the Rice Institute is providing an annual donation at the Rice Institute, with the intention of raising a permanent endowment for the donation. The annual gift is at present devoted to the purchase of books on the history of Texas and the West. The first appropriation of $250 from this fund was available in the academic year 1929–30. More recently the Society has been raising $300 annually.

The Richardson Fund for Rice Students

Mrs. Libbie A. Richardson, wife of the late Alfred S. Richardson, who was a charter member of the Board of Trustees of the Rice Institute, bequeathed in trust to the Houston Land and Trust Company as trustee, approximately $51,000 to constitute the Richardson Fund, the income therefrom to be used in educating necessitous young men and women at the Rice Institute. The present annual income of the Richardson Fund is about $2600.

The Grant William Jordan and Cora Jordan Memorial Fund

Under the will of the late Mrs. Cora Jordan, a resident of Houston, the bulk of her estate was left in trust with the Houston Land and Trust Company as trustee, the income therefrom to be used in assisting worthy young men and women in obtaining an education at the Rice Institute. The Jordan Memorial Fund amounts at present to approximately $56,000 and the net annual income therefrom is about $3000.

The Sara Stratford Fund

The Sara Stratford Fund for Women Students of the Rice Institute, in memory of the late Mrs. Sara Stratford, first Adviser to Women, who served faithfully and efficiently in that capacity from the opening of the Institute, is being established by her daughter, Mrs. William Bradshaw Torrens, her immediate successor as Adviser to Women. For the present one hundred dollars per year will be available at the time of registration in September, for laboratory or other fees of courses, science courses in particular, which the candidates, selected by the Committee on Examinations and Standing, could not otherwise afford to take. The first awards from the Sara Stratford Fund were made in the autumn of 1931.

The Mary Alice Elliott Loan Fund

In memory of their daughter, the late Mary Alice Elliott, who at the time of her death was a student in architecture at the Rice Institute in the class attaining, at the graduation

of 1931, the degree of Bachelor of Science in Architecture, Mr. and Mrs. Card G. Elliott, of Houston, are establishing the Mary Alice Elliott Loan Fund for Foreign Travel and Study in Architecture, in the amount of $2500. A loan of $500 from this fund is to be available each year, on recommendation of the Faculty, to an architectural graduate who has received honourable mention in the annual competition for the regular Traveling Scholarship already established. The first award from the Mary Alice Elliott Loan Fund was made for the academic year 1931–32.

The Raymond R. Stone Mechanical Engineering Fund

In memory of their son, the late Raymond Ruser Stone, a mechanical engineering graduate of the Rice Institute in the Class of 1930, Mr. and Mrs. Jesse R. Stone, of Houston, are making provision for an annual award of one hundred dollars to that student of mechanical engineering who has at the end of his Sophomore year shown the most interest and ability in kinematics and related subjects, the selection to be made by the Faculty and to be contingent on the financial needs of the student and on his continuing his work into the Junior year in engineering at the Rice Institute. The first assignment of the Raymond R. Stone Award in Mechanical Engineering was made for the academic year 1931–32.

The Robert Pilcher Quin Award

By a group of student friends of the late Robert Pilcher Quin, a member of the Class of 1933, provision is being made for an annual "Bob Quin Award," in the form of a

medal, for qualities in athletics, leadership, scholarship, and sportsmanship in which he himself excelled. The first of these medals was awarded for the academic year 1930–31.

FELLOWSHIPS

THE Rice Institute seeks to interpret in a large way its dedication to the advancement of letters, science, and art. It not only looks to the employment of these disciplines in the development of the life of the individual and in that of the race, but it would also play its part in the progress and enlargement of human knowledge by contributions of its own resident professors and scholars. Accordingly there have always been associated with the staff of the Institute advanced students in training for careers both as teachers and researchers: with this end in view, graduate fellowships have been awarded from time to time to degree-bearing students of the Institute and other educational foundations.

THE WALTER B. SHARP MEMORIAL FUND FOR RESEARCH IN PURE AND APPLIED SCIENCE

In memory of her husband, the late Walter B. Sharp, one of the earliest and most successful of the pioneers in the development of the petroleum industry in this country, Mrs. Estelle B. Sharp, of Houston, has endowed at the Rice Institute the Walter B. Sharp Memorial Fund for Research in Pure and Applied Science. The income from this fund is to be used for the maintenance of resident or traveling fellowships in scientific research, preference to be given geological research, the production of petroleum and the products closely allied thereto. A requisite for eligibility to these fellowships is the degree of Doctor of Philosophy, or

similar standing in this or other institutions. The awards are to be known as the Walter B. Sharp Fellowships, and the holders thereof as the Walter B. Sharp Fellows of the Rice Institute. The first Walter B. Sharp Fellow, at a stipend of $2500, was appointed for the academic year 1931–32.

The Samuel Fain Carter Fellowship

In memory of her husband, the late Samuel Fain Carter, one of the first promoters of the lumber industry in Texas and the founder of the Second National Bank of Houston, Mrs. Carrie B. Carter has established at the Rice Institute, the Samuel Fain Carter Fellowship, with an endowment of $20,000 to be administered in trust by the Second National Bank. The annual income of this trust fund is to be awarded to a graduate student of the Rice Institute, or a white graduate of an approved institution of learning, for the purpose of enabling the student to continue in postgraduate work, preferably at the Rice Institute, and, when the appropriate graduate schools shall have been organized, precedence is to be given to candidates in banking, business administration, and forestry. In the meantime, the award is to be made for the prosecution of postgraduate work in history and allied subjects, in science or engineering, or other branches of liberal and technical learning for which facilities for advanced work may be available at the Rice Institute. Should a graduate of any institution other than the Rice Institute receive the award, then the postgraduate work shall be done only at the Rice Institute. The holder is to be known as the Samuel Fain Carter Fellow of the Rice Institute. The award is to be made by the Faculty, on the basis of highest standing in

scholarship, with consideration of financial circumstances, personality, and physical fitness. The first Samuel Fain Carter Fellow was appointed for the academic year 1933–34.

THE PHI BETA KAPPA SOCIETY

The Senate of the United Chapters of Phi Beta Kappa at its meeting in December, 1927, voted to recommend the establishment of a chapter at the Rice Institute, and at a meeting of the National Council held in September, 1928, the institution of the Rice, or Beta of Texas, Chapter was duly authorized. The chapter was formally installed on March 1, 1929, by the Secretary of the United Chapters.

OPPORTUNITIES FOR SELF-HELP

In addition to the stipends of fellowships and endowed scholarships, there are, on the campus and in the city, opportunities in considerable variety for worthy and deserving students to earn a part of their living expenses while attending the Institute. Information concerning such openings may be obtained from the Bursar. Thanks also to the generosity of a number of citizens of Houston, there are available several student loan funds. Inquiries concerning the administration of these funds should be addressed to the Bursar.

GENERAL REQUIREMENTS FOR ADMISSION

All candidates for admission to the Institute are required to present satisfactory testimonials as to their character,

and either to present a certificate of graduation from an approved public or private high school, or, in lieu thereof, to pass examinations in the entrance subjects. The standard requirements for matriculation are determined by the system of units given below. A unit represents a course of study pursued five hours a week for an academic year. Appropriate application forms may be secured from the Registrar.

Fifteen units are required for entrance in full standing to the Freshman class of the Institute. No candidate for admission will be accepted with fewer than fifteen units. And towards this total of fifteen units, every candidate will be required to present, from the lists of subjects printed below, at least three units in English, three units in mathematics,[1] including two in algebra and one in plane geometry, two units in history, and three units in one foreign language or two units in each of two foreign languages. Variation in the distribution of units may be considered in individual cases.

METHOD OF PROCEDURE FOR ADMISSION

I. General Policy of Competitive Admission of Students

With the rapid growth in population of Houston and the Southwest, accompanied by an even more rapid increase in the demand for college training, the Rice Institute is brought face to face with the problem of maintaining high standards of instruction without shutting the door of opportunity to properly qualified students. It is therefore

[1] Students expecting to enter the Institute are advised to elect mathematics during their fourth year. If possible, this course should include training in algebra and trigonometry.

proposed, for the immediate future, to meet this problem by a plan of admission based on the following principles:

1. The maintenance, as in the past, of standards for entrance on a high plane.
2. The adoption in advance for each academic year or group of years of a specific number of new students to be admitted on a competitive basis. This number should be slightly smaller than the demand but not so far below that demand as to cause injustice to well qualified students.
3. The division of students into still smaller groups, especially in the classes in elementary subjects. The adoption of this principle makes necessary the acceptance of a smaller total number, but means that a larger number will receive careful and adequate instruction.

II. Specific Plan for the Admission of Four Hundred New Students in the Autumn of 1936

The Rice Institute will accept four hundred new students in September, 1936. The total student body will thus consist of about thirteen hundred members, which was approximately the enrollment in September, 1935.

In selecting the members of the Freshman class the Committee will be guided by such principles as the following:

1. As at present, no candidate to be accepted with fewer than fifteen units.
2. Preference to be given to candidates who present the maximum number of units in English, mathematics, foreign languages, science, and history.

3. Preference to be given to candidates who show special promise and capacity for leadership, especially those in the upper half of their high-school class.
4. Of candidates not in one of the above preferential groups, special preference to be given to those who prove fitness by taking entrance examinations in one or more subjects.
5. Preference to be given to candidates whose applications are received early.

Candidates, once chosen, are received without conditions.

LIST OF SUBJECTS WITH VALUES IN UNITS

Botany 1; Chemistry 1; Civics (½ or 1); English (3 or 4); French (Elementary 2, Intermediate 1, Advanced 1); German (Elementary 2, Intermediate 1); Greek (Grammar and Elementary Prose Composition 1, Xenophon 1, Homer—*Iliad*, Books I–III 1); History (Ancient 1, Mediæval and Modern 1, English 1, American 1); Latin (Grammar, Elementary Prose Composition and Cæsar 2, Cicero 1, Virgil 1); Mathematics (Algebra 2, Plane Geometry 1, Solid Geometry ½, Trigonometry ½); Spanish (Elementary 2, Intermediate 1, Advanced 1); Physics 1; Physical Geography ½; Physiology ½; General Science 1; Zoölogy 1. Substitutes for certain of these subjects may be considered in individual cases.

Entrance examinations will be held at the Institute beginning September 14, 1936, and again during the week beginning May 10, 1937. Applications for the privilege

of taking these examinations must be received at the Registrar's Office three weeks in advance of the beginning of the examinations. Such applications must be accompanied by statements and records from schools attended by candidates. Appropriate forms for such applications and records may be obtained from the Registrar's Office of the Rice Institute on request.

The terms of admission to the Institute are based on the recommendations of the Carnegie Foundation for the Advancement of Teaching as expressed in the Documents of the College Entrance Examination Board. Complete information with respect to further details of these requirements will be forwarded by the Institute to any candidate upon receipt of a request addressed to the Registrar of the Institute.

Advanced credit will be granted to students coming from other recognized colleges and universities only when the work presented is equivalent in content and quality to a full year course at the Institute. Such prospective students should make early application to the Registrar and submit official statements of their preparatory and college work, together with catalogues of the institutions attended.

EXPENSES

THE opportunities for study and research offered by the Rice Institute are open without tuition both to young men and to young women. Students, of course, are expected to meet all expenses incurred in the purchase of text books, drafting instruments, note books, examination papers, certificates and diplomas, and the laboratory expenses in the

experimental courses in pure and applied science. An annual registration fee of twenty-five dollars is required of all students. A student blanket-tax of eight dollars and forty cents is required of all students to meet the expenses of the Students Association. A fee of sixteen dollars is required at registration time of every male student registering for the first time, for the use of physical training equipment during his residence; for details see page 97. Students transferring to the Rice Institute from other institutions and ranked as Freshmen pay this fee on admission. Those classified as Sophomores pay twelve dollars; as Juniors, eight dollars; as Seniors, four dollars. An annual medical fee of five dollars is required of all students living in the residential halls.

A contingent deposit of ten dollars, payable at registration, must be maintained by each student. In addition to this general contingent deposit, laboratory deposits, also payable at registration, must be maintained at the Office of the Bursar as follows: a deposit of ten dollars for Biology 360, for Psychology 300, for Electrical Engineering 300, and for Architecture 510 and 540; a deposit of twenty-five dollars for each laboratory course taken in biology, chemistry, physics, and psychology; a deposit of twenty-five dollars for Engineering 110, covering also the purchase of approved drawing instruments; a deposit of twenty-five dollars for Mechanical Engineering 310; and a deposit of twenty-five dollars on the part of every student in architecture, and of every Junior and Senior in engineering.

These deposits, contingent and laboratory, will ordinarily cover the charges against the student for materials, et cetera, but whenever the charges against any particular

deposit approach the amount of that deposit, the student will be required to make such additional payment as will bring the deposit to its original amount: this is what is meant by maintaining a deposit. Any balances on these deposits are returned in July following the academic year. For delayed registration a penalty is required.

No student in arrears in his bills, including obligations to loan funds, will be admitted to any of the examinations, or be given any certificate or report of academic standing.

Men students registering for the first time will be expected to live in the residential halls on the campus for not less than one year. The period of residence, however, may be postponed for one year in case the parent or guardian certifies that the student is financially unable to live in the halls, but in such circumstances the student will be expected to live with relatives.

Rooms in the residential halls for men, completely furnished exclusive of linen, may be had for ninety dollars per year, twenty-five dollars of the rental being paid when the lease is signed, thirty-one dollars paid on September sixteenth, and the remainder paid on February fourth. As the charge for table board will be made at actual cost, the monthly price, payable in advance, will probably vary during the year. Until November first, a blanket-charge of one dollar per day will be made.

These residential halls are of absolutely fireproof construction, heated by steam, lighted by electricity, cleaned by vacuum apparatus, and equipped with the most approved form of sanitary plumbing, providing adequate bathing facilities on every floor. Rooms in the halls will be

let in the order of applications received. Such applications should be addressed to the Office of the Bursar.

Accommodations for the residence of young women on the university grounds are not available at present, but there is access to rest rooms, tennis courts, and other forms of recreation under the supervision of Miss Sarah Louise Lane, B.A. (Rice), B.S. in Library Service (Columbia), Adviser to Women. Information concerning desirable places of residence for young women students may be had at the Office of the Bursar.

COURSES OF INSTRUCTION FOR DEGREES

ALTHOUGH it is the policy of the institution to develop its university programme rather more seriously from the science end, there are also being provided facilities for elementary and advanced courses in the so-called humanities, thereby enabling the Institute to offer both the advantages of a liberal general education and those of special and professional training. Extensive general courses in the various domains of scientific knowledge will be available, but in the main the programme consists of subjects carefully coördinated and calling for considerable concentration of study. These programmes have been so arranged as to offer a variety of courses in arts, in science, in letters, and in their applications to the several fields of engineering, architecture, and other regions of applied science, leading after four years of undergraduate work to the degree of Bachelor of Arts. Degrees will also be offered in architecture and in chemical, civil, electrical, and mechanical engineering. Furthermore, for the degrees

of Master of Arts, Doctor of Philosophy, and Doctor of Engineering, every facility will be afforded properly qualified graduate students to undertake lines of study and research under the direction of the Institute's resident and visiting professors.

The academic programmes of study leading to the degree of Bachelor of Arts after four years of study are of a common type for the first two years, but for the third and fourth years are differentiated into two forms: first, general courses leading to the degree of Bachelor of Arts, either with some grade of distinction or without special mention, and, second, honours courses leading to the degree with honours in certain subjects. These are types that will be referred to in the sequel as general courses and honours courses respectively.

The general course leading to the degree of B.A. has been arranged to give thorough training to those students who are seeking university instruction in literary and scientific subjects either as a part of a liberal education or as preliminary to entering upon a business or professional career. The general course, therefore, involves the study of several subjects up to a high university standard but does not include a highly detailed specialized study of any one subject such as is necessary before research work or university teaching can be profitably undertaken. Students wishing to specialize with a view to research work and university teaching may either complete an honours B.A. course and then proceed by graduate study to the degrees of M.A. and Ph.D., or they may first take a general B.A. course and after completing it proceed by graduate study to the higher degrees.

ANNOUNCEMENTS

The attention of students intending to enter the profession of engineering or architecture is called to the great advantages in first taking a general or honours academic course before beginning special study in engineering or architecture. At present the Institute is not offering courses leading to degrees in law and medicine, but students looking forward to such careers will find in the earlier years of the B.A. course all the requirements for admission to many medical and law schools, provided suitable subjects are chosen. However, attention is called to the fact that several professional schools of law and medicine now require bachelor degrees for admission.

As has already been intimated, the course for the degree of B.A. extends over four years. During the first two years a considerable part of the work is prescribed, while during the last two years each student is allowed, within certain restrictions, to select the subjects he studies. In the majority of the courses the formal instruction offered consists of three lectures a week together with laboratory work in certain subjects. Preliminary examinations for all new undergraduates are held in December, examinations for all students are given in February, and final examinations for all are held in June. Other examinations are given from time to time at periods determined by the instructors.

These examinations are conducted under a student honor system. In determining the standing of a student in each class, both his work during the term and the record of his examinations are taken into account.

Of subjects included in the B.A. courses the following are now available:

Group A	Group B
1. English	1. Pure Mathematics
2. French	2. Applied Mathematics
3. German	3. Physics
4. Italian	4. Chemistry
5. Spanish	5. Biology
6. Economics	6. Psychology
7. Education	7. Chemical Engineering
8. History	8. Civil Engineering
9. Philosophy	9. Electrical Engineering
10. Architecture	10. Mechanical Engineering

Candidates for the degree of Bachelor of Arts of the Rice Institute will be required to select studies from the preceding groups according to the yearly programmes exhibited below.

First Year

(1) Pure mathematics
(2) English
(3) A modern language
(4) A science
(5) One other subject

Second Year

(1) Pure mathematics or a science
(2) English
(3) A modern language[1]
(4–5) Two other subjects.

[1]Students who enter with credit in two modern languages may substitute another subject for (3) in the second year; on the other hand, students must take at least one second year language course for graduation.

At the beginning of the third year students may elect to take either a general course or an honours course.

Third Year General B.A. Course

Four subjects, of which two must have been taken in the second year and one in both first and second. At least one subject from each of the groups A and B must be taken. Students will receive advice in the selection of their subjects.

Fourth Year General B.A. Course

Four subjects, two of which must have been taken in the third year and one in both second and third or in first and third. At least one subject from each of the groups A and B must be taken. However, students will be allowed to specialize in their fourth year, provided they substitute an advanced course for the required group A or group B subject.

A student who wishes to become a candidate for a general B.A. degree should report his candidacy in writing at the beginning of the year in which he expects to take his degree.

To students who have completed a general four years' course the B.A. degree will be awarded either with some grade of distinction or without special mention.

HONOURS COURSES

The third and fourth year honours courses are intended for students who wish to specialize in particular branches of knowledge with a view to research work or teaching or later professional studies.

In view of these special objects, the requirements in such courses will be more severe than in the general courses in

the same subjects. For this reason it is recommended that students exercise due caution and seek advice before electing to take an honours course. Only those students who have shown in their first and second years that they are especially well qualified will be permitted to take an honours course. A student proposing to take an honours course must satisfy the department concerned that he is qualified to proceed with the study of that subject. He will be required to take the lectures and practical work provided for honours students in that subject during each of the two years and in addition certain courses in allied subjects. It is a decided advantage for students in honours courses to have had some preparation in French or German before entering college.

In 1936–37 honours courses will be available as follows:

(1) Pure and applied mathematics
(2) Theoretical and experimental physics
(3) Modern languages and literatures
(4) Biology
(5) Chemistry
(6) Economics and mathematics
(7) English
(8) History
(9) Philosophy

The following programme of honours courses in physics may be taken as typical of such courses:

Third year, four subjects: (1) mathematics, (2) and (3) Physics 300 and 320, or 310 and 330, (4) one other subject.

Fourth year, four subjects: (1) mathematics, (2) and (3) Physics 300 and 320, or 310 and 330, (4) one other subject.

A student who wishes to become a candidate for a degree with honours should report his candidacy at the beginning of his third year and renew his application at the beginning of his fourth year.

The degree of B.A. with honours will be awarded at the end of the fourth year to students who have completed an honours course. Candidates for honours who fail may be excused such part of a general course as may be equivalent to the work they have done. Candidates for honours who are not making satisfactory progress may be required to discontinue their honours course and may be excused such part of a general course as may be equivalent to the work they have done.

For courses leading to the degree of Bachelor of Science, see pages 97, 100, and 118.

A student who has completed a general or an honours course for the B.A. degree may obtain the Master of Arts degree after the successful completion of one year of graduate work.

A candidate for the M.A. degree must elect a principal subject, and submit his schedule in writing when he reports his candidacy. Such a schedule must represent the equivalent of four advanced courses to be passed with high credit. The work shall consist of (*a*) personal investigation, the results of which must be submitted as a thesis, and (*b*) at least two advanced courses of lectures, one of which must be a graduate course in the principal subject. In addition, candidates for the M.A. degree must pass a public examination.

For courses leading to the degree of Master of Science, see page 101.

A student who has completed a course for the B.A. degree may be admitted as a candidate for the degree of

Doctor of Philosophy. In addition to high attainment, preparation for the Ph.D. degree involves usually at least three years of graduate work. Candidates for the degree must submit a thesis and pass a public examination. The thesis must present a distinctly original contribution to the subject. It must be published in an accredited journal or series, and fifty printed copies must be deposited in the Institute library.

Candidates who successfully complete the first four years of the engineering course will receive the degree of Bachelor of Science in a specified branch of engineering. This degree will be awarded with distinction to students whose work is of a high standard. Candidates who successfully complete the five years' engineering course will receive the degree of Ch.E., C.E., E.E., or M.E. according to the branch of engineering taken. Under requirements conforming to those for the M.A. degree, namely, high standing, a thesis, and a public examination, the M.S. degree in a specified branch of engineering may be awarded.

Candidates who successfully complete the five years' course in architecture will be awarded the degree of Bachelor of Science in Architecture. Students in architecture who satisfy all the requirements for the degree of M.A. may elect to take that degree if they prefer.

STANDING IN SCHOLARSHIP OF UNDERGRADUATE STUDENTS

SCHEDULE of Undergraduate Students.—The regular schedule of undergraduate students is five courses in the Freshman year, five courses in the Sophomore year, four courses

in the Junior year, and four courses in the Senior year. The regular schedules for students of engineering and architecture may be found in these Announcements beginning on pages 100 and 118 respectively. Admission to less than the regular schedule is rarely granted, and then only in the most exceptional circumstances. One extra course may be taken in the second year and one in the third year by students who are not on probation. Deficiencies of the first two years must be removed before the year in which a student is a candidate for a degree, and may not be removed by extra courses in that year. An excess schedule must be reduced if a student fails to attain a grade of III or better in three courses, or if he fails to pass any course without at the same time doing work of exceptional quality in his other courses. No credit is given toward graduation for less than a full year's course in any subject, but a course which has been dropped by permission after the February examinations and in which a student's standing is satisfactory may be carried to completion in a succeeding year. Summer school courses will be accepted to remove not more than one Freshman or Sophomore deficiency. To remove a college deficiency no credit will be given for a course unless it is the equivalent in content and quality of a full year course at the Institute.

Examinations.—All courses at the Rice Institute are year courses. Preliminary examinations are given in December to all new undergraduates. Regular written examinations are given to all students in February and at the close of the academic year in June. In Junior and Senior courses (listed as 300 or 400 courses), the June examinations cover the work of the whole year. In elementary courses (listed as

100 or 200 courses), examinations cover the work done from the time of the preceding examination.

Dropping of Students for Deficiencies in Scholarship.—A student will be required to withdraw from the Institute if he fails in as much as one-half of the work of his schedule. He will also be dropped for failure to come off probation within one year, or for poor scholarship due to absences from the exercises of his schedule. Any student who withdraws from the Institute within five weeks of the beginning of any regular examination period on account of failure in his courses will be regarded as dropped from the Institute.

A student dropped from the Institute is not entitled to readmission. Exceptions may be made and a student granted readmission on presentation of satisfactory evidence that previous deficiencies have been removed. Dropped students, when allowed to return, are received only on probation. Students who have been dropped twice are not entitled to readmission.

Probation.—A student who is carrying five courses will be placed on probation if among his grades for the term there are two V's[1] or no grade better than IV. A student who is carrying four courses will be placed on probation if he has one V and one other grade below III, or has failed to obtain a grade of III or better in at least one course. A student with fewer than four courses will be placed on probation if he has one V, or if he does not obtain at least two grades of III or better. Probation is terminated only at regular examination periods and must be terminated within one year's time or the student will be dropped from the

[1] The symbols have the following meanings: I Very high standing, II High standing, III Medium standing, IV Low standing, V Failure.

Institute. A student who is on probation may also be dropped at any time during the probation period for inattention to the requirements of his schedule. A student who is on probation is not permitted to be a candidate for or to hold any elective office, or to serve as editor, assistant editor, business manager, or assistant business manager of a college publication.

Promotion.—To attain Sophomore standing, a student must have obtained in four of the five courses of the Freshman year, passing grades of which two must have been III or better. To attain Junior standing, a student must have obtained in at least nine of the ten courses of the Freshman and Sophomore years, passing grades of which four must have been III or better. To attain Senior standing, a student must have obtained passing grades, of which six must have been III or better, in at least thirteen courses of the five courses of the Freshman year, the five courses of the Sophomore year, and the four courses of the Junior year, required for full Senior standing. To obtain the degree of Bachelor of Arts, a student must have obtained passing grades, of which eight must have been III or better, in five Freshman courses, five Sophomore courses, four Junior courses, and four Senior courses, required for the first degree. Attention is called to the fact that this four years' course is built up by years. Accordingly four courses of the Freshman and Sophomore years respectively will not be credited as the equivalent of four courses of the Junior and Senior years respectively, a higher standard and wider range of collateral work being required of Juniors and Seniors who elect in either of those years an elementary subject of the Freshman and Sophomore years.

No student shall attain Sophomore, Junior, or Senior standing in engineering and architecture who lacks more than one course of the standard schedule required for full standing in those years.

SUBJECTS OF INSTRUCTION FOR 1936–37

Of the courses to be offered during the scholastic year 1936–37 it is possible to announce those described below. The numbers designating the courses have the following signification: courses whose numbers begin with 1 are open to all students of the Institute; courses whose numbers commence with 2 are open to Sophomores, Juniors, and Seniors; those beginning with 3 are open to Juniors and Seniors; those beginning with 4 are Senior courses. Unless otherwise indicated, all courses consist of at least three exercises a week. For each course the days of the week and the hours have been indicated.

English 100. The Theory and Practice of English Composition, with the study of fundamental literary forms. The primary purpose of the course is to give students the command of written English which is necessary for later work in college. A secondary but still important purpose is to examine the chief types of prose and poetry, as a foundation for further courses in literature or for private reading. Required of Freshmen. M W F 8:00, 9:00, or 11:00 or T Th S 9:00, 10:00, 11:00

English 200. Outlines of the History of English Literature, with collateral reading of major authors representative of the various periods. M W F 10:00

ENGLISH 210. Argumentation and Public Speaking Practical training in the fundamentals of effective speech, written argument, and debate. Designed to prepare the student for the ordinary demands of business life. Platform speaking, themes, conferences. This course is planned primarily for students of physical education. T Th S 9:00

ENGLISH 300. English Drama from its Beginnings to 1642. The development of the drama will be traced from the miracle plays and the moralities through the plays of Shakespeare's contemporaries to the closing of the theaters. T Th S 11:00

ENGLISH 310. Modern British and American Poetry. A survey of poetic development in Great Britain and America from 1890 to 1930: the revolt of the 1890's, the Irish Renaissance, the Georgians, the poetry of the Great War, the "new" American poetry. M W F 11:00

ENGLISH 320. Modern Drama, from Sheridan to the present time. T Th S 10:00

ENGLISH 330. Advanced Writing. Themes and conferences. Emphasis will be laid on such types as the informal essay and the short story. This course is intended for students who have already shown some aptitude in writing. T Th S 12:00

ENGLISH 340. The Novel in England and America, with special reference to the chief novelists of the eighteenth and nineteenth centuries. M W F 12:00

ENGLISH 350. A Study of Greek and Latin Literature, in the best available translations. Considerable emphasis will be laid on the debt of modern civilization and literature to classical antiquity. M W F 12:00

ENGLISH 370. Seventeenth Century Poetry and Prose, with special study of Milton and the Restoration drama. T Th S 8:00

ENGLISH 400. Shakespeare. A close study of certain of the comedies, histories, and tragedies, with lectures on the interpretation of these plays in the light of the Elizabethan mind. Open only to Seniors. M W F 9:00

ENGLISH 410. Eighteenth Century Prose and Poetry. Studies in the prose writers from Swift to Burke, and in the poets from Dryden to Blake. (Not offered 1936–37.)

ENGLISH 500. Old and Middle English: History of the English Language. It is the aim of this course to give the student a practical reading knowledge of the language in its earlier stages, and in addition to furnish an outline of the history of the language both in earlier and later periods. Recommended for prospective teachers of English. M W F 11:00

ENGLISH 510. Chaucer. A close reading of the principal works, with emphasis both on linguistic and literary values. (Not offered 1936–37.)

Requirements for Honours Course in English: four courses in English; two courses in Modern Languages,

preferably French, German, or Italian; two courses in philosophy or history; all to be Junior or Senior courses and to be passed with high grades. Individual schedules and quality of work must be satisfactory both to the department and to the Committee on Honours Courses and Advanced Degrees.

FRENCH 100. First Year French. Oral exercises, dictation, grammar, composition, and study of simple French texts. M W F 8:00 or 10:00 or T Th S 8:00, 9:00, or 10:00

FRENCH 200. Second Year French. Oral exercises, dictation, review of grammar, composition, study of representative authors, supplementary reading under the supervision of the instructor. M W F 12:00 or T Th S 8:00, 10:00, or 11:00

FRENCH 210. Advanced French. Review of grammar, study of representative texts, all in French. Open to students who have passed French 100 with a grade of I, and to students who have had four years of high-school French. T Th S 10:00

FRENCH 300. Third Year French. Composition and study of modern French texts with special emphasis on the syntax and the difficulties of the French language. A considerable amount of outside reading will be required. Reports and essays in French. M W F 9:00 or 11:00 or T Th S 11:00

FRENCH 340. A Survey of the History of French Literature in the Eighteenth and Nineteenth Centuries. Open to

students who have passed French 200. The course is intended for students of English and history as well as for those who desire to specialize in French. T Th S 8:00

FRENCH 400. French Composition. T Th S 8:00

FRENCH 460. Main Currents of French Literature in the Eighteenth and Nineteenth Centuries. Conducted in French. (Not offered 1936–37.)

FRENCH 470. French Drama of the Nineteenth Century. T Th S 9:00

FRENCH 490. Explications de Textes. Analysis of the style of selected French writers. Reports and essays. Conducted in French. Hours to be arranged.

FRENCH 560. Anglo-French Literary Relations from 1730 to 1848. Hours to be arranged.

Requirements for Honours Course in French: French 300 or 310, and 320, and also two 400 courses passed with high credit (grades of I or II). Individual schedules and quality of work must be satisfactory both to the department and to the Committee on Honours Courses and Advanced Degrees.

GERMAN 100. Elementary German. Pronunciation and German script, grammar, dictation, conversation, composition. Reading of a book. M W F 10:00 or T Th S 9:00

GERMAN 200. Second Year German. Introduction to a knowledge of Germany and the Germans, including a short

survey of German literature. Reading of two works of literary importance. Grammar review, discussion and composition in German. M W F 8:00 or T Th S 11:00

GERMAN 300. Classical German Literature from Klopstock to Goethe. Study of eighteenth-century classical works. Collateral and outside reading. Composition. The work will be carried on mainly in German.

(Not offered 1936–37.)

GERMAN 310. Life and works of one or two prominent classical or modern writers. Literary translation, essays, discussions, and debates. The work of the course will be carried on mainly in German. (Not offered 1936–37.)

GERMAN 400. Modern German Literature. Lectures and study of some outstanding works. Collateral and outside reading. The work will be carried on mainly in the German language. Prerequisite: German 200. M W F 9:00

GERMAN 410. Lectures in German on German Literature, from its beginnings down to Gottsched. Study of Walter von der Vogelweide's poems or of the Nibelungenlied. Survey of the history of the German language including an introduction into Middle High German. Advanced exercises in the oral and written use of the German language. For graduates as well as undergraduates.

(Not offered 1936–37.)

GERMAN 500. Seminar: German-American literature, particularly in Texas. For graduates and undergraduates. The hour as scheduled may be changed to suit the convenience of registering students. T Th S 10:00

GERMAN 510. Seminar: Any one or two of the following: Phonetics; Gothic; Old High German; Middle High German. Mainly for graduates. (Not offered 1936–37.)

The requirements for the Honours Course in German comprise six advanced courses: four in German, all to be passed with high credit; one in English; and one in either history or philosophy. Individual schedules and quality of work must be satisfactory both to the department and to the Committee on Honours Courses and Advanced Degrees.

ITALIAN 300. Elementary Italian. Open to students who have had at least two years of French, Spanish, or Latin. Oral exercises, grammar, composition, and reading of representative Italian authors. M W F 11:00

ITALIAN 400. Lectures on Italian Literature before Dante and a study of Dante's "Vita Nuova" and of the "Inferno." T Th S 10:00

SPANISH 100. Beginning Spanish. Oral exercises, grammar, composition, and study of elementary Spanish texts. M W F 9:00

SPANISH 110. Intermediate Spanish. This course presupposes a knowledge of elementary Spanish (equivalent to one year with high credit or two years of high-school Spanish). Oral exercises, dictation, grammar, composition, translation, and study of modern Spanish texts. M W F 10:00 or T TH S 11:00

SPANISH 200. A rapid beginning course in Spanish for students who are taking a regular course in another modern language. Oral exercises, grammar, and composition.
M W F 12:00

SPANISH 210. Second Year Spanish. Oral exercises, review of grammar, composition, outside reading under the supervision of the instructor, and reports. Open to students who have completed three years of high-school Spanish or Spanish 110.
M W F 8:00 or T Th S 10:00 or 11:00

SPANISH 300. Third Year Spanish. Open to all students who have completed Spanish 200 or 210. Review of grammar, composition, essays, study of representative authors, collateral readings, and reports. M W F 8:00 or 12:00

SPANISH 320. Survey of the History of Spanish Literature. Open to Juniors and Seniors who have taken Spanish 300 or 330 and to Sophomores upon special recommendation. T Th S 8:00

SPANISH 330. Commercial Spanish. Open to students who have already taken Spanish 200 or 210. A general survey of the economic conditions in Spain and in Latin American countries. Reading of reviews and bulletins, reports, and practical exercises. T Th S 9:00

SPANISH 410. Hispano-American Civilization and Literature. Open to students who have already taken Spanish 300 or 330. Lectures, collateral readings, reports and discussions. Conducted in Spanish. M W F 10:00

SPANISH 440. The Works of Cervantes, with especial reference to the Quijote. T Th S 12:00

Honours Courses in Spanish may be granted to students who have done exceptionally good work in Spanish and whose work in another language has been of high standing. The Spanish courses required are: Spanish 300, 320, 330, 410, and 440. Individual schedules and quality of work must be satisfactory both to the department and to the Committee on Honours Courses and Advanced Degrees.

MATHEMATICS 100. Elementary Analysis. Trigonometry, analytic geometry, and introduction to calculus. This course is required for Freshmen because it forms a necessary introduction to work in mathematics and pure and applied science, and assists the students in developing habits of self criticism in thinking and writing. As one of the most modern of sciences and, at the same time, one of the most ancient of humanities, mathematics is regarded as an integral part of any general education.

M W F 11:00 or 12:00 or
T Th S 11:00 or 12:00

MATHEMATICS 200. Differential and Integral Calculus. Elements of differential equations, differentials, definite integrals, infinite series, and their applications, especially to mechanics. Prescribed for engineers who do not take Mathematics 210.

This course continues the work of Mathematics 100 in calculus and analytic geometry, with systematic applications to Newton's laws of motion and calculation of moments of forces and of inertia, centers of gravity, etc.

Students who have considerable facility in mathematical reasoning should register for Mathematics 210.

T Th S 9:00, 10:00 or 11:00

MATHEMATICS 210. Differential and Integral Calculus. This course covers the ground of Mathematics 200 but is more complete and goes further. It is open to students who obtain high grades in Mathematics 100, or otherwise satisfy the instructor of their fitness to take the course. A feature of this course is the writing of theses on the applications of mathematics to science, engineering, and philosophy. T Th S 8:00

MATHEMATICS 220. Algebra and Mechanics. Solutions of equations, vectors, invariants, determinants, and interpolation; systematic statics and parts of dynamics. This course, required for engineers, fits the student with the algebraic technique necessary for the applications, and concerns itself with the fundamental principles of mechanics, and applications to machines and structures. It may be counted as a Junior course if the student makes studies of additional thesis and problem subjects. T Th S 8:00 or 9:00

MATHEMATICS 300. Advanced Calculus and Dynamics. Differentiation and integration of functions of several variables, differential equations, Fourier series, systematic dynamics. This course or Mathematics 310 should be taken by students whose major interest lies in science or engineering; it is open to those who have passed Mathematics 200 and 220, or otherwise satisfy the instructor of their fitness to take it. M W F 8:00

MATHEMATICS 310. Advanced Calculus and Dynamics. Students with considerable facility in mathematical reasoning should take this course rather than Mathematics 300, the ground of which it covers. Such students may take Mathematics 220 during the same year. Opportunity to write theses is given. M W F 12:00

MATHEMATICS 320. Differential Geometry. The problem of area; subharmonic functions; the problem of Plateau. (Not offered 1936–37.)

MATHEMATICS 400. Theory of Functions, real and complex variable. The important functions of analysis and modern general methods. M W F 12:00

MATHEMATICS 420. Differential and Integral Equations. Boundary value problems. Groups. (Not offered 1936–37.)

MATHEMATICS 500. Theory of Functions of a Complex Variable. The algebraic functions and their integrals, automorphic functions, special topics. (Not offered 1936–37.)

MATHEMATICS 510. Theory of Functions of a Real Variable. Summable functions, Lebesgue and Stieltjes integrals, general integrals, functions of point sets and of plurisegments; Fourier series. Hours to be arranged.

MATHEMATICS 520. Series expansions in terms of orthogonal systems of functions. Trigonometric series. The course is based upon Mathematics 510. (Not offered 1936–37.)

MATHEMATICS 530. Theory of Groups. Quadratic forms, the modular group, rational approximations; the Lie theory and differential equations. Hours to be arranged.

APPLIED MATHEMATICS 310. Finance, Statistics, and Probability. Mathematical theory of investment, analysis of statistics as applied to economics and biology, theory of probability. T Th S 12:00

APPLIED MATHEMATICS 510. Potential Theory. Laplace's and related equations. Boundary value problems. The Plateau problem. To meet twice a week as a seminar. (Not offered 1936–37.)

SEMINAR IN MATHEMATICS. The Seminar meets every other week in order to allow the exposition of original investigations by its members. W 2:00–5:00

Besides these courses as listed above, to be given during the academic year 1936–37, others may be given to suit the needs of students. Reading courses are also offered in analysis, geometry, and applied mathematics in connection with research in those fields, and in the teaching of high-school mathematics.

PHYSICS 100. Heat, Light, Mechanics, Sound, Magnetism, and Electricity. A course of three experimental lectures, and two hours of practical work per week (students preparing for medicine take three hours of laboratory work per week). This course is intended for those who wish to obtain some general knowledge of the principles of natural philosophy on which the modern applications of science to

human activities are based. The scientific method of dealing with facts and theories is explained and made familiar by numerous experimental demonstrations and laboratory exercises. For the practical work thirty complete sets of apparatus are available for simple experiments. Students taking Physics 100 must have taken or be taking Mathematics 100. T Th S 10:00 Laboratory M or T 1:00–3:00 or 3:00–5:00

Physics 200. Dynamics, Electricity, and Magnetism. A course of three lectures and three hours of practical work per week. This course with Physics 100 makes up a complete course on the principles of physics which is required of all engineering students and should be taken by students intending to specialize in physics, chemistry, medicine, law, biology, or mathematics. In this course the fundamental principles of electrical theory are explained and illustrated, including the elementary theory of direct and alternating currents, electric transmission of power, wireless telegraphy, and other modern developments. In the laboratory the students are taught how to make measurements of all the important electrical quantities such as current, resistance, potential, capacity, magnetic intensity, magnetic properties of iron and steel and electrochemical equivalents, etc. Thirty complete sets of apparatus are available for this work. Students taking Physics 200 must have completed Mathematics 100 and must take Mathematics 200 or 210 at the same time as Physics 200. M W F 9:00 Laboratory W or F 2:00–5:00

Physics 300. Properties of Matter, and Physical Optics. A course of three lectures and three hours of practical work

per week. This course and Physics 310, 320, and 330 together make up a more advanced course on physics, supplementing the elementary work done in Physics 100 and 200. The laboratory work includes exact measurements of such quantities as elastic properties of metals, surface tension of liquids, viscosity of liquids, mechanical equivalent of heat, conductivity for heat of solids and liquids, vapor pressure of liquids, temperatures with resistance thermometers, thermo-couples and radiation pyrometers, and experiments on spectroscopy, interference, diffraction, and polarization of light. Students taking this course must have completed Mathematics 200 or 210.

(Not offered 1936–37.)

PHYSICS 310. Electricity. A course of three lectures and three hours of practical work per week. This course includes a study of the electrical properties of gases, including cathode and positive rays, Roentgen rays, thermionics, and radioactivity. Also, electric oscillations, electron tubes and their applications. Students taking this course must have completed Mathematics 200 or 210.

T Th S 10:00

PHYSICS 320. Mechanics, including general theory of vector fields, of vibrations, and of potential, and the theory of the electromagnetic field and of light. Three lectures per week. (Not offered 1936–37.)

PHYSICS 330. Chemical Physics. Three lectures per week on thermodynamics, including the theory of free energy and chemical equilibrium. The theory of dilute

solutions. The theory of cracking petroleum. Quantum theory of specific heats, radiation and spectra.

M W F 9:00

PHYSICS 340. About ten lessons on glass blowing of one hour each. Limited to fifteen students. This course will be given from time to time as required. No credit is given for this course.

PHYSICS 350. Geophysics. Gravitational anomalies due to underground structures. The torsion balance. The propagation of explosion and other waves in the earth. The seismograph. Electrical and magnetic methods of prospecting for oil and other minerals. Three lectures per week. M W F 11:00

PHYSICS 400. Physics Colloquium. One meeting a week at which present-day researches in physics will be discussed. No credit is given for this course but graduate students and students taking honours courses in physics are expected to attend the course.

PHYSICS 500. Electromagnetic Theory and Electron Theory. Two lectures per week. Hours to be arranged.

PHYSICS 510. Electricity in Gases, X-rays, and Crystal Structure. Two lectures per week. (Not offered 1936–37.)

PHYSICS 520. Quantum Mechanics and Theory of Relativity. Two lectures per week. Hours to be arranged.

PHYSICS 530. Statistical Mechanics, Radioactivity, and Nuclear Physics. Two lectures per week.

(Not offered 1936–37.)

PHYSICS 540. Research work.

Attention is invited to the fact that many opportunities exist at the present time for persons possessing adequate training in physics and mathematics to engage in industrial research. A large number of industrial corporations now maintain research laboratories for the carrying on of such work. Among these may be mentioned the General Electric Company, the Bell Telephone Company, the Eastman Kodak Company, the National Bureau of Standards, and petroleum companies in this vicinity and in other sections of the country. Students desiring to qualify for positions in such establishments should take the honours course in physics and then, if possible, take a graduate course in physics leading to the M.A. or the Ph.D. degree. However, positions in research laboratories, in the exploration work of the oil industry, and at the National Bureau of Standards are open to men who have taken the B.A. degree with honours in physics. The honours course in physics may be taken up by students who have completed the first two years of an engineering course as well as by academic students. Several fellowships in physics are available at the Institute to enable students to take graduate work in physics.

CHEMISTRY 100. Introductory Chemistry and Qualitative Analysis. Three lectures and three hours of laboratory work weekly. A general introductory course dealing with the fundamental phenomena and principles of the science. During the first half-year the laboratory exercises are arranged to verify and illustrate the principles and facts which

are discussed in the lectures. During the last half-year the laboratory work deals with the general principles and methods of qualitative analysis.

M W F 8:00 Laboratory W 10:00–1:00 or
M or W 2:00–5:00

CHEMISTRY 110. General Chemistry. Two lectures, one recitation, and five hours of laboratory work weekly. This is a general introductory course differing from Chemistry 100 only in giving more attention to elementary organic chemistry and biochemistry. It is designed especially for and open only to students taking the course in physical education. T Th S 8:00 Laboratory T Th 9:00–11:30

CHEMISTRY 200. Introductory Organic and Biological Chemistry. Three hours of lectures and recitation and three hours of laboratory work weekly. For academic students who do not intend to specialize in chemistry and for premedical students. The lectures of the first half-year deal with the chief classes of organic compounds and their practical applications; while the second half-year is devoted to the physiological processes of the animal body such as digestion, metabolism, and nutrition, and to blood and urine chemistry.

The laboratory work in the first third-year is a continuation of the qualitative analysis offered in Chemistry 100 but employing microchemical methods; in the second third-year it is concerned with the preparation, identification, and physical examination of several types of simple organic compounds; and in the remaining third-year it deals with experiments illustrating physiological chemical processes

of digestion and metabolism together with blood and urine analyses.

This course does not fulfill the requirement in organic chemistry for premedical students. (See page 84 for the course in full recommended for premedical students.) Engineers other than chemical engineers may elect Chemistry 200 instead of Chemistry 210. Prerequisite: Chemistry 100. M W F 11:00 Laboratory F 2:00–5:00

CHEMISTRY 210. Introductory Theoretical and Physical Chemistry. For engineers and for academic students specializing in chemistry. Three hours of lectures and recitation and three hours of laboratory work weekly. The first half-year of the lectures is devoted to a review of the laws of chemical combination and the principles of ionic equilibrium, with particular emphasis on their application to quantitative analysis. The second half-year deals with a quantitative study of the forms of matter, changes of state and energy, electron theory of structure of matter, and radioactivity.

The laboratory work in the first half-year is a continuation of the qualitative analysis given in Chemistry 100 but employing microchemical methods. In the second half-year it is concerned with experiments illustrating physical measurements, such as molecular weights, gas laws, etc. Prerequisites: Chemistry 100 and Physics 100.

T Th S 10:00 Laboratory F 2:00–5:00

CHEMISTRY 220. Quantitative Analysis. Three lectures and nine hours of laboratory work weekly. A course arranged for chemical engineers and for academic students

specializing in chemistry. The course aims to familiarize the student with the fundamental principles of analytical chemistry. Special emphasis is placed on chemical mathematics and stoichiometry. The laboratory work embodies a study of the representative processes in the quantitative determination of the common metals and acids, covering the methods of gravimetric, volumetric, and electroanalysis. Throughout the work particular attention is given to general analytical technique.

M W F 8:00 Laboratory M T W 2:00–5:00

CHEMISTRY 300A. Organic Chemistry. Three lectures and six hours of laboratory work weekly. The course is designed to give a thorough survey of aliphatic and aromatic chemistry with an introduction to the heterocyclic compounds, and to present the theories relating to their structure and reactions. Prerequisite: A Sophomore course in chemistry. M W F 8:00 Laboratory M Th 2:00–5:00

CHEMISTRY 300B. Organic Chemistry. Three lectures and three hours of laboratory work weekly. A course arranged primarily for premedical students and academic students not specializing in chemistry. This course differs from Chemistry 300A only in the type of laboratory preparations. The laboratory work is devoted chiefly to the synthesis of typical examples of general and local anesthetics, disinfectants, analgesics, arsenicals, biological preparations, alkaloids and dyes. Prerequisite: A Sophomore course in chemistry. (See page 84 for course recommended for premedical students.)

M W F 8:00 Laboratory M (in alternate years Th) 2:00–5:00

CHEMISTRY 310. Physical Chemistry. Three hours of lectures and recitations and four hours of laboratory work weekly. A continuation of Chemistry 210 into a more quantitative and complete study of theoretical and physical chemistry dealing with thermodynamics, equilibrium, kinetics, photochemistry, electrochemistry, and atomic structures. Prerequisites: Chemistry 210, 220, and Physics 200 or taking Physics 200.

M W F 10:00 Laboratory F 1:30–5:30

CHEMISTRY 400. Inorganic Chemistry. Two lectures and four to six hours of laboratory work weekly. The course is designed to give a systematic survey of inorganic chemistry. Special attention is given recent developments in the subject and also the applications of the Phase Rule.

Hours to be arranged.

CHEMISTRY 410. Colloid Chemistry. Two lectures and four hours of laboratory work weekly. The course treats of the theories of colloid chemistry and their applications in biology and the arts. Prerequisite: Chemistry 310 or Chemistry 210 and 300. M W 9:00 Laboratory Th 1:30–5:30

CHEMISTRY 440. Advanced Organic Chemistry. Two lectures and four to six hours of laboratory work weekly. The work of the first half-year is devoted to qualitative organic analysis. This portion of the course embodies a systematic procedure for the separation and identification of pure organic compounds. It aims to review, by actual laboratory contact, the important reactions of the main series of organic substances.

During the second half-year the lectures will emphasize the physical basis of organic chemistry. The recent theories of valence and the relation of physical properties to chemical constitution will be considered along with advanced organic topics such as tautomerism, geometrical and optical isomerism, the chemistry of carbohydrates, dyes, etc. The laboratory work is devoted to quantitative organic analysis. Students showing special aptitude will be given instruction in quantitative micro-analysis based upon the procedures of Fritz Pregl. Prerequisites: Chemistry 300 and 310.

T Th 9:00 Laboratory hours to be arranged.

CHEMISTRY 450. Advanced Analytical Chemistry. One lecture and six hours of laboratory work weekly. During the first part of the course experiments are given in the systematic analysis of complex substances such as minerals and alloys. The primary object of the course is the study and application of some special methods of quantitative analysis. These methods include micro-analysis, electrometric analysis, X-ray analysis, and gasometric analysis. Prerequisites: Chemistry 220 and 310.

Hours to be arranged.

CHEMISTRY 460. Advanced Biological Chemistry. Three lectures and three hours of laboratory work weekly. This course deals with a more detailed discussion of the topics previously considered in Chemistry 200, with emphasis on quantitative and physico-chemical interpretation of various biological processes, such as acid-base equilibrium, blood gas exchange mechanism, energy metabolism, etc. Considerable time will be spent in considering the fundamental chemistry underlying the analytical and physico-chemical

methods that are employed in the study of biological processes. The laboratory work covers the methods of gravimetric, volumetric, colorimetric, and gasometric analysis, and other physical measurements that have a direct application to biological processes. Prerequisite: Chemistry 300.

M W F 9:00 Laboratory M or W or F 2:00–5:00

CHEMISTRY 470. Experimental Problems. Students who are specializing in chemistry may elect in their Senior year at least nine hours a week in experimental problems under the direction of some member of the staff of instruction.

CHEMISTRY 480. Chemical Literature; History of Chemistry. One lecture weekly. The first half-year is devoted to a study of the arrangement of chemical literature and its use in industrial and research work. It is the aim of this portion of the course to acquaint the student with the literature of chemistry, how it is organized and made available, to give some practice in its use, and also to indicate the growth of the science. During this time a topic will be assigned to each student every week for a thorough library investigation. A fee of two dollars is required to cover certain expenses in connection with the library work, etc.

A series of lectures is given during the second half-year on the history of chemistry, the purpose being to stress the important changes which have been made in chemistry and to acquaint the student with the chemists mainly responsible for them.

This course is required of all Senior chemical engineers and Senior students specializing in chemistry. Prerequisite: German 100. T 10:00

CHEMISTRY 500. Thesis. Students who are specializing in chemistry are expected in their fifth year to elect at least nine hours a week in research under the direction of some member of the staff of instruction.

CHEMISTRY 520A. Photochemistry and Catalysis. Lectures and conferences two hours per week. The course considers the chemical effects of light, the chemical production of light, catalysis and chemical reactivity from the experimental point of view. Modern atomic and molecular theories and the quantum theory of chemical activation are discussed. Given in 1938–39 and every third year thereafter.

CHEMISTRY 520B. Selected Topics in Advanced Physical Chemistry. Two lectures weekly. A course for advanced undergraduates and graduates. The work in this course will necessitate considerable reading in French and German journals. Given in 1937–38 and every third year thereafter.

CHEMISTRY 540. Selected Topics in Organic Chemistry. Two conferences per week. Discussion of such topics as: the electron theory of valency applied to organic chemistry; the effect of structure on the reactivity of organic compounds; the constitution of benzene; the chemistry of the heterocyclic compounds, etc., with special emphasis on recent work. A reading knowledge of French and German will be necessary as assignments will be made to the original literature. Given in 1936–37 and every third year thereafter.

CHEMISTRY 570. Microchemical Analysis. One lecture and six hours of laboratory work weekly. A course in quan-

titative micro-analysis based on the procedures of Fritz Pregl. Prerequisite: Chemistry 440. Hours to be arranged.

CHEMISTRY 580. Application of X-ray Methods. Two lectures weekly. Introduction to the application of X-ray methods to inorganic and colloid chemistry. Identification of solid phases, X-ray analysis of simple types of structures, principles and operation of modern X-ray apparatus.

Hours to be arranged.

CHEMICAL ENGINEERING 330. Stoichiometry and Fuels and Combustion; Industrial Geology. Three lectures and three hours of laboratory work weekly. Two lectures each week are concerned with stoichiometry and fuels and combustion and the third with industrial geology. The two lectures consist of general discussions and the solution of problems relating to stoichiometry and combustion. The third lecture on industrial geology consists of (1) a brief survey of historical geology to explain the origin of formations on the earth (2) a detailed examination of the economic rocks, minerals, and other natural resources, and (3) a comprehensive study of the surface features of the earth, with emphasis on the forces and agents which have produced and are producing these results.

The laboratory work includes (a) volumetric gas analysis and (b) the qualitative analysis of minerals and rocks together with their identification and classification. Prerequisite: Chemistry 220.

M W F 11:00 Laboratory W 2:00–5:00

CHEMICAL ENGINEERING 420. Physico-chemical Aspects of Petroleum Engineering. Two lectures and four hours of

laboratory work weekly. A course in physical chemistry designed to prepare chemical engineers to meet the problems of research and development in the petroleum industry. Adhering to the policy of preparation for new technical problems by training in the fundamental physics, chemistry, and mathematics of the phenomena and by a study of methods of research which have solved similar problems, the course stresses the physical-chemistry rather than the technology of petroleum engineering.

Topics in the division of production development are: formation of petroleum in nature, physico-chemical causes of migration and accumulation, distribution and flow of fluids in capillaries, reservoir energies due to vapor pressure and selective wetting, emulsions, colloid chemistry of shales, clays, and drilling fluids, electrochemical corrosion, streaming potentials, and electrical logging.

Topics in the division of manufacture are: vapor pressure and latent heat; adsorption method of decolorization, gas recovery, and selective separation; colloid chemistry of catalysis, oxidation, gumming and anti-oxidants, lubrication, greases, adsorption films; and flame speeds and anti-detonants.

The laboratory work consists of selected standard tests and experiments illustrating methods of research. Prerequisite: Chemistry 310.

M F 11:00 Laboratory W 1:30–5:30

Chemical Engineering 430. General Chemical Engineering. Three lectures and six hours of laboratory work weekly. In this course are considered the principles upon which the mechanical operations involved in the chemical

manufacturing industries depend, together with a study of the types of equipment available for such operations and the kind of work for which each is best adapted. The application of the principles is illustrated both by discussion in the class-room and by the solution of typical problems. Among the subjects considered are the flow of heat, crushing and grinding, the separation of solids, extraction, filtration, distillation, evaporation, the flow of fluids, humidification, and air drying. The laboratory course involves experiments in commercial analysis, in instrument calibration, in measurement of flow of liquids and gases, in evaporation, filtration and drying, and in electric furnace work. Prerequisite: Chemistry 330.

M W F 8:00 Laboratory M F 2:00–5:00

CHEMICAL ENGINEERING 470. Experimental Problem and Thesis. Chemical Engineers in their fifth year will be required to devote at least nine hours per week on an experimental problem and to prepare a thesis.

CHEMICAL ENGINEERING 530. Industrial Chemistry. Three lectures and six hours of laboratory work weekly. A continuation of Chemistry 430. This course consists of a more detailed examination of the basic laws of chemical engineering practice leading to the design and operation of plant equipment. The laboratory work consists of experiments leading to the formulation of laws governing the operation of apparatus set up in the industrial laboratory or designed and built to meet the needs of the individual problem at hand. Prerequisite: Chemistry 430.

Hours to be arranged.

Students who desire to take their major work in chemistry should select their courses according to the following arrangement: first year, Chemistry 100; second year, Chemistry 210 and 220; third year, Chemistry 300A and 310; fourth year, Chemistry 410 and one or more elective courses in chemistry. The related courses in mathematics and physics should also be taken during the first two years if possible.

Academic students desiring to take a general course in chemistry involving one subject each year should take either Chemistry 100, 200, 300B, and 460, or Chemistry 100, 210, 300B or 310, and 410.

In addition to the general requirements for advanced degrees given on pages 47 and 48, the following specific requirements must be met by candidates taking their major work in chemistry.

For admission to full graduate standing, candidates for advanced degrees in chemistry must have completed general courses equivalent to Chemistry 100, 220, 300A, and 310 of the Rice Institute and two additional advanced courses equivalent to two 400 courses in chemistry of the Rice Institute.

The courses for which graduate credit is given may be grouped as follows:

GROUP I

Chemistry 400 Inorganic Chemistry
Chemistry 410 Colloid Chemistry
Chemistry 450 Advanced Analytical Chemistry
Chemistry 520A Photochemistry and Catalysis
Chemistry 520B Selected Topics in Advanced Physical Chemistry
Chemistry 580 Application of X-ray Methods

Chemical Engineering 420 Physico-chemical Aspects of Petroleum Engineering
Chemical Engineering 430 General Chemical Engineering
Chemical Engineering 530 Industrial Chemistry

GROUP II

Chemistry 440 Advanced Organic Chemistry
Chemistry 460 Advanced Biological Chemistry
Chemistry 540 Selected Topics in Organic Chemistry
Chemistry 570 Microchemical Analysis

In addition to the thesis, candidates for the M.A. degree will complete three courses distributed as follows: one Group I course, one Group II course, and one approved 300 or 400 course in mathematics, physics, or biology.

In addition to the thesis, candidates for the Ph.D. degree will complete six courses distributed as follows: if specializing in general or physical chemistry, three Group I courses, two Group II courses, and Physics 330; if specializing in organic chemistry, three Group II courses, two Group I courses, and one approved 300 or 400 course in mathematics, physics, or biology. Before the beginning of the academic year in which the student expects to receive his degree, he must satisfy the members of the staff under whom he is working that he possesses a reading knowledge of scientific French and German. The first week in May of the last year of residence, the candidate will be given three-hour written examinations in general chemistry and organic chemistry.

Graduate assistants and fellows who devote as much as six hours per week to teaching will, in general, be expected to spend two years in residence for the master's degree and four years in residence for the doctor's degree.

BIOLOGY 100. General Biology. About half the year is given to the study of human physiology in connection with the study of structure, both gross and microscopic. A brief survey of the general principles of infection and immunity is included. The other half of the year is given to a study of morphology, ecology, and embryology, and physiology, both animal and plant. The evolutionary point of view is presented at the very start and, wherever feasible, is made the basis for the presentation or of the interpretation of the subject-matter at hand. Emphasis is placed on such topics as are of human interest or application. Three lectures and one three-hour laboratory period per week.

M W F 9:00 Laboratory W Th or F 2:00–5:00

BIOLOGY 220. Parasitology, and the Biology of Public Health. The first part of the year is devoted to a study of the relation of insects and their allies to the spread of disease, with special emphasis on such important disease transmitters as mosquitoes, flies, etc. Following this the parasitic worms and protozoa are studied, especially those of local importance, causing hookworm disease, malaria, syphilis, etc. The final part of the year is devoted to an introduction to bacteriology, particularly the sanitary aspects of it. A general cultural course for academic students and for Sophomore premedical students.

M W F 9:00 Laboratory W 2:00–5:00

BIOLOGY 240. An Introduction to Animal Ecology. A course dealing with the natural history and ecology of animals. A study is made of the classification, life histories, habits, and habitats of both invertebrate and vertebrate

groups. In addition, the principles of geographic distribution, the economic importance of various groups and species, the principles of the control methods of pests, and the principles of conservation and propagation of economically valuable forms are carefully considered. The course is designed to demonstrate the natural relations of animals to their environment, to each other, and to man, and to show how these relations may be modified and controlled. A general cultural course as well as one adapted to the needs of students preparing to teach biology. Prerequisite: Biology 100. M W F 11:00 Laboratory F 2:00–5:00

Biology 290. Physiology and Anatomy, for Physical Education students. A study of the structure and functions of the human body, supplemented in the laboratory by anatomical dissections of a mammal with comparisons with a human model, and experiments on the physiology of the various systems of organs as they are taken up. (Alternates with Biology 390.) (Not offered 1936–37.)

Biology 330. The Biology of Insects. A study of the structure, function and habits of insects dealing with such phases of insect life as adaptations to environment, relations of insects and plants, social habits, color and mimicry, behavior, etc. The course is designed for students desiring a general cultural knowledge of insects as a basis for teaching or for advanced work in entomology.

(Not offered 1936–37.)

Biology 340. Comparative Anatomy. A study of the structure of vertebrate animals, beginning with simple forms and leading up to an understanding of mammalian

anatomy, with emphasis on the origin and phylogenetic development of the organs and structures of the human body. Designed for premedical students in the Junior or Senior year. (Not offered 1936–37.)

Biology 360. Heredity and Evolution. The first part of the course is devoted to a discussion of the principles of heredity. Whenever practicable, cases of human inheritance are referred to and used in illustrating or in leading to the general principles. Topics discussed and interpreted from the viewpoint of genetics are twinning, regeneration, development, sexual and asexual reproduction. The study of evolution is taken up next. It includes a consideration of cosmic and geological evolution, the succession of animal and plant forms in time, including man's place in this process and his present and possible future evolution.

M W F 11:00

Biology 380. Physiological Histology. A study of microscopical anatomy of mammals, including man, with an interpretation of function from cellular make-up. Living tissues will be studied when possible, supplemented by a study of stained preparations. Coördination of the cells in the operation of living organs and tissues will be studied in situ, including a consideration of factors which condition or modify the activities. Students will make graphic records of the functioning of organs, and will be taught the technique of cutting and staining tissues. Recommended for premedical students, and for all students specializing in biology. (Alternates with Biology 450.)

T Th S 10:00 Laboratory T 2:00–5:00

BIOLOGY 390. Hygiene and Public Health. A course of lectures for physical education students. Such subjects are discussed as the care of the body, infection and resistance, epidemiology, care of water, milk and other foods, sewage disposal, housing and ventilation, health legislation, social problems, vital statistics, etc. (Alternates with Biology 290.)
T Th S 8:00

BIOLOGY 400. Special work. This course will consist of advanced work in special fields of biology for students specializing in the subject, and will be adapted to the needs of the particular student. Hours to be arranged.

BIOLOGY 450. General Embryology. A comparative study of the early development of animals, with special reference to the higher vertebrates. The principles and important results of experimental embryology are also discussed. Recommended as a course for premedical students. (Alternates with Biology 380.) (Not offered 1936–37.)

BIOLOGY 460. Experimental Embryology. This course, which includes a review of the more important work done in the field, is designed to acquaint the student with the problems and methods of the experimental embryologist. Each student will be given the opportunity of repeating one of these problems in the laboratory. Prerequisite: Biology 450. T Th S 8:00 Laboratory M 2:00–5:00

BIOLOGY 470. General Bacteriology and Immunology. Sterilization, preparation of media, and methods of cultivation; disinfection; nature and relationships of various types of micro-organisms; introduction to bacteriology of

air, soil, water, sewage, dairy products and other foods, and important human, animal, and plant diseases; the principles of immunology and their application to preventive and curative medicine. Special emphasis on public health and hygienic aspects of the subject. A natural sequence to Biology 220. Prerequisites: Biology 100 and Chemistry 100. (Alternates with Biology 340.)

M W F 10:00 Laboratory Th 2:00–5:00

Biology 500. Graduate Research in Genetics.

Biology 530. Graduate Research in Entomology.

Biology 560. Graduate Research in Parasitology.

To students looking forward to the study of medicine on graduation from the Rice Institute, a four years' course is available leading to the B.A. degree and meeting the requirements for entrance to medical college. In addition to the required subjects in the general B.A. course, this programme includes the following: first year, Biology 100 and Chemistry 100; second year, Chemistry 200 and Physics 100; and in the third and fourth years, Chemistry 300 and 460, Psychology 300, Sociology 200, and Biology 380 and 470 in one year and Biology 340 and 450 in alternate years. If desired, Biology 220 or 360 may be substituted for Biology 450 or 470. It is further recommended that prospective medical students obtain sufficient knowledge of French and German to enable them to read scientific literature in those languages.

Psychology 300. General Introduction to Psychology. In this course both the introspective and the behavioristic

approaches to the subject are taken into account. The lectures will be supplemented by demonstrations and class experiments. The main topics discussed are: the physiology of the nervous system and the sense-organs, reflexes, instinctive activity, sensation and perception, feeling and emotion, memory, learning, intelligent behavior, and personality. Near the end of the course a survey will be given of one or two special fields of the subject, such as animal psychology or abnormal psychology. This course presupposes a certain amount of elementary training in the fundamental sciences of biology and physics; it is strongly advised, though not at present required, that students take Biology 100 either before or concurrently with this course. T Th S 10:00

Psychology 400. Advanced Psychology. In the first half-year the subject will be modern schools and theories of psychology. The work will consist of lectures, assigned reading, and laboratory exercises on the topics of sensation, perception, association and memory, feeling and emotion, attention, and the measurement of intelligence. In the second half-year the subject will be abnormal psychology. During the second half-year students may be called upon for assistance in experiments for not more than two hours a week at times to be arranged to suit the convenience of the students.

M W F 12:00 Laboratory (first half-year) W 2:00–5:00

Economics 100. A general course of introductory nature designed to prepare for economic studies. The work includes readings, lectures, and discussions in economic history, concepts and elements of economic theory, busi-

ness organization, statistical methods, accounting, and business finance. This course is planned primarily for students of physical education. M W F 8:00

ECONOMICS 200. Elements of Economics. An introductory course analyzing and interpreting our present economic system. The first half-year is devoted to a study of the traditional principles of economics, modified in the light of recent developments. During the second half-year the principles of economics are applied to current economic problems, such as marketing, banking, business organization, taxation, transportation, consumer's problems, etc. T Th S 11:00

ECONOMICS 330. Economic and Social Reform Movements. This course is devoted to the study of economic and social reform movements and economic progress from early times to the present. Various reform movements, both in Europe and in the United States, are studied and critically analyzed in the light of contemporary conditions. Throughout the year the student is kept in contact with current economic and social reform problems by means of class discussions and readings in current periodical literature. Prerequisite: Economics 200. M W F 10:00

ECONOMICS 450. Transportation. The first half-year is devoted to a study of the history of transportation and the development of common carrier regulation. During the second half-year a careful analysis is made of such problems as rates and rate making, intercorporate relationships, regulation of security issues, construction and abandonments, and railway labor problems. Special attention is given to

highway, inland waterway, airway, and pipe line transportation. Prerequisites: Economics 200 and Business Administration 200, or the consent of the instructor. T Th S 8:00

Sociology 200. An Introduction to Sociology. The course includes an analysis of the geographical and biological factors in social evolution, social psychology, and a study of the functions of citizenship. There is added a rapid survey of modern social problems such as those of poverty, industry, immigration, public health, and delinquency. Students expecting to take this course are advised to take Biology 100, one course in college history, and Economics 200. M W F 11:00

Business Administration 200. An Introduction to Business Management. The course follows the generally accepted theory that the study of accounting principles and methods furnishes the most satisfactory approach to a knowledge of business administration. After the principles developed in connection with the sole-proprietorship have been applied to the partnership and corporate forms of business enterprise, the course introduces such special subjects as sinking funds and reserves, segregation of surpluses, manufacturing accounts and statements, buying, manufacturing and financial control, installment, consignment and branch sales, negotiable instruments, the principles of valuation, internal organization for control, and the interpretation of financial and operating statements. While the course is primarily accounting, the organization and procedure of modern business are emphasized throughout.

T Th S 8:00 or 9:00

BUSINESS ADMINISTRATION 210. This course is planned along the same lines as Business Administration 200 but is open only to those who have had the background offered in Economics 100. M W F 8:00

BUSINESS ADMINISTRATION 300. Money and Banking. History of the currency. Organization and regulation of commercial and investment banks. The Federal Reserve System. Credit and instruments of credit, corporate securities, capitalization, reorganization, depreciation, and reserves. Open to students who have completed Business Administration 200 or Economics 200. M W F 9:00

BUSINESS ADMINISTRATION 400. Advanced Accounting and Auditing. The course covers such subjects as the construction and interpretation of financial and operating statements, valuation of assets and liabilities, sinking funds, surpluses and reserves, budgeting, application of funds, analysis of changes in rates of profit, accounting for estates and trusts, municipal accounts, the liquidation and dissolution of partnerships and corporations, consolidation and combination, and consolidation of financial and operating statements. The course closes with a study of the theory and practice of modern auditing. The course is designed to meet the needs of the general business or legal student as well as the student who contemplates a possible career as a corporation comptroller or auditor, or as a certified public accountant. M W F 11:00

EDUCATION 310. A Survey of the History of Education, with emphasis on the institutional and cultural side.

Prerequisite: either one year of college history, or the history of philosophy, or Senior standing with a grade average of II. M W F 8:00

EDUCATION 320. Philosophy of Education. A study of some of the more important educational doctrines and their kindred philosophical assumptions in relation to social and political theories. The first half-year is devoted largely to the systems of Plato and Aristotle. Some of the Utopias are examined in terms of Plato's method of analysis. During the second half-year, Idealism, Realism, and Instrumentalism are examined and compared, with emphasis on their social implications. Limited to Junior and Senior students. Hours to be arranged.

EDUCATION 410. Introduction to High-School Teaching. First half-year: general principles of secondary education with special attention to the Morrison system. Second half-year: (1) general theory of testing and the fundamentals of educational statistics; (2) the psychology of adolescence and the sociological side of high-school teaching. Prerequisite: Psychology 300. M W F 11:00 or 12:00

The Department of Education of the State of Texas will grant, under the Certificate Law of 1921, the following certificates to students of the Institute:

1. Four-year Elementary Certificate. An elementary certificate valid for four years will be granted to students who have satisfactorily completed five full courses, one of which must be in education and bear on elementary teaching, another of which must be in English, and of which not more than two courses are in the same subject.

2. Six-year Elementary Certificate. An elementary certificate valid for six years will be granted to those who have satisfactorily completed two full years of college work, including two full courses in education.

3. Permanent Elementary Certificate. A permanent elementary certificate will be granted to the holders of the six-year certificates after five years of successful teaching or after four years of successful teaching and one year of college work taken after the issuance of the certificate.

4. Two-year High-School Certificate. A high-school certificate valid for two years (valid only in the elementary grades and in third-class and unclassified high schools) will be granted to any student who has completed five full college courses, one of which is in education, another of which is in English, and not more than two of which are in any one subject.

5. Four-year High-School Certificate. A high-school certificate valid for four years will be granted to any student who completes two years of college work, including two courses in education, one of which bears on high-school teaching.

6. Permanent High-School Certificate. A permanent high-school certificate will be granted to those who have a B.A. degree (or any equivalent Bachelor's degree or higher academic degree) and have had two full courses in education, one of which bears on high-school teaching, and who have completed three years (27 months) of successful teaching subsequent to taking the degree.

It should be noted that high-school certificates are valid for the elementary grades and the holder of an elementary

certificate, based on two years of college work, can teach in third-class and unclassified high schools.

Certificates which are expiring may be renewed repeatedly by completing six semester hours of college work in any college or university recognized as first-class by the State Department of Education, provided the certificate has not expired by the beginning of the summer term during which the said work is done.

Attention should also be called to the fact that, beginning with September, 1930, a college course in "Constitutions" has been required for the issuance of a teacher's certificate in Texas. History 310A is planned to meet this requirement.

Students expecting to secure the Institute's recommendation for a teaching position should consult the department offering the work of their primary interest in order that their course of study may be properly planned.

HISTORY 100. Foundations of Western Civilization. This course is intended as an introduction to historical methods of thinking, and will include a survey of human achievement from prehistoric times through antiquity and the Middle Ages to the early modern period. The chief emphasis will be placed on the contributions of the Greeks and Romans.
T Th S 8:00

HISTORY 200. Modern European History, 1500–1815. This course includes the study of the Reformation, the religious wars, the age of Louis XIV, the rise of Prussia and Russia, colonial rivalry, the French Revolution, and the Napoleonic era. T Th S 9:00

HISTORY 250. English History. A general survey of the economic, social, and political movements which have developed in England from the earliest time to the present day. (Alternates with History 200.) (Not offered 1936–37.)

HISTORY 300. American History. A survey of certain important general movements in the development of the United States. The topics will be selected to give training in the use of historical evidence and to emphasize the essential unity of economic, social, and political factors. Open to Juniors who have completed one college course in history or economics. T Th S 10:00

HISTORY 310A. American Federal and State Government. A study of the history and operation of constitutional government in the United States and in the states, with especial reference to the historical background and operation of the government of Texas. This course is planned for the general student of government and is also designed to meet the certificate requirements for teaching in the state of Texas. This is a half-year course.

HISTORY 310B. Constitutional Government in England. A study of the origins and operation of constitutional government, the formation of public policy and the conduct of public business in England. This course also is a half-year course, and students desiring credit for a full year course at the Rice Institute should take both History 310A and History 310B. M W F 10:00

HISTORY 330. Mediæval Literature. This course will consist of a general survey of mediæval literature, including

chronicles and histories, the romances and epic cycles, and lyric poetry. Some attention will be devoted to the evolution of the Latin language in the Middle Ages, to the classical literary background, and to the preservation of letters in manuscripts and libraries. The subject-matter will be considered from the historical point of view. An elementary knowledge of Latin will be helpful. Recommended: English 350. Prerequisite: History 100 or the special consent of the instructor. T Th S 11:00

HISTORY 350. Europe since 1815. This course will constitute a study of the social, political, and economic history of Europe since the Congress of Vienna, including the democratic movement to 1848, the industrial revolution, and the new nationalism and modern imperialism. Much attention will be given to the antecedents of the World War and to the situation in post-war Europe. T Th S 11:00

HISTORY 420. Mediæval Latin. Survey and translation of typical mediæval sources. The selections will be studied from the point of view of historical significance and of literary appreciation. Also intensive reading and reports on special topics in mediæval literature and intellectual history. This course is intended for students of history and the modern languages who desire to acquire some familiarity with ordinary mediæval Latin texts. Open only to advanced students after consultation with the instructor. F 2:00–5:00

HISTORY 450. Diplomatic Origins of the World War. After a brief survey of European diplomacy (1871–1914)

this course will consist largely of research on selected topics. Special attention will be given to methods and materials. A reading knowledge of French or German, or the special consent of the instructor is required. Open only to advanced students after consultation with the instructor.

JURISPRUDENCE 300. An Elementary Course in Jurisprudence. The course is planned to give the student a knowledge of the history of the development and of the philosophy of law, together with a knowledge of the essentials of selected divisions of modern law, including criminal law, torts, contracts, agency, partnership, negotiable instruments, and private corporations.

T Th S 8:00

PHILOSOPHY 210. Introduction to Philosophy. First half-year: an elementary analysis of the fundamental principles of deductive and inductive logic. Second half-year: a general consideration of important types of philosophy, calculated to familiarize the student with philosophical ideas and problems. M W F 9:00 or 11:00

PHILOSOPHY 300. History of Philosophy. An historical survey of the essential features and main currents of philosophical thought, ancient, mediæval, and modern.

T Th S 9:00

PHILOSOPHY 310. Ethics. An examination of some of the principal works of moral philosophy, and a study of the nature of moral values, individual and social.

M 2:00–5:00

PHILOSOPHY 320. Contemporary Philosophy. An analysis and criticism of current philosophical problems, with special emphasis on theories of knowledge in their historical setting. T 2:00–5:00

PHILOSOPHY 330. General Logic. This course is designed to give the student a more critical grasp of traditional logic in the light of some modern developments, with particular attention to symbolic logic. M W F 10:00

PHILOSOPHY 400. Philosophy of Religion. An historical-critical study of the main problems of religion, dealing more especially with the belief in God, the idea of immortality, and the problem of evil.

(Not offered 1936–37.)

PHILOSOPHY 410. Aesthetics. A study of the nature and significance of aesthetic experience, its relation to the other activities of human culture, intellectual, moral, religious; the main philosophical theories of beauty and art, with particular attention to poetics and the principles of literary criticism. T Th S 12:00

PHILANTHROPY 300. Social Problems. An intensive treatment of the following topics: child welfare, immigration, recreation, delinquency and crime, public health, and housing. This course aims to equip the student of social activities as well as the prospective social worker with a knowledge of important types of social maladjustment. Prerequisites: Economics 200, one course in college history, and Sociology 200. M W F 10:00

PHILANTHROPY 400. A course designed to train the student for professional social work. It includes the history of public and private relief, the functions of the more important social agencies, and the technique of social diagnosis and treatment. Theoretical instruction in the case method will be accompanied by field work under the direction of experts connected with the social agencies of the city of Houston. This course is limited to advanced students who are expecting to undertake professional social work. M W F 9:00

PHYSICAL TRAINING AND PHYSICAL EDUCATION

THE equipment of the athletic field house not only makes provision for the university athletic teams but also affords opportunity for systematic physical training on the part of other members of the institution. Facilities in or near the field house are available for basketball, football, track and field work, baseball, handball, tennis, golf, and other athletic and recreative games.

PHYSICAL TRAINING. All men entering the Institute for the first time are required to take a year's course in physical training. This course, Physical Training 100, is also open to any other male student in the Institute. Students participating in intercollegiate athletics will receive appropriate credit for the duration of their participation. However, the required course offers a programme of games and intramural sports for those who are not competing in intercollegiate athletics but for whom the benefits of recreation,

exercise, and athletic competition are also desirable. The activities of the course will be so organized as to utilize the play instinct as much as possible.

The certificate of medical examination required of a student on admission will determine in a large measure the character of the work that the individual student is permitted to take. In certain special cases, a supplementary physical examination may be required. In cases where the student is physically or organically unfit for a normal programme of physical activity, he will be assigned to a restricted exercise group where special activities will be made to serve his needs. In all cases, the work will be so organized as to eliminate direct competition between the physically weaker and the physically stronger among the students.

For this physical training, a fee of sixteen dollars, payable at registration time, is required, entitling the student during his residence as an undergraduate to the use of the field house and playing fields, to the use of a complete gymnasium uniform (excepting only gymnasium shoes, which are also required) and towels, and to laundry service for the preceding items of equipment.

PHYSICAL TRAINING 100. This course is designed to teach the student skill in various forms of athletic and recreative games and contests. Required of all men in the Freshman class. Three hours each week. Hours to be arranged.

PHYSICAL EDUCATION. The Rice Institute offers a four years' course in physical education, leading to the degree of Bachelor of Science in Physical Education, designed to prepare men for careers in physical education and coaching in high schools and colleges, municipal recreation depart-

ments, and other similar organizations. In each of its four years there is a required course in physical education, and, in the last two years, courses in education which are necessary for a state teacher's certificate. The required work in biology and chemistry serves not only as a basis for the work in physical education, but also affords further subjects for high-school teaching. The laboratory work in these science courses is held in the morning hours, in order not to interfere with physical education laboratory work in the afternoons. Considerable emphasis is placed on economics and business administration for the benefit of those who ultimately, if not immediately, go into business. Students looking forward to medicine or law are permitted to make substitutions enabling them to meet the ordinary premedical and prelegal requirements.

The schedule of the four years' course in physical education is as follows:

First Year

(1) English 100
(2) French, German, or Spanish
(3) Chemistry 110
(4) Economics 100
(5) Physical Education 100

Second Year

(1) English 210
(2) French, German, or Spanish[1]
(3) Biology 100
(4) Business Administration 210
(5) Physical Education 200

[1] The language begun in the first year should be continued.

Third Year

(1) Biology 290
(2) Physical Education 300[1]
(3-5) Three other subjects[2]

Fourth Year

(1) Biology 390
(2) Physical Education 400[1]
(3–5) Three other subjects[2]

Physical Education 100. Three lectures and six laboratory hours weekly. An introductory course to the professional study of physical education. The laboratory periods will be devoted to intensive instruction in a wide variety of games. M W F 10:00

Physical Education 200. Three lectures and six laboratory hours weekly. This course deals with fundamentals of physical and health education, foundation of methods in physical and health education and playground and community recreation. The laboratory periods will be devoted to intensive instruction in a wide variety of games.
T Th S 8:00

Physical Education 300. Three lectures and six laboratory hours weekly. This course includes the study of body mechanics, individual physical education, and tests and measurements in physical education. The laboratory

[1] Practice teaching must be completed during either the Junior or Senior year.
[2] Students planning to enter public school work should elect education in the third and fourth years and History 310 in the fourth year.

periods will be devoted to intensive instruction in a wide variety of games, and to practice teaching in physical education. T Th S 10:00

PHYSICAL EDUCATION 400. Three lectures and six laboratory hours weekly. This course deals with the principles of organization and administration of programmes of health and physical education. The laboratory periods will be devoted to intensive instruction in a wide variety of games, and to practice teaching in physical education. T Th S 11:00

PHYSICAL EDUCATION 410. Physical Education in Elementary and Secondary Schools. This course is designed for prospective teachers who desire certification in physical education by the State Department of Education in Texas. It includes a study of the purpose, content, and methods of instruction in a programme of physical and health education in the elementary and secondary schools. Offered during the second half-year.

To meet this requirement in full, students taking this half-year course should also have credit in Biology 100. T Th S 12:00

COURSES IN ENGINEERING

COURSES are offered in chemical, civil, electrical, and mechanical engineering. A complete course in any one of these branches extends over five years. A student who has successfully completed the first four years of a course is awarded the degree of Bachelor of Science in a

specified branch of engineering, and after successfully completing the remaining year of his course he is awarded the degree of Ch.E., C.E., E.E., or M.E. Students with high standing may receive the M.S. degree in a specified branch of engineering under the same requirements as for the M.A. degree. No student is admitted to a fifth year schedule without the approval of the head of the department in which he is specializing. It is intended in the engineering courses to pay special attention to the theoretical side, because experience has shown that theoretical knowledge is difficult to obtain after leaving the university, and without it a rapid rise in the profession of engineering is almost impossible. It is recommended that students obtain employment in engineering work during the summer vacations, for it should be remembered that no amount of university work can take the place of practical experience in engineering establishments and in the field. The courses in engineering are not intended to take the place of learning by practical experience, but are designed to supply a knowledge of the fundamental principles and scientific methods on which the practice of engineering is based and without which it is difficult, if not impossible, to succeed in the practice of the profession. The work of the first year is alike for all branches, in order that students may defer choice of a particular engineering course as long as possible. It is necessary for chemical engineers to make this choice at the beginning of the second year, civil engineers at the beginning of the third year, and electrical and mechanical engineers at the beginning of the fourth year.

The work of the first two years consists chiefly of courses in pure and applied mathematics, physics, chemistry, and

other subjects, an adequate knowledge of which is absolutely necessary before the more technical courses can be pursued with advantage. Technical work is begun in the third year with courses of a general character in mechanical engineering, civil engineering, and electrical engineering, all three of these branches to be taken by all engineering students, with a slight change in schedule for those in chemical engineering. In the third year instruction of students in mechanical and electrical engineering is begun in shopwork. The classes in shopwork are intended to give familiarity with workshop methods. The object of these classes is not primarily to train students to become skilled mechanics, but to provide such knowledge of shop methods as is desirable for those who may be expected as engineers to design machinery, to employ mechanics, and to superintend manufacturing processes.

Students who can afford the time are recommended to devote three or four years to preliminary work instead of two, taking the B.A. at the end of four years and an engineering degree at the end of six or seven years. Students proposing to do this are advised to take a course devoted largely to mathematics, physics, and chemistry, or an honours course in either mathematics, physics, or chemistry. The subjects taken during the years of preparatory work must include those of the first two years in the general engineering course, which may be substituted for options in the academic course. The honours course in physics is strongly recommended for those who wish to become either electrical or mechanical engineers. Typical schedules permitting such combination courses will be furnished by the Registrar on request.

ANNOUNCEMENTS

The Southwest affords ample opportunities for the practice of engineering in its several branches, but these opportunities call for well-informed and thoroughly trained scientific workers. It is with such a double object in view that the engineering courses scheduled and described below have been designed and developed under actual experience of some twenty years. These programmes of study and training have justified themselves, for the engineering graduates, chemical, civil, electrical, and mechanical, of this institution are successfully engaged in professional work in many parts of the country, and especially in the Southwest.

In particular, for example, more than half of the Rice Institute graduates in engineering are identified with some phase of the petroleum industry and allied industrial enterprises. Nor is this surprising, and for two reasons: first, the petroleum industry is by far the major industry of this vicinity, and second, the courses in science and engineering offered at the Rice Institute have been found to provide first-rate preparation for the practice of petroleum engineering. Such successful application of these courses was to have been anticipated because the petroleum industry's problems of exploration and discovery call for physics and electrical engineering, those of production and manufacture for mechanical engineering, those of transportation and storage for civil engineering, while chemist and chemical engineer man the research laboratories of the industry from which issue its processes of refining and the manufacture of its manifold by-products.

The following are the schedules for the five years' course leading to a bachelor's degree in four years and an engineering degree in five years:

First Year

(1) Mathematics 100
(2) Physics 100
(3) English 100
(4) Chemistry 100
(5) Engineering 110

Second Year

MECHANICAL, ELECTRICAL, AND CIVIL ENGINEERING

(1) Mathematics 200 or 210
(2) Mathematics 220
(3) Physics 200
(4) Chemistry 210 (or 200), a modern language, or B. A. 200
(5) Engineering 210

CHEMICAL ENGINEERING

(1) Mathematics 200 or 210
(2) Physics 200
(3) German 100
(4) Chemistry 210
(5) Chemistry 220

Third Year

MECHANICAL ENGINEERING AND ELECTRICAL ENGINEERING

(1) Mathematics 300
(2) Mechanical Engineering 300
(3) Electrical Engineering 300
(4) Civil Engineering 300
(5) Mechanical Engineering 310

CIVIL ENGINEERING

(1) Mathematics 300
(2) Mechanical Engineering 300
(3) Electrical Engineering 300
(4) Civil Engineering 300
(5) Civil Engineering 310

CHEMICAL ENGINEERING

(1) Organic Chemistry (Ch. 300A)
(2) Physical Chemistry (Ch. 310)
(3) Stoichiometry and Fuels and Combustion; Industrial Geology (Ch.E. 330)
(4) Electrical Engineering 300
(5) Mathematics 220

Fourth Year

MECHANICAL ENGINEERING

(1) Mechanical Engineering Laboratory (M.E. 400)
(2) Machine Design (M.E. 410)
(3) Heat Engines (M.E. 420)
(4) Industrial Management (M.E. 430), or an approved elective
(5) Internal Combustion Engines and Fuels (M.E. 440)
(6) Economics 200
(7) Seminar (Engineering 400)

ELECTRICAL ENGINEERING

(1) Alternating Currents (E.E. 400)
(2) Alternating Current Machinery (E.E. 410)
(3) Electrical Engineering Laboratory (E.E. 450)
(4) Electrical engineering elective (E.E. 420, E.E. 430, E.E. 440)

(5) Industrial Management (M.E. 430) or an approved elective
(6) Economics 200
(7) Seminar (Engineering 400)

CIVIL ENGINEERING

(1) Municipal Engineering (C.E. 420)
(2) Masonry Construction (C.E. 440)
(3) Graphic Statics and Structural Design (C.E. 450)
(4) Approved elective
(5) Economics 200
(6) Seminar (Engineering 400)

CHEMICAL ENGINEERING

(1) Colloid Chemistry (Ch. 410)
(2) Physico-chemical Aspects of Petroleum Engineering[1] (Ch.E. 420)
(3) General Chemical Engineering (Ch.E. 430)
(4) Chemical Literature; History of Chemistry (Ch. 480)
(5) Mechanical Engineering 300A and Civil Engineering 300B
(6) Economics 200

Fifth Year

MECHANICAL ENGINEERING

(1) Advanced Machine Design (M.E. 500)
(2) Mechanical Plants and Processes (M.E. 510)
(3) Thesis (M.E. 530)
(4) Seminar (Engineering 400)
(5) Approved elective

[1] Advanced Organic Chemistry (Ch. 440) may be substituted for Physico-chemical Aspects of Petroleum Engineering.

ELECTRICAL ENGINEERING

(1) Advanced Alternating Currents (E.E. 500)
(2) Thesis (E.E. 510)
(3) Heat Engines (M.E. 420) or Machine Design (M.E 410)
(4) Seminar (Engineering 400)
(5) Approved electrical engineering elective

CIVIL ENGINEERING

(1) Structural Design (C.E. 500)
(2) Hydraulic and Sanitary Engineering (C.E. 510)
(3) Railway Engineering (C.E. 520)
(4) Approved elective
(5) Thesis (C.E. 530)

CHEMICAL ENGINEERING

(1) Experimental Problem and Thesis (Ch.E. 470)
(2) Industrial Chemistry (Ch.E. 530)
(3) Elective (an advanced course in chemistry, physics, or mathematics)
(4) Approved engineering elective
(5) Seminar (Engineering 400)

ENGINEERING 110. Mechanical Drawing and Descriptive Geometry. Mechanical Drawing: the use of drafting instruments; lettering; drawing figures in isometric, cabinet, and orthographic projection; intersections and developments. Descriptive Geometry: orthographic projections of points, lines, planes, warped surfaces, etc., in the four angles of projection. T Th S 8:00

Section 1: W and F 10:00–1:00

Section 2: W and F 2:00–5:00

ENGINEERING 210. Kinematics of Machines, and Plane Surveying:

Kinematics of Machines. The study of relative motion of parts of machines, instant centers, velocities, gearing and wrapping connectors. (First third of year.)

M W F 11:00 T Th 2:00–5:00

Plane Surveying. The study of the uses and adjustments of surveying instruments and of office methods. Problems are given in field work to familiarize the student with chain, compass, level, and transit. Plotting and compilations from field notes. Prerequisites: Engineering 110 and Mathematics 100. (Remainder of year.)

M W F 11:00 T Th 2:00–5:00

ENGINEERING 400. Seminar. A course devoted to the purpose of training engineering students in collecting and presenting orally formal papers and discussions on topics of general engineering interest. The papers and discussions are given by the students using acceptable material secured from technical periodicals or transactions. The course meets weekly and is conducted in the form of an engineering society meeting. Required of each student in the year during which he is a candidate for any engineering degree. Open to others who have the necessary engineering background.

F 2:00–5:00

MECHANICAL ENGINEERING 300. Elementary Heat Power. A general course of lectures, recitations from text, and laboratory covering the characteristics, fields of usefulness, operation, and tests of fuels, steam engines and tur-

bines, boilers, pumps, condensers, and auxiliaries; properties of steam; valve gears; simple internal combustion engines and accessories. Numerous problems illustrate the theory discussed. Prerequisites: Full Junior standing and Physics 100, Chemistry 100, and Mathematics 200 or 210. Laboratory fortnightly. M W F 10:00 M or T 2:00–5:00

Mechanical Engineering 300a. Steam Engines. For chemical engineering students only. Approximately the first twelve weeks of Mechanical Engineering 300, covering steam engines, valve gears, and properties of steam. Recitation and laboratory hours are the same as for Mechanical Engineering 300.

Mechanical Engineering 310. Engineering Shop. Textbook and lectures dealing with metallurgy, general forge, foundry, welding, heat-treating, and machine-shop practice, and their effects on machine design and manufacturing. Practice with a variety of bench and machine tools, carefully selected for their fitness in illustrating the principles studied, for affording actual contact with machine work, and for developing a certain degree of skill and resourcefulness in the student. Prerequisite: Full Junior standing.

Recitations, all sections, T Th 9:00
Shop Section A: T Th 10:00–12:00 S 9:00–12:00
Shop Section B: Th F 1:30–5:00

Mechanical Engineering 400. Senior Mechanical Laboratory. An advanced course in general steam, air, oil, water, and power-transmission machinery operation

and testing. Recitations from text, reports, and laboratory. Prerequisite: Mechanical Engineering 300. Must be accompanied or preceded by Mechanical Engineering 420.

T W 2:00–5:00

MECHANICAL ENGINEERING 410. Machine Design. Recitations from text and references, also calculations and drafting involved in the design of machine parts, considering both the theory and its modifications due to shop practice and financial limitations. Design of one or two complete machines, such as punch presses, hoisting machines, pumps, or engines. Prerequisites: Engineering 210, Mechanical Engineering 310, and Civil Engineering 300.

M W F 10:00–1:00

MECHANICAL ENGINEERING 420. Heat Engines. General thermodynamics; applications of thermodynamics to the design and operation of air compressors, steam engines and steam turbines; commercial forms of such machines, with special emphasis on steam turbines; elementary steam plant design; elementary refrigeration. Lectures, text, and problems. Prerequisite: Mechanical Engineering 300.

M W F 9:00

MECHANICAL ENGINEERING 430. Industrial Management. A study of the principles and practice in the management of manufacturing plants; location and layout of works; organization of administration, sales, cost, and production departments; selection of machinery, materials, and labor; wage system; cost analysis; welfare work; a short survey of the law of sales and contracts. This course

is designed especially to meet the needs of electrical and mechanical engineers and should be preceded by Mechanical Engineering 310. Two recitations a week. Senior elective. T Th 10:00

MECHANICAL ENGINEERING 440. Engineering Materials, and Internal Combustion Engines and Fuels. Engineering materials: a brief study from current references of the metallurgy, physical properties, applications, and commercial forms of metals, alloys, protective coatings, and important non-metallic materials, emphasizing those features most interesting to the design and application engineer. Internal combustion engines and fuels: a study of the theory, design, and operation of gasoline, gas, and oil-burning engines for automotive, stationary, and marine service, including the production and characteristics of the fuels used. Must be accompanied or preceded by Mechanical Engineering 420. T Th S 8:00

MECHANICAL ENGINEERING 490. Mechanical Engineering Problems. If conditions are favorable, mechanical engineering students may elect at least nine hours a week in approved investigations or designs under the direction of a member of the staff.

MECHANICAL ENGINEERING 500. A study of Fundamental Principles in Advanced Strength of Materials, Kinematics, and Machine Design. Analytical and graphical analyses are applied to problems of stress concentrations, of balance and vibration, and of stress due to dynamical causes. Comparison is made with experimental results.

The mechanical properties of metals are emphasized in problems involving fatigue, high temperatures, strain, hardening, etc. Prerequisite: Mechanical Engineering 410.

Mechanical Engineering 510. Mechanical Plants and Processes. A general course dealing with special plants and processes, such as oil production, transportation, and refining, textiles, metal products, material handling, refrigeration, not covered thoroughly in other courses. Details of design and operation of special power and heating plants. Prerequisite: Mechanical Engineering 420.

Mechanical Engineering 530. Thesis. The investigation, under direction of the staff, of some undeveloped engineering problem, either through experiment, design, or compilation of available information. The time required will be at least that necessary for a standard advanced course. Two copies of the accepted report will be required for deposit in the Institute libraries.

Electrical Engineering 300a. Introduction to Direct and Alternating Current Machinery and Circuits. The fundamental principles of electrical engineering for electrical and mechanical engineering students. Prerequisites: Full Junior standing and Physics 200 and Mathematics 200 or 210. Laboratory fortnightly.

M W F 9:00 M or T 2:00–5:00

Electrical Engineering 300b. Introduction to Direct and Alternating Current Machinery and Circuits. The fundamental principles of electrical engineering designed to

meet the special needs of chemical and civil engineering students. Prerequisites: Full Junior standing and Physics 200 and Mathematics 200 or 210. Laboratory fortnightly. M W F 9:00 T or S 10:00–1:00

Electrical Engineering 400. Circuit Analysis. Fundamental alternating current theory applied to linear, lumped constant, and distributed constant circuits. Fundamental transformer circuit theory and connections. Introduction to symmetrical components. Analysis of transmission line performance based on circle diagrams. Elementary electrical design. T Th S 9:00

Electrical Engineering 410. Characteristics of Direct and Alternating Current Machinery. Three lectures a week treating of the characteristics and operation of direct and alternating current generators and motors, transformers, electrical circuits, and meters. Emphasis is placed on theory in connection with testing and on the influence of design on performance. Prerequisites: Registration in Electrical Engineering 400 and 450. M W F 8:00

Electrical Engineering 450. Electrical Engineering Laboratory. A laboratory study of the principles considered in Electrical Engineering 410. Prerequisite: Registration in Electrical Engineering 410. W Th 2:00–6:00

Electrical Engineering 420. Electrical Design. Design of machinery for direct and alternating currents; calculation of characteristics. Open only to students who show capacity for design and who are registered in Electrical Engineering 400. M W F 9:00 T 2:00–6:00

ELECTRICAL ENGINEERING 430. Theoretical Electrical Engineering. A more complete mathematical treatment of alternating current phenomena than is given in Electrical Engineering 400. Open only to students registered in Electrical Engineering 400 and 410 who show capacity in mathematics and electrical theory. Three lectures and one four-hour laboratory period per week. Hours to be arranged.

ELECTRICAL ENGINEERING 440. Electrical Communication. The principles of communication by telegraph and telephone over wires, and by radio. Open only to students registered in both Electrical Engineering 400 and 410 who show aptitude for communication work.

M W F 11:00 T 2:00–6:00

ELECTRICAL ENGINEERING 490. Electrical Engineering Problems. If conditions are favorable, students of electrical engineering may elect at least nine hours a week in approved investigations, usually experimental, under the direction of a member of the staff. Hours to be arranged.

ELECTRICAL ENGINEERING 500. Advanced Circuit Analysis. This course includes a study of Heaviside's Operational Calculus, machine and circuit transients, non-linear circuits, symmetrical components, three and four winding transformer theory, transmission networks in steady state, and transient stability. Three lectures and one four-hour laboratory period per week. Hours to be arranged.

ELECTRICAL ENGINEERING 510. Thesis. A thorough report on an engineering investigation selected and carried

out by the individual student. It is expected that a great deal of time will be given to thesis work. The course is considered the equivalent of a three-hour course. Two copies of the accepted report will be required for deposit in the Institute libraries.

Civil Engineering 300. Hydraulics and Strength of Materials. Hydraulics: a course devoted to the principles of hydrostatics and hydrodynamics; the flow of water through orifices, pipes, nozzles, open channels, and over weirs. Laboratory tests of weirs, Venturi meters, and simple hydraulic machinery. Strength of Materials: theory of beams, columns, and shafts. Stresses and deformations due to tensile, compressive, and shearing forces; distribution of shears, bending moments, deflections, torsional stresses, and combined stresses. Laboratory physical tests of steel, cast iron, wood, cement, and concrete. Prerequisites: Full Junior standing and Physics 100 and Mathematics 200. Laboratory fortnightly. T Th S 8:00 M or T 2:00–5:00

Civil Engineering 300b. Strength of Materials. For chemical engineering students only. Approximately the last eighteen weeks of Civil Engineering 300. Recitation and laboratory hours are the same as for Civil Engineering 300.

Civil Engineering 310. Topographic, Geodetic, and Railroad Surveying. In this course are given the theory and practice of base line and triangulation measurements, determination of meridian, traversing with transit and stadia and with a plane-table, and mapping. Simple, compound, reversed, vertical, and spiral easement railroad and

highway curves. Computation of earth work. Prerequisite: Full Junior standing and Engineering 210.

(Not offered 1936–37.)

CIVIL ENGINEERING 420. Municipal Engineering. The course covers three subjects. Highways: design, construction and maintenance of earth, sand-clay, macadam, bituminous macadam, asphaltic concrete, brick, wood-block, stone-block, and cement concrete roads. Legislation and methods of financing. Water Supply: a study of rainfall, evaporation, yield, water-bearing strata, etc. Water analysis and stream pollution. Design, construction, operation, and maintenance of purification systems, storage facilities, and distribution systems. Sewerage: a study of storm flow, modern methods of sanitation, disease epidemics, etc. Water carriage systems, separate and combined. Design, construction, and maintenance of sewers and sewage disposal plants. Prerequisite: Civil Engineering 300.

M W F 12:00 W 2:00–5:00

CIVIL ENGINEERING 440. Masonry Construction. A study of concrete and concrete aggregates. Theory and design of reinforced concrete slabs, beams, and columns. A study of foundations. Theory, investigation, and design of retaining walls, dams, and arches. Design of typical parts of buildings and beam and girder bridges. Prerequisite: Civil Engineering 300. T Th S 8:00 F 9:00–12:00

CIVIL ENGINEERING 450. Graphic Statics and Structural Design. Algebraic and graphic statics. Theory and design of simple roof trusses, bridge trusses, and plate

girders. Detailed drawings and estimates of cost and weight. Prerequisite: Civil Engineering 300.

M W F 8:00 M W 9:00–12:00

CIVIL ENGINEERING 490. Civil Engineering Problems. Under certain favorable conditions civil engineering students may elect an approved investigation of some civil engineering problem under the direction of a member of the civil engineering staff. Hours to be arranged.

CIVIL ENGINEERING 500. Structural Design. Design of steel office and mill buildings. Analysis of stresses in statically indeterminate structures such as swing, cantilever, arch, and suspension bridges. A study of secondary stresses. Two lectures and one design period a week. Prerequisite: Civil Engineering 450 or its equivalent.

CIVIL ENGINEERING 510. Hydraulic and Sanitary Engineering. Investigation and development of water power. Design of dams and irrigating systems. Hydraulic turbines and pumps. Preliminary design for a water supply and sewerage system for a small city. Study of general sanitary problems such as garbage disposal, public health, street cleaning. Three lectures and one design period a week. Prerequisite: Civil Engineering 420 or its equivalent.

CIVIL ENGINEERING 520. Railway Engineering. A study of the principles of economic location and construction, railway maintenance, railway structures. Design of terminals and signalling systems. Railway organization and valuation. Three lectures and one design period a week. Prerequisite: Civil Engineering 310 or its equivalent.

CIVIL ENGINEERING 530. Thesis. This will consist of an original investigation along some approved line of civil engineering work, an original design, or a critical review of existing work. In every case two complete typewritten or printed reports will be required for deposit in the Institute libraries.

CHEMICAL ENGINEERING. For courses in chemistry and chemical engineering see pages 67–79.

COURSES IN ARCHITECTURE

To students of architecture the Institute offers a course extending over five years, leading to a bachelor's degree at the end of the fourth year and to an architectural degree at the end of the fifth year. It is the purpose of the course to lead students during their residence to an understanding of the art of modern building. It seeks to acquaint them with the history of architecture from early civilization to the present age, and to develop within them an appreciation of those conceptions of beauty and utility which are fundamental in the art of design.

In arranging the courses which follow it will be observed that there are included certain indispensable elements of a liberal education as well as such technical subjects as are becoming more necessary to the general education of a practising architect. Of the more strictly architectural subjects, design is given the largest place. The courses in history and design and those in freehand drawing, in water color, in drawing from life, and in historic ornament, have all a double object: to create in the student an appreciation

of architectural refinement and to increase more and more his ability to express architectural form. With a view to keeping the student in touch with the progress of his profession and with the daily routine of its practice, it is strongly recommended that he spend a portion of each of his summer vacations in the office of a practising architect, or in work upon buildings in process of construction.

The following are the schedules for the five years' course leading to a bachelor's degree in four years and a degree in architecture in five years:

First Year

(1) Mathematics 100
(2) English 100
(3) French or Spanish
(4) Chemistry 100
(5) Architecture 100: consisting of
    (*a*) Elements of Architecture
    (*b*) Freehand Drawing

Second Year

(1) Pure Mathematics
(2) English
(3) French or Spanish[1]
(4) A science
(5) Architecture 200: consisting of
    (*a*) Design
    (*b*) Freehand
    (*c*) History of Architecture

[1] Students in second year shall continue the language chosen in first year course.

Third Year

(1) English
(2) Architecture 300: Design
(3) Architecture 310: consisting of
    (*a*) Freehand Drawing
    (*b*) Water-Color
    (*c*) History of Architecture
(4) Architecture 330: Construction

Fourth Year

(1) English or History
(2) Architecture 400: Design
(3) Architecture 410: consisting of
    (*a*) History of Architecture
    (*b*) Freehand
(4) Architecture 430: Construction
(5) Architecture 440: consisting of
    (*a*) Historic Ornament
    (*b*) Water-Color

Fifth Year

(1) Architecture 500: Thesis Design
(2) Architecture 520: Life Drawing and Water-Color
(3) Architecture 530: Construction
(4) Architecture 510 or 540: History

To students interested in art and architecture, but not seeking a professional degree in architecture, the following four-year sequence of courses leading to a bachelor's degree is recommended:

First year: Mathematics 100, English 100, French 100, Physics 100, and Architecture 100.

Second year: History 100, English 200, French 200, a science, and Architecture 200.

Third year: English, Philosophy 300, Architecture 310, a science, and one other subject.

Fourth year: English, History 330, Architecture 440, and Architecture 540.

ARCHITECTURE 100.

(*a*) Elements of Architecture. Elementary training in drawing and composition, wash drawings, lettering, with a series of lectures on descriptive geometry, shades and shadows, and perspective. Six hours a week. M Th 1:30–4:30

(*b*) Freehand Drawing. Elementary drawing in pencil and charcoal of single simple objects and block groups and casts. Four hours a week. W F 11:00–1:00

ARCHITECTURE 200.

(*a*) Design. Problems embracing the design of simple elements of buildings, together with advanced work in composition. Six hours a week. T Th 2:30–5:30

(*b*) Freehand. Drawing in charcoal from simple casts of classical ornament. Four hours a week. M F 11:00–1:00

(*c*) History of Architecture. Two lectures a week on the history of ancient architecture, illustrated by lantern slides, and three hours a week of research and tracing of historic buildings. Five hours a week. W F 1:30–4:00

ARCHITECTURE 300.

Design. The design of buildings of moderate requirements and dimensions. The problems average five weeks in duration with twenty-four hours for the sketch problems at the end of major problems. Nine hours a week. M W F 2:30–5:30

ARCHITECTURE 310.

(*a*) Freehand Drawing. Drawing from casts of antique sculpture. Four hours a week. M F 10:00–12:00

(*b*) Water-Color. Elementary training in color drawing and simple groups of still life. Two hours a week.
W 8:00–10:00

(*c*) History of Architecture. Two lectures a week in the history of mediæval architecture, illustrated by lantern slides, and three hours a week of research in the study of historic buildings. Five hours a week. T Th 1:30–4:00

ARCHITECTURE 330.

Construction. The mechanics of materials and graphic statics in relation to architectural practice. Three lectures a week. M W F 12:00

ARCHITECTURE 400.

Design. The design of public buildings and groups of buildings. The problems average six weeks in duration, alternating with twelve-hour sketch problems. Twelve hours a week. T 1:30–5:30 M W Th F 3:30–5:30

ARCHITECTURE 410.

(*a*) History of Architecture. Two lectures a week on the history of modern architecture and three hours a week library research. W F 11:00-12:00

(*b*) Freehand. Drawing from casts of full figure and group antique sculpture. Four hours a week.

T Th 9:00–11:00

ARCHITECTURE 430.

Methods of Construction. Three lectures a week on materials, construction, and specification writing.

M W F 1:30–2:30

ARCHITECTURE 440.

(*a*) Historic Ornament. The study of the history of ornament, with a series of design plates in ornament from historic periods of architecture. Four hours a week.

M F 10:00–12:00

(*b*) Water-Color. Water-color drawing and sketching in color, work advanced, subjects varied. Two hours a week.

W 9:00–11:00

ARCHITECTURE 500.

Thesis Design. The problem of a thesis may consist of a single building or group of buildings, and must include large-scale studies as well as general drawings. The student may select his own problem, but his entire programme is subject to the approval of the instructors in design. Twenty hours a week. M W F 8:00–12:00 T Th 1:30–5:30

ARCHITECTURE 510.

History of Painting and Sculpture. Three lectures a week on history of painting and sculpture. A critical survey of historic schools of painting and sculpture. Open to Juniors and Seniors taking the academic course.

(Not offered 1936–37.)

ARCHITECTURE 520.

Life Drawing and Water-Color. Rendered architectural details and measured drawings in color. Five hours.

T 9:00–11:00 S 8:00–11:00

ARCHITECTURE 530.

Construction. Three lectures a week on design of reinforced concrete structure and on estimating of building costs, including the business relations of architect with client and contractor. M W F 1:30

ARCHITECTURE 540.

A History of Painting and Sculpture of the Italian Renaissance. A critical survey of the art of the Renaissance, its origins and subsequent development from the beginning of the thirteenth until the close of the seventeenth centuries, with particular emphasis upon the period between the years 1400 and 1592. Open to Juniors and Seniors taking the academic course. (Alternates with Architecture 510.)

T Th S 11:00

ARCHITECTURE 600.

A course for students who have received the Bachelor of Science degree in Architecture. Research with weekly seminars upon a thesis chosen with the approval of a member of the Faculty.

UNIVERSITY EXTENSION LECTURES

To bring the people of the city and community into more intimate touch with the academic life of the university, and to carry the influence of that life directly to many homes

not represented on the rolls of its undergraduate or post-graduate students, regular series of public lectures, in the form of university extension lectures, are offered without matriculation fee or other form of admission requirement. These performances are authoritative in character, non-technical and popular in treatment, and on subjects of current interest as well as of assured and permanent value, from various domains of literature, history, science, art, philosophy, and politics.

PUBLIC LECTURESHIPS

THREE public lectureships have been founded at the Rice Institute. The first of these, established in 1918 by Mrs. Estelle B. Sharp, of Houston, has to do primarily with topics in the social sciences; the second, founded in 1919 by Herbert Godwin, Esq., of Houston, is to be devoted initially to subjects of public concern during the period of reconstruction; while the third, founded anonymously in 1922 by a citizen of Houston, is dedicated to the promotion of interest in music both in the university and in the community. The Sharp Lectureship was inaugurated in the autumn of 1918 by a course of lectures on "The Obligations and Privileges of Citizenship—a plea for the study of social science," by the late Sir Henry Jones, F.B.A., professor in the University of Glasgow. Subsequent lectures on the Sharp Foundation have been delivered by Professor Andrew C. McLaughlin, of the University of Chicago, by Dr. T. R. Glover, of Cambridge University, and by Sir Robert Falconer, of the University of Toronto. The Godwin Lectureship was inaugurated in the spring of

1920 by lectures on "The Conservation of the Institutions of the Republic," and "World-wide Coöperation among the Nations," by the Hon. William Howard Taft, twenty-seventh President of the United States of America. Further lectures on the Godwin Foundation have been delivered by Sir Auckland Geddes, British Ambassador to the United States, and by President A. Lawrence Lowell, of Harvard University. The Lectureship in Music was inaugurated in the spring of 1923 by a course of lectures on music in the life of the community and of the nation, delivered by Mr. John Powell, the American composer and pianist; the Lectureship in Music has also been held by Mlle. Nadia Boulanger, of Paris, by Sir Henry Hadow, Vice-Chancellor of the University of Sheffield, by MM. Maurice Ravel and A. Honegger, of Paris, by Professor George D. Birkhoff, of Harvard University, and by Mr. Harold Morris.

THE RICE INSTITUTE PUBLICATIONS

Among the publications of the Rice Institute are at present included the Announcements, the Descriptive Brochure, the Programmes of University Extension Lectures, and the Rice Institute Pamphlet. The first three of these have appeared at intervals and in several editions; the Pamphlet, now in its twenty-third volume, is published quarterly in January, April, July, and October, with a view to giving wider publicity in permanent form to inaugural and other lectures in letters, science, and art by resident and visiting lecturers and professors of the university. In this connection the reader may wish to turn to an earlier paragraph on the formal opening of the Institute.

ANNOUNCEMENTS

LIBRARY

TEMPORARY quarters for the library of the Institute have been provided in the administration building. The affairs of the library are administered through a committee of the Faculty, and Miss Alice C. Dean, M.A., is Acting Librarian. In providing the initial equipment of the library the policy is being followed of supplying such books as are necessary to supplement the courses of instruction and to support the independent investigations of members of the Faculty and advanced students. For works of general and more popular interest the shelves of the Houston Public Library are accessible to all members of the Institute.

Besides several hundred current literary and scientific journals, the library of the Institute contains at present about forty-five thousand volumes in back files of serial publications; among these are sets of the following: Abstracts of Bacteriology, L'Académie des Sciences de Paris Comptes Rendus, Acta Mathematica, Allgemeine Deutsche Biographie, American Academy of Political Science Annals, American Anthropologist (New Series), American Antiquarian Society Proceedings and Transactions, American Economic Association Publications, American Economic Review, American Chemical Society Journal, American Electric Railway Engineering Association Proceedings, American Electro-Chemical Society Transactions, American Historical Association Annual Reports, American Historical Review, American Institute of Chemical Engineers Transactions, American Institute of Electrical Engineers Transactions, American Institute of Mining and Metallurgical Engineers Transactions, American Journal of Education,

American Journal of International Law, American Journal of Mathematics, American Journal of Microscopy and Popular Science, American Journal of Philology, American Journal of Psychology, American Journal of Science, American Journal of Tropical Medicine, American Machinist, American Mathematical Monthly, American Mathematical Society Transactions and Bulletin, American Naturalist, American Political Science Review, American Quarterly Review, American Review of Reviews, American Society for Testing Materials Proceedings, American Society of Civil Engineers Transactions, American Society of Mechanical Engineers Transactions, American State Papers, Analyst, Anatomical Record, Anglia, Annali di Matematica, Annalen der Chemie, Annalen der Physik, Annales de Chimie et de Physique, Annals of Mathematics, Année Biologique, Année Philosophique, Année Psychologique, Annual of Scientific Discovery, Annual Register, Antologia, Architectural Record, Archiv des Criminalrechts, Archiv für Entwickelungsmechanik der Organismen, Archiv für Geschichte der Philosophie, Archiv für Protistenkunde, Archiv für Zellforschung, Archives Néerlandaises des Sciences Exactes et Naturelles, Archives of Pathology and Laboratory Medicine, Arkiv för Matematik, Astronomi och Fysik, Aristotelian Society Proceedings, Arts and Decoration, Astrophysical Journal, Atlantic Monthly, Bangor Historical Magazine, Baptist Quarterly, Bee, Behavior Monographs, Beitrage zur Geophysik, Bell Telephone System Technical Publications, Bentley's Miscellany, Bibliographical Society (London) Transactions, Bibliotheca Belgica, Bibliotheca Mathematica (Neue Folge), Biochemische Zeitschrift, Biological Bulletin, Blackwood's

Edinburgh Magazine, Bookman, Le Botaniste, British Academy Proceedings, British Association for the Advancement of Science Reports, British Journal of Psychology, Bulletin of Entomological Research, California University Publications in History, California University Publications in Zoology, Camden Society Publications, Carnegie Institution of Washington Publications, Central-blatt für Bakteriologie, Chemical Abstracts, Chemical Engineer, Chemical News, Chemisches Zentralblatt, Church Quarterly Review, Circolo Matematico di Palermo Rendiconti, Civiltà Cattolica, Classical Philology, Classical Review, Comparative Psychology Monographs, Contemporary Review, Copeia, Corpus Juris, La Critica, Current History Magazine, Deutsche Chemische Gesellschaft Berichte, Deutsche Nationalbibliographie, Deutsche Rundschau, Early English Text Society Publications, L'École Normale Supérieure Annales Scientifiques, L'Éclairage Électrique, Ecology, Economic Journal, Edinburgh Mathematical Society Proceedings, Edinburgh Review, Educational Administration and Supervision, Educational Review, Electric Journal, Electrical World, Elektrotechnische Zeitschrift, Electrician, Engineering Index Annual, Engineering News-Record, L'Enseignement Mathématique, Englische Studien, English Historical Review, Entomological News, Entomologists' Monthly Magazine, Ergebnisse der Anatomie und Entwickelungsgeschichte, Eugenics Review, Experiment Station Record, Filosofia delle Scuole Italiane, Folk-lore Society (London) Publications, Fortschritte der Mathematik, Forum, Genetic Psychology Monographs, Genetics, Gentlemen's Magazine, Gesellschaft für Ältere Deutsche Geschichtkunde Neues Archiv, Giornali di Matematiche di

Battaglini, Great Britain Royal Commission Historical Manuscripts, Green Bag, Harper's Monthly Magazine, Harvard Graduates' Magazine, Harvard Law Review, Harvard Studies and Notes in Philology and Literature, Harvard Studies in Classical Philology, Harvard Theological Review, Hibbert Journal, India Medical Department Scientific Memoirs, Indian Journal of Medical Research, Industrial Management, Institution of Electrical Engineers Journal, International Catalog of Scientific Literature, International Journal of Ethics, International Monthly Magazine of Literature, Science and Art, International Studio, Jahrbuch der Radioaktivität und Elektronik, Jefferson Physical Laboratory Contributions, Journal de Chimie Physique, Journal de Mathématiques, Journal de Physique, Journal für Praktische Chemie, Journal of Animal Behavior, Journal of Bacteriology, Journal of Comparative Psychology, Journal of Economic Entomology, Journal of English and Germanic Philology, Journal of Experimental Biology, Journal of Experimental Medicine, Journal of Physiology, Journal of Experimental Psychology, Journal of Experimental Zoölogy, Journal of General Psychology, Journal of Hellenic Studies, Journal of Helminthology, Journal of Hygiene, Journal of Industrial and Engineering Chemistry, Journal of Immunology, Journal of Infectious Diseases, Journal of Medical Research, Journal of Morphology, Journal of Parasitology, Journal of Philology, Journal of Philosophy, Psychology and Scientific Methods, Journal of Physical Chemistry, Journal of Speculative Philosophy, Journal of the Society of Chemical Engineers, Journal of Theological Studies, K. Akademie van wetenschappen te Amsterdam Proceedings, Kansas University Humanistic Studies and

Science Bulletin, Kolloidchemische Beihefte, Kolloid-zeitschrift, Larousse Mensuel, Das Literarische Echo, Literary and Theological Review, London Mathematical Society Proceedings, La Lumière Électrique, Massachusetts Historical Society Proceedings, Mathematische Annalen, Mathematische Zeitschrift, Mathesis, Merchants' Magazine and Commercial Review, Metallurgical and Chemical Engineering, Mind, Mississippi Historical Society Publications, Mississippi Valley Historical Association Proceedings and Review, Modern Language Association of America Publications, Modern Language Review, Modern Philology, Monatshefte für Mathematik und Physik, Monist, Monthly Anthology and Boston Review, Monumenta Germaniae Historica, Municipal Affairs, Nation, Museum of Foreign Literature, Science and Art, National Electric Light Association Bulletin (New Series), National Municipal Review, National Society for the Study of Education Yearbooks, Natural History, Nature, Die Naturwissenschaften, Neophilologus, Neudrucke Deutscher Literaturwerke, New England Magazine, New Republic, New York Review, New York Times Index, Niederländisches Archiv für Zoologie, Niles' Weekly Register, Nineteenth Century, Notes and Queries, Novitates Zoologicae, Oregon Historical Quarterly, Palaestra, Parasitology, Pedagogical Seminary, Percy Society Publications, Philosophical Magazine and Journal of Science, Philosophical Review, Philosophie Positive, Philosophische Monatshefte, Physical Review, Physical Society of London Proceedings, Physiological Abstracts, Physikalische Zeitschrift, Political Science Quarterly, Print Collectors' Quarterly, Psychological Abstracts, Psychological Bulletin, Psychological Index, Psychologische

Forschung, Public Opinion (Washington), Punch, Quarterly Journal of Microscopical Science, Quarterly Journal of Pure and Applied Mathematics, Quarterly Review, R. Accademia dei Lincei Rendiconti, R. Accademia delle Scienze Fisiche e Matematiche (Naples) Atti, R. Accademia di Scienze Morali e Politiche (Naples) Atti, R. Accademia di Scienze, Lettere ed Arti (Padua) Atti (Nuova Seri), R. Accademia Lucchese di Scienze, Lettere ed Arti Atti, R. Scuola Normale Superiore (Pisa) Annali, Raccolta d'Opuscoli Scientifici e Filologici, Review of Applied Entomology, Series B, Review of Bacteriology, Protozoology and General Parasitology, Revue de Paris, Revue de Philosophie, Revue de Synthèse Historique, Revue des Deux Mondes, Revue Générale de l'Électricité, Revue Historique, Revue Moderne, Revue Musicale, Revue Philosophique de la France et de l'Étranger, Revue Politique et Parlementaire, Revue Semestrielle des Publications Mathématiques, Rivista di Filosofia e Scienze Affini, Romanic Review, Royal Historical Society Transactions, Royal Microscopical Society Journal, Royal Society of London Philosophical Transactions and Proceedings, Royal Society of Medicine Proceedings, Royal Society of Tropical Medicine and Hygiene, School and Society, School Review, Science (New Series), Science Abstracts, Scientific Monthly, Scottish Text Society Publications, Select Journal of Foreign Periodical Literature, Sleeping Sickness Bureau (London) Bulletin, Smith College Studies in History, Société Mathématique de France Bulletin, Société Chimique de France Bulletin, Société de Pathologie Exotique (West Africa) Bulletin, Social Hygiene, Società Entomologica Italiana Memorie, Society for the Promotion of Engineering Education Proceedings, Society

of Chemical Industry Journal, Southwestern Historical Quarterly, Southwestern Political and Social Science Quarterly, Southwestern Reporter, Strand Magazine, Studien zur vergleichenden Literaturgeschichte, Studio, Texas Law Review, Texas Supreme Court Reports, The Times Weekly (London), Tropical Diseases Bulletin, Tropical Veterinary Bulletin, United States Daily, United States Supreme Court Reports, Unpopular Review, Vierteljahrsschrift für Wissenschaftliche Philosophie und Soziologie, Washington Academy of Sciences Proceedings, World's Work, Yale Review (New Series), Yellow Book, Zeitschrift der Savigny-Stiftung für Rechtsgeschichte, Zeitschrift für Analytische Chemie, Zeitschrift für Angewandte Chemie, Zeitschrift für Anorganische Chemie, Zeitschrift für Elektrochemie, Zeitschrift für Exacte Philosophie, Zeitschrift für Geschichtliche Rechtswissenschaft, Zeitschrift für Physikalische Chemie, Zeitschrift für Psychologie und Physiologie der Sinnesorgane, Zeitschrift für Wissenschaftliche Insektenbiologie, Zeitschrift für Wissenschaftliche Photographie, Zoologica, Zoological Record, Zoological Society of London Proceedings, Zoologischer Anzeiger, Zoologischer Jahresbericht.

LABORATORY INSTALLATION

The physics laboratories are located on the north side of the academic court, adjoining the administration building, and are connected with the latter by a continuation of the original cloister. The buildings are constructed of brick and marble, corresponding in design to the style as defined in the administration building, but of a simpler character

expressing their purpose as laboratories. The physics laboratory proper is a two-story building 275×56 feet, connected with a large lecture amphitheater 121×72 feet. The main building contains four large students' laboratories, two lecture rooms equipped for giving illustrated lectures, and four research rooms, two dark rooms, a library reading room, and administrative offices. The principal room of the amphitheater wing is a large lecture hall with seating capacity for about four hundred auditors. The room is fully equipped for giving illustrated lectures and is arranged with seats properly elevated to command a 28-foot lecture table which is supplied with gas, hot and cold water, compressed air, vacuum, and direct and alternating electric currents. In this wing also are six rooms fitted for research work in physics, a battery room in which a battery of 100 Edison storage cells of 300 ampere-hours' capacity has been installed with space provided for another equal battery, a switchboard room where the wires from the battery can be connected in any desired manner for use in the laboratories, motor generators for charging the batteries and supplying direct current to the lecture rooms and laboratories, a vacuum pump, liquid air plant, constant temperature rooms, a preparation room, a large dark room, a fully equipped workshop, and a students' workshop. The floor of the workshop is supported free from contact with the surrounding walls so that vibration from the machines does not affect the building. Elevators for moving heavy apparatus are provided, and all laboratories, lecture rooms, and research rooms are equipped with individual service for the students, of gas, water, steam, compressed air, vacuum, and both direct and alternating currents of elec-

tricity. The laboratory now contains a fine collection of modern apparatus suitable for teaching and research work in all branches of physics. This collection includes about seventy ammeters and voltmeters of all types, including a Kelvin gauge reading up to 30,000 volts and standard Weston instruments. About fifty resistance boxes of all kinds are also provided, and numerous galvanometers, electrometers, and electroscopes of various types. High potential batteries and generators are available for research work. A large Weiss electromagnet, a large electromagnet with poles 20 cms. in diameter, a large Pye magnet, a large cobalt steel permanent magnet, a Leeds and Northrup potentiometer, and complete equipment for the accurate measurement of the conductivity of solutions, a precision electric wave meter and precision air condenser may be specially mentioned among the other electrical instruments. The optical instruments include a Hilger's wave length spectrometer, monochromatic illuminator, spectrophotometer, and quartz spectrograph; also a set of interferometers of various types. Several modern X-ray generators are available for research work. For work in heat, electrical furnaces, various types of radiation pyrometers, resistance thermometers, and standard thermocouples are available. The equipment includes a supply of radium, radiothorium, and polonium for work on radioactivity. An Eötvös torsion balance machine of the most improved pattern for geophysical work has lately been installed. This machine, valued at $10,000, is the gift of Mr. Robert McM. Gillespie of New York City. The apparatus for general work includes rotary and diffusion pumps; also standards of weight, length, etc. The collection of apparatus for illustrating

lectures is exceptionally complete. An instrument maker and a glass blower are employed in the construction of special apparatus for research work. The department library contains all important text books, works of reference, and complete sets of journals.

The laboratories for chemistry are housed in a three-story building of maximum rectangular dimensions of 307 and 181 feet, with ample attic and basement accommodations, built around several open courts, facing the south. Of brick and stone, steel and concrete construction, the building embodies the prevailing architectural beauty and simplicity of technical plan exhibited in the earlier science laboratories of Rice. Provision is made for adequately equipped, separate laboratories both for research and instruction in the half-dozen major branches of chemistry, with an even larger number of smaller laboratories for corresponding work in the more highly specialized subjects of the science. In all the laboratories there is an abundance of natural light, while an elaborate system of artificial ventilation removes all fumes through a central draft tower, so designed as to constitute of itself one of the architectural features of the building. Careful consideration has been given both to the anticipated growth of the institution and the normal development of the department. The plans thus studiously prepared may bear comparison with those of extensive establishments erected recently at other universities and scientific centres of the country. The department is well equipped with modern apparatus and materials for research and for lecture room and laboratory work in inorganic, organic, analytical, physical, colloid, electro-, bio-, and industrial chemistry.

Some of the more special apparatus includes a General Electric X-ray diffraction apparatus, a Seemann X-ray diffraction analysis apparatus, a Philips-Metalix crystal analysis unit, an X-ray diffraction camera for colloidal solutions, recording photo densitometer, Mattson Cataphoresis apparatus, Hilger X-ray spectrograph, Zeiss auto collimating spectrograph, Zeiss and Bausch and Lomb ultramicroscope outfits, Zeiss interferometer refractometer, Leitz micro- and macro-motion photographic outfit, complete facilities for developing and projecting motion pictures, Reichert metallographic microscope, quadrant electrometer, Leeds and Northrup type K potentiometers, Youden capillary glass electrode hydrogen ion apparatus, Richard's high pressure compressibility apparatus, special research laboratory for atomic weight determinations, Sharples super-centrifuges, porcelain basket type centrifuge, specially designed thermostats for precise solubility determinations over wide temperature ranges, Pregl microanalytical outfits including several Kuhlman balances, basal metabolism apparatus, experimental double effect Swenson evaporator with vertical and horizontal effects, Buflovak standard vacuum shelf drier, Sperry plate and frame and Kelly filter presses, complete Sturtevant equipment for crushing and grinding including jaw, roll, and disc type crushers, etc. Each laboratory room is equipped with the necessary conveniences, such as water, gas, alternating and direct current, air blast, hoods, suction pumps, etc. The lecture rooms are suitably arranged for the illustration of lectures by experiment and lantern projection. In the department library will be found the more important journals, works of reference, and standard textbooks on the

different branches of chemistry. These books and periodicals are accessible to all students.

The department of biology is for the present situated in the west end of the main wing of the physics laboratories. It has laboratories capable of seating one hundred and fifty students; lecture rooms with lantern for microscopic and other forms of projection; research rooms, preparators' room, store rooms, etc. Undergraduate courses of cultural nature are offered for academic students, and more technical courses for premedical and physical education students. Laboratory work is available in almost all of the courses, and modern and fully equipped microscopes are provided. Facilities are available for advanced research work in such subjects as parasitology, bacteriology, entomology, physiology, genetics, and experimental embryology. The department is also equipped with an extensive series of specimens, casts, and charts for the study of zoölogy. Binocular microscopes, microtomes of various kinds, thermostats, embedding baths, and considerable accessory equipment, including physiological apparatus, are available for research work. Most of the important current zoölogical periodicals are to be found in the library.

The psychological laboratory at present occupies six rooms on the first floor of the chemical laboratory adjoining the large lecture hall of that building. The equipment consists of the apparatus necessary for the laboratory exercises and demonstrations in an advanced course in human experimental psychology. A number of instruments suitable for research are available, and more apparatus is being added for research as needed. A large dark room is provided for experiments on vision.

The department of architecture is located on the second floor of the chemistry laboratory, and is equipped with large general drafting rooms modern in all their appointments, and a large studio for freehand drawing and watercolor. The library of architecture adjoins the drafting rooms and is equipped with the standard architectural publications necessary for reference and research, current files of architectural periodicals, plates, photographs, and lantern slides. The freehand studio is well equipped with plaster casts from the antique and examples of historic ornament. The department also possesses models for elementary instruction and models for the teaching of construction.

The drafting rooms for instruction in engineering drawing are located in the mechanical laboratory building. These rooms are equipped with drawing tables, lockers, and racks in such number that all students may work independently. Special equipment includes blue printing machines, universal drafting machines, parallel attachments, folding and rolling parallel rules, ellipsographs, beam compasses, section liners, and an elaborate set of Olivier models including the war mast, hyperbolic paraboloid, elliptical and conchoidal hyperboloid, conoid, groined, and cloistered arch, intersecting cylinders, raccording warped surface, and corne de vache.

The civil engineering laboratory is fully equipped with the usual surveying instruments, transits, levels, compasses, traverse tables, and plane-tables, all of standard American makes. These include C. L. Berger and Sons, Buff and Buff, W. and L. E. Gurley, Bausch and Lomb, Keuffel and Esser, Eugene Dietzgen and Company, William Ainsworth and Sons, and the A. Lietz Company. There is also a large

assortment of the necessary auxiliary equipment such as tapes, rods, range poles, etc. The drafting room is fully equipped with instruments not required by each individual student, such as planimeters, protractors, special slide-rules, military sketching boards, railroad curves and irregular curves consisting of splines and weights, and calculating machines. The materials testing laboratory of this department is equipped with one 50,000 pound Riehle universal machine; one Olsen 15,000 pound universal machine; one 100,000 pound Olsen universal machine; one 200,000 pound Olsen universal machine; and one 60,000 inch-pound Riehle torsion machine; a Riehle standard paving brick rattler; a Riehle two-gang Deval abrasion machine; a Bureau of Standards flow table; suitable equipment for tension tests of belting; also an Olsen-Boyd 1000 pound automatic briquette testing machine; a Tyler Ro-tap testing sieve shaker, and the necessary auxiliary apparatus for making the usual tests. All of these machines except the cement testing machine are operated by directly connected individual motors so as to avoid all shafting and belting. The hydraulics laboratory is equipped with a Worthington 200 gallon per minute, 100 ft. head volute centrifugal pump with a direct connected slip ring motor; a simplex Venturi meter; trapezoidal, triangular, and rectangular weirs; a Pelton-Doble impulse turbine; a Gould ram; storage reservoir; overhead calibrated tank; and necessary gauges and other usual equipment. It is planned to add from time to time such additional equipment as is necessary for tests by advanced students and for research.

The equipment of the electrical engineering laboratory is ample for a thorough study of direct and alternating current

circuits and machines. All the common types are represented and some of the less usual. In some of the types, older machines may be compared with the more modern and the trend of development noted. There are examples of the practice of each of the leading manufacturers, including Crocker-Wheeler, Holtzer-Cabot, Roth, Sprague, Western Electric, General Electric, Westinghouse, Wagner, Robbins and Myers, Commercial, Electric Manufacturing Company, Fairbanks-Morse, Kuhlman Electric, Pittsburgh Transformer, Roller-Smith, Condit, Cutter, Cutler-Hammer, Ward-Leonard, Jewell, Biddle, Leeds-Northrup, and Weston. Among the direct current machines are generators rated: 50 kilowatts 250 volts; 35 kilowatts 250/125 volts (three wire); two alike, 5 kilowatts 125 volts, for parallel operation either flat- or over-compound; 5 kilowatts 110 volts; 4½ kilowatts 125 volts flat-compound; 3½ kilowatts 125 volts flat-compound; 1 kilowatt 500 volts; 4 kilowatts 8 volts (500 amperes) with Tirrill regular; 1½ kilowatts 2000/1200/800 volts; a set of three direct-connected machines for 90/150 and 20/25 volts direct current and 90/110 volts three-phase 170/250 cycle alternating current; and motors rated: 25 horse-power 250 volts (compound); 5 horse-power 500 volts (old type); two alike, 13 horse-power 230 volts; 10 horse-power, 7½ horse-power, 2 horse-power, all shunt wound for 230 volts; 3 horse-power 230 volts, variable speed; 4 horse-power 220 volts, series. The alternating current equipment includes: a 60 horse-power 2300 volt synchronous motor, with push button starter, direct coupled to two 25 kilovolt-ampere 220 volt 3-phase alternators; two phase-displacement sets, one consisting of two identical 7½ kilovolt-ampere, 220 volt, 1–2–3–6–phase synchronous

generators, with shifting stators, which may be direct connected or operated without mechanical connection, the other similar, except that the generators are 15 kilovolt-ampere and one is mounted for use as a cradle dynamometer; a 5 kilovolt-ampere 220 volt 3-phase synchronous generator with distributed field (round rotor); a 4 kilovolt-ampere 3-phase 110 volt 200 cycle generator; a 7½ horse-power 3-phase squirrel cage induction motor; a 5 horse-power 3-phase slip ring induction motor with controller; another of the same rating with starter; a 10 horse-power induction motor with internal starting resistance; a 7½ horse-power Fynn-Weichsel 3-phase motor; a 7½ horse-power unity power factor single-phase motor; a 3 horse-power 220 volt single-phase condenser type motor; a 50 horse-power induction motor with internal starting resistance; a 50 kilovolt-ampere synchronous motor; three 2 kilovolt-ampere and six 3 kilovolt-ampere 110/220:110/220 volt transformers; two 3 kilovolt-ampere 460/230:230/115 volt 3-phase transformers of the shell type; six 5 kilovolt-ampere 110/220 volt transformers with taps for Scott and other connections. Of particular interest are: a 25 horse-power 250 volt cradle dynamometer; a dynamotor operated from a 110 volt direct current supply and delivering 18 amperes at 110 volts 500 cycles; two synchronous converters or double current generators, one compound wound and with commutating fields, rated 10 kilowatts 250 volts direct current 1-3-4-6-phase, the other of the split or regulating pole type, rated 8 kilowatts 110 volts 1-3-4-phase; a set consisting of two direct connected induction motors, one 10 horse-power 1200 rev. per min. slip ring type, the other 5/10 horse-power 600/1200 rev. per min. squirrel cage type, for cascade operation at

several speeds; three 220 volt 3-phase induction regulators for raising or lowering voltage 100 per cent, of 15, 13, and 10 kilovolt-ampere capacity, respectively; a 1 kilovolt-ampere 20 volt phase advancer; a 3 kilovolt-ampere 30,000 volt oil testing transformer; an oscillograph equipped for taking either rectangular or circular records. Miscellaneous apparatus includes: condensers for power-factor correction; reactances, both air and iron core; rheostats; and starting devices. Meters are available for making any reading likely to be needed and include voltmeters (a. c. and d. c.), ammeters (a. c. and d. c.), wattmeters (single-phase and polyphase), current and voltage transformers, power-factor meters, frequency meters, watt-hour meters, tachometers, and a synchronoscope. For checking and calibrating these instruments there is an assortment of precision instruments, including a potentiometer and laboratory standards. Included in the equipment of the communications laboratory are: a 20 to 10,000 cycle beat frequency oscillator; an artificial line; a comparison vacuum tube voltmeter; a standard signal generator; two telephone repeaters; bridges including a precision capacity bridge; radio receivers; radio frequency oscillators; dummy antennae; cathode ray oscillographs; attenuation networks; wave analyzer; and instruments necessary to measure the quantities desired.

The mechanical engineering laboratory equipment falls into six general classes: steam, internal combustion, hydraulic, air refrigeration, fuel, and lubricants testing machinery. The first class contains an 8 × 18 Murray-Corliss engine equipped with rope brake; a 7 × 7 vertical Wachs slide-valve engine with Stephenson reversing gear, a 6 × 7 Troy

engine, and a 7 × 10 horizontal slide-valve engine, all with Prony brakes; a 6 × 4 × 6 duplex boiler feed pump; a 20 kilowatt direct current De Laval turbo-generator set, nozzled for condensing and non-condensing operation and fitted with a brake-pulley which may be substituted for the generator; a 16 horse-power Lee impulse turbine driving a centrifugal pump; a steam turbine nozzle arranged for experimental work; a similar equipment for calibration of steam orifices; a Westinghouse locomotive type air-compressor arranged for economy test; a demonstration set-up of standard air-brake equipment; an air-lift pump model; a 205 cubic foot Ingersoll-Rand 2 stage steam driven air compressor; and a 6 × 10 × 6 vertical compound Sturtevant engine. The machines are piped to exhaust either into the power-house stack or into three Wheeler surface condensers served by circulating and wet vacuum pumps.

Internal combustion engines are represented by an ethyl series 30 knock testing engine, with bouncing-pin equipment; a 20 horse-power fuel oil engine (Chicago Pneumatic Tool Co.); a 15 horse-power Foos oil engine equipped with two types of governors giving opportunity for engine tests using either gas, kerosene, or gasoline as fuel; a 3 horse-power Mietz and Weiss two-stroke cycle unit; a 3 horse-power Novo gasoline engine; Hall-Scott, Lawrance, Union, and Wright aeronautical engines; Chrysler, Maxwell, Chevrolet, and Willys-Knight automobile engines; and a Ford automobile engine with water-brake load. High speed automobile and aeroplane engines are tested with a 100 horse-power Sprague cradle dynamometer equipped with slotted bed-plate, gasoline metering device, and adjustable

engine supports. A Hopkinson optical indicator with photographic attachment is also provided. The refrigerating equipment includes a motor-driven 3-ton York compression machine with double-tube condenser, shell brine-cooler, brine-heater, and brine-pump. The hydraulic machinery consists of a 3-inch centrifugal pump and a 4 × 6 triplex pump, both driven by variable speed d. c. motor; an Evinrude centrifugal pump direct-connected to a gasoline engine; a steam turbine driven 200 g.p.m. two stage centrifugal boiler-feed pump; a calibrated overhead tank; a concrete storage cistern; four Venturi meters; a single tube manometer; a steam pulsometer; two weir boxes and notches; orifices, water meters, weighing tanks and scales, gauges, and the usual small accessories. In a separate fuel laboratory room is the equipment for testing fuels and oils. It includes complete Atwater and Parr coal-calorimeter outfits; analytical balances; two types of Orsat flue-gas apparatus; Scott and Saybolt viscosimeters; a Thurston coefficient of friction machine; a Navy type oil endurance testing machine; Bureau of Mines and Cleveland flash point testers; Conradson carbon residue equipment; hydrometers and specific gravity apparatus; a Junker type gas calorimeter; platinum ware, drying oven, ball mill, etc. Boiler tests are made on a 20 horse-power vertical fire tube boiler equipped with the necessary pumps and weighing equipment. Tests of heat-treated steel may be made with the aid of the several electric and gas furnaces, pyrometers of electric, expansion, optical, potentiometer, and gas pressure types, scleroscope, Rockwell, and Brinnel ball machines. A metallurgical microscope with specimen grinders, camera, and the usual accessories is also available.

In addition, the laboratories contain a Sirocco blower driven by a calibrated motor, a plate blower, Pitot tubes, orifices, air Venturi meter, large and small gas meters, anemometers, injectors, dead weight pressure gauge testers, mechanical and neon stroboscopes, a heat-insulating test equipment, thermometer calibration apparatus, hoists, tachometers, steam calorimeters, the most popular gas and steam engine indicators, planimeters, standard gauges and thermometers. An insulated chamber with calibrated nozzle allows tests of the steam and gas-fired unit heaters available. For class-room demonstrations, a Cussons valve-setting model, an automobile engine, several dozen sectioned models of intricate machines, and a collection of lantern slides, blue-prints, and curves are available.

A standard moving-picture machine permits the exhibition of the many films now loaned by manufacturers of engineering equipment.

The machine shop contains machine tools of quite varied character, each selected for its peculiar fitness to illustrate the principles and common details of modern shop tools and methods. The lathe equipment consists of twelve machines: one 14 × 8 Le Blond cone-head lathe with taper attachment and double back gears; one 14 × 6 Hendey cone-head quick-change lathe; one 14 × 8 standard lathe; one 14 × 7 Prentice geared head quick-change lathe; one Prentice motor-driven 15 × 6 lathe; one Flather motor-driven 14 × 5 lathe; one 14 × 6 geared head quick-change Lodge and Shipley lathe; one 14 × 6 motor-driven Lodge and Shipley selective head lathe; a Rivett bench lathe; a Monarch 14 × 5 motor-driven quick-change lathe; and two individual drive 14 × 6 American high duty geared head engine lathes, one of these

with turret attachment. The planer type of machine is represented by a 16-inch back-geared Rockford shaper with compound head, and a 22 × 22 × 8 foot Gray planer. All kinds of plane surfaces can also be cut upon two Kempsmith and two Cincinnati universal milling machines, which are fitted with dividing heads for gear cutting, differential indexing, spiral grooving, etc., as well as a good variety of cutters. One Kempsmith machine is supplied with a universal milling attachment. A No. 12 Brown and Sharpe motor-driven universal grinder, and a Greenfield cutter grinder serve as practical examples of high-class precision machine tools. A graphical watt-meter permits tests of tool shapes and machinery conditions. A tilting brass-furnace, moulders' benches, wood lathes, band saw, jointer, sander, and the necessary small tools provide for simple pattern and foundry work. The metallurgical furnaces and equipment listed with the mechanical laboratory apparatus are also available for shop use. For miscellaneous work, a double-disc motor-driven disc grinder, a power oil-stone, work benches and vises, two hand-tool grinders, a power hack-saw, down-draft forges, a 20-inch drill-press, a sensitive drill, an arbor press, an air hammer, air and electric drills, portable electric grinders, a 100 pound Smith acetylene generator, ten complete oxyacetylene welding outfits, and two electric arc welders (G. E. and Lincoln) are available. A sufficient supply of small hand and machine tools, lathe sets, reference standards and precision measuring instruments is issued on checks from a separate tool-room. About half the machine tools have individual motor drive. The others are grouped about a line-shaft and a 15 horse-power motor.

STUDENT ORGANIZATIONS

From the opening days of the Rice Institute the students have participated in the various forms of intramural and intercollegiate athletic contests, with the coöperation of the Committee on Outdoor Sports. Of other student organizations, the first society actually to be formed was the Young Men's Christian Association. This step on the part of the young men was speedily followed by a similar one on the part of the young women in the organization of their branch of the college Young Women's Christian Association. The founding of these religious societies, both of which have contributed to the social life and the religious spirit of the place, was followed in the course of the early years by the forming of several literary societies: three by the young women, the oldest society bearing the name of Elizabeth Baldwin, wife of the founder of the Institute, a later organization known as the "Pallas Athene Literary Society," and the youngest, named the "Owen Wister Literary Society"; and three by the young men, known respectively as "The Owl Literary Society," the "Riceonian Literary and Debating Society," and a later organization, "The Congressional Club," organized after the order of the House of Representatives and considering in debate leading public issues as they arise before Congress. Under the auspices of these first literary societies the first of the undergraduate periodical publications was undertaken, namely, "The Thresher," which appeared fortnightly from its initial number in January, 1916, to June, 1918, and has been published weekly since. Previous to the organization of the staff of "The Thresher," the Class of 1916 made arrangements for the publication of the

first class annual of the Institute, "The Campanile," which appeared in the spring of 1916. The second and third volumes were issued by the Classes of 1917 and 1918, respectively, and subsequent annual editions have been published by the representatives of the student body as a whole. In addition to the student organizations mentioned above, various departmental clubs and scientific societies have been contributing to the intellectual life of the Institute, one of the earliest of these being the Engineering Society, which was started in 1914, and which in recent years has been conducting as a student enterprise the biennial Rice Engineering Show, a public exhibition of the activities of the engineering and science laboratories. The student body is organized into a Students Association which serves as the official organ for the expression of student opinion and for the promotion of student enterprises; in particular, the undergraduate publications are now maintained under its auspices. A Students Council, elected by the Association, provides leadership in the Association. The president of the Association is president of the Council. The halls of residence for men are governed by a student Hall Committee, under the general supervision of the Dean.

Mr. William M. Rice, Jr., has provided a cabinet for the preservation and exhibition of trophies won by Rice teams in local and intercollegiate contests. This elaborate cabinet, designed by Mr. R. A. Cram, supervising architect of the Institute, is a most beautiful example of wood carving.

Through the generosity of Mrs. James L. Autry, as a memorial to her husband, the late James L. Autry, of Houston, the Diocese of Texas of the Protestant Episcopal Church is maintaining in the immediate vicinity of the Rice

Institute, Autry House, as a social and religious center. The corner stone of Autry House was laid during the commencement ceremonies of the Class of 1921. To this community group of the Episcopal Church, Mrs. E. L. Neville, of Houston, in memory of her brother, the late Edward Albert Palmer, has contributed the beautiful Edward Albert Palmer Memorial Chapel, which was dedicated November 27, 1927. All the opportunities of these establishments are available to the students of the Rice Institute irrespective of religious affiliation. Other religious bodies have intimated that they are considering future provision for similar undertakings in the neighborhood of the Rice Institute.

Through personal association with several generations of Rice students, Mr. George Cohen, of Houston, was led to make generous provision for the Robert and Agnes Cohen House in honor of his parents, for long years well-known and highly respected citizens of Texas. This beautiful building, constructed in the materials and architecture of the first of the Rice quadrangles, designed to afford to the faculty the advantages of a club-house on the campus, was dedicated at the Annual homecoming meeting of the Association of Rice Alumni on Thanksgiving Day of the year 1927.

TWENTIETH
ANNUAL COMMENCEMENT

TWENTIETH ANNUAL COMMENCEMENT

DEGREES IN COURSE CONFERRED

JUNE 3, 1935

At the twentieth annual commencement convocation of the Rice Institute held at the conclusion of the twenty-third academic session, the baccalaureate sermon was preached by the Reverend Willard L. Sperry, D.D., Dean of the Divinity School of Harvard University, and the commencement address was delivered by Ralph Budd, Dr.Eng., of Chicago, Illinois, President of the Burlington Lines. On the recommendation of the Faculty and by the authority of the Trustees, the President of the Rice Institute, at the final ceremonies in the Academic Court on the morning of June 3, 1935, conferred the following degrees respectively:

BACHELOR OF ARTS

Carle Beverly Aderman
William Alfred Altman
Lochatrice Satterfield Anderson
Mattie Williams Armstrong
Arnold Block Aronson
Selma Autrey Lewis Ballanfant
Mary Louise Ballard
Samuel Knox Banner—with distinction
Earl Bower Barnes—with distinction
Nolan Ellmore Barrick
William Andrew Barton
Helen Beavens
Helen Bell
Philip Augustus Belleggie, Jr.—with distinction

Esther Irene Beman—with distinction
Margaret Josephine Bender
Betty Joe Bingham
George Milton Blake
Mary Louise Blohm
Isabelle Bock
Floreine Anthea Borgstrom —with honours in Biology
Alice Lynn Boyd
William Edward Brandes
George Washington Brown, Jr.
Alice Pauline Buchanan
Susie Stowers Buford
Charles Maurice Burdeaux
William Francis Burke
Pearson Cash Caldwell
Jane Verona Canada
Benjamin Dandridge Cash
Margaret Florence Castle
Harry McBeath Cleaver
Robert Weidmier Clemens
Thomas Herman Conklin
Raymond Augustus Cook—with distinction
Stanislaus Peter Cowley
Agnes Cox
Archibald Gordon Crockett
John Henry Crooker, Jr.—with distinction
Elden Leo Daunoy
Richard De Young, Jr.—with distinction
Shirley Louise Dissen
Thelma Fay Dixon
Earle Cousart Douglas, Jr.
Marian Margaret Dunlap
Coralie Evelyn Eberspacher
Margaret Modena Elkins—with honours in French
Mildred Lynn Ellis
Elizabeth Lou Everett
Caroline Spencer Foulks
William Howard Francis
John Vincent Gainey
Mary Agnes Garfield
J. P. Garner
Ella Mae Gehring
Samuel Hilary Gibson
William Hunter Gibson
Deborah Gertrude Goldofsky—with distinction
Martin James Gould—with honours in Physics
Hazel Rose Green
John Willie Green, Jr.—with honours in Mathematics
Julia Green
Benjamin Franklin Greenwood, Jr.

John Robert Greer
Alyda Harris
Ruth Elverta Henderson
Wilbur Eugene Hess
Mary Elizabeth Hickey
Robert Moore Hill
Zella Katherine Hodges
Norman Franklin Holcomb
Claude Wendell Horton—with honours in Physics
Alfred Ryland Howard
Collier Claire Cooke Hudspeth
Edna Leah Jacobs—with distinction
Herbert Howard Johnson
Helen Elizabeth Johnston—with honours in History
Laurence Kawabe Kellersberger—with honours in French
Elizabeth Kellogg
Florence Alma Kendrick
Dorothy Jacqueline King
Ernst Karl Klappenbach
Louise Irma Kropf
Andrew Walter Ladner
Elizabeth Ross Lancaster
Barstow Elliot Langdon
Mary Beth Langley
Eula La Verne Lathrop
William Glenn Lawson
George Adams LeFever, Jr.
Richard Willoughby Lilliott, Jr.
Jessica Azeline Lilly
Robert Narvaez Little—with honours in Mathematics
Margaret Rose Lodge—with distinction
Juanita Mariella Luck
Charles Edward McCarthy
Edwin Thomas McClanahan
Mildred Rosetta McDavid—with honours in English
Mary Gordon McDonald
Eby Nell McElrath—with honours in Chemistry
Doris Aline McGill
Dosca Mildred McGill
John McKee, III
Ella Frances McMurrey
Willie Eunice Magee—with distinction
William Henry Masterson—with honours in History
Evri Bear Mendel
Regina Esther Meyer
George John Miller
Helen Louise King Milligan
Thelma Miron

William Charles Mixson
Arthur Morey Monteith
Audrey Lacy Moody
Seth Irwin Morris
Marion Anna Belle Moursund
Rollo Nellis Moyer
Julien Pearson Muller
Edgar Joseph Murphy, Jr.
Mary Elizabeth Neathery
Madeline Sona Nelkin
Ralph Nemir (as of the Class of 1934)
William Frederick Nicholson
Pauline Faye Johnson Oliver
Edward Oppenheimer, Jr.
Kate Ross Patton
Roderic Beltron Perkins—with honours in Chemistry
Lois Bryan Peters
George Edgar Pike—with honours in History
Eleanor Lydia Ponder
Clifford Patrick Powell
Richard Hepworth Powell
Edna Irene Pratt
Dorothy Clinton Quin
John Shepard Rasberry
Shirley Winifred Rauch
Mary Calder Rice
Robert Gordon Rick
Marian Elda Robinson
Max Radcliff Robson, Jr.
Elizabeth North Rogers
Fred Terry Rogers, Jr.—with honours in Physics
Joseph William Rose
Anne Evelyn Ross
Beverly Rudd
Odell Kenton Sanders
Joe Austin Schelling
Clarence Scheps—with distinction
Charles Leesemann Schultz
Samuel Kent Schwartz
Richard Gordon Scobee
Mildred Louise Selkirk—with distinction
Byrne Norman Sherwood
Margaret Elizabeth Smith
Virginia Katherine Smith
Ora Clotile South
Frances Sara Souza
Allan Trezevant Steele
Julius Francis Stiglich
Luolin Elizabeth Storey—with distinction
William Lyndon Storey
Frances Emma Stremmel
Elizabeth Mary Ann Sullivan

James Oliver Thomas, Jr.
Metta Virginia Tomlinson
Albert Ray Tracy
George Holman Triplett, Jr.
Thomas Jefferson Vanzant
Frank Norris Vickrey
Lawrence Vidrine
Laura Lee Washburn—with distinction
James Franklin Webster
Marjorie Claire Werner—with distinction
Sallie Josephine West
Doris Elaine White
Raleigh R. White, III
Susie Hibernia Williford
Kathleen Marjorie Wilson—with distinction
Roberta Virginia Woods
Jacob Dudley Woodson, Jr.

BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

James Wilbur Borskey
Arthur Rhew Dooley
George Duey Elkins
William Murray Ferguson
Jack Winfield Harris
Raymond Lawrence Heinrich
Gustave Eliot Henschen
Lawrence Thomas Johnson
Henry Landsberg
John McArthur Lennie
Leon Lusk, Jr.
Harry Lincoln Mauzy
Richard Jackson Metcalf
Robert Leldon Middleton
Craton Guthrie Pitner
John Robert Shaw
George Hale Shipley, Jr.
Thomas Emil Thomsen
John Cramer Van Gundy
Glenn William Wilson, Jr.
Samuel August Winkelmann

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

Bennett Winfield Burns
Perry Bryan Camp
Baxter Dee Goodrich
John Stewart Hallum
Richard Henry Meeker
Frank Stockton
Frederic Lee Williams, Jr.

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Lavon Couch Dodd
T. B. Ellis
Walton Jeffries Greer
Edwin John Hander
Robert Lee Henson
William Robert Helmuth Mau, Jr.
John William Millington
Earl Marshall Weaver
Arthur Bachman Wood
Sam Paul Worden

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Richard Eugene Eiser
John Haskins Hartwell
Thomas Busey Herndon
Glenn Wells King
Charles Vincent McKean
John Oliver McReynolds—with distinction
Wiley Bozeman Noble
Robert Harold Nolley
William Meachum Powell
Benjamin Ryburn Ramey

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION

Percy Arthur
Richard Edward Ballanfant
Harry Haydon Fouke
David Charles Furman
Bert Haworth Kivell
Joe Langley Lagow
Albert Frederick Metzler, Jr.
Harold Emmanuel Mickelson
Karl Treschwig

BACHELOR OF SCIENCE IN ARCHITECTURE

Robroy Charles Carroll
Frank Curtis Dill
Henry Coley Edwards, Jr.
Card Garnett Elliott, Jr.
Roy Graham Jackson
Jack Wellington Knostman
Thomas Aubrey Robinson
Fred Talbott Wilson

ANNOUNCEMENTS

MASTER OF ARTS

Grover Leon Bridger
Frank House Hurley, Jr.
Carl Sellner Kuhn, Jr.
Melba Elizabeth Lee
Walter Tandy Scott
Milton Williams

DOCTOR OF PHILOSOPHY

Paul Livingston Burlingame
George Alvin Garrett
John Tom Hurt
William Grosvenor Pollard
James Herbert Sawyer, Jr.
Frederic Allen Scott
Millard Seals Taggart

THE RICE INSTITUTE

SCHOLARSHIPS AWARDED FOR 1935–36

THE GRAHAM BAKER STUDENT

Denton Belford Wise, Class 1936, of Paris, Texas

HONOURABLE MENTION FOR THE GRAHAM BAKER STUDENTSHIP

(*Alphabetical*)

William Robert Eliassof, Class 1936, of Tyler, Texas
Thomas Jefferson Harling, Class 1936, of Houston, Texas
Bill Myers Harp, Class 1936, of Houston, Texas
Sarah Nancy Jones, Class 1936, of Houston, Texas
Ullmann Kilgore, Class 1936, of League City, Texas
Marguerite Moilliet, Class 1937, of Seymour, Texas
Charlyne Louise O'Fiel, Class 1936, of Houston, Texas
William Vesper Schleeter, Class 1937, of Houston, Texas
Harris W. Shelton, Class 1937, of Dallas, Texas
John Bowles Trible, Class 1937, of Houston, Texas
Dorothy Janice Wisenberg, Class 1937, of Houston, Texas

THE HOHENTHAL SCHOLARS

(*Alphabetical*)

Walter Goode Appleby, Class 1936, of Houston, Texas
Earl Ewald Huebotter, Class 1936, of Houston, Texas
William Harold Lockhart, Class 1936, of Houston, Texas
Simon Miron, Class 1936, of Houston, Texas
James Henry Morgan, Class 1936, of Houston, Texas
Henry Clay Waters, Class 1936, of Houston, Texas

ANNOUNCEMENTS

THE SCHOLAR OF THE JOHN MCKNITT ALEXANDER CHAPTER, DAUGHTERS OF THE AMERICAN REVOLUTION

Harriet Coit Malloy, Class 1936, of Palestine, Texas

THE ELLEN AXSON WILSON SCHOLAR

Marguerite Moilliet, Class 1937, of Seymour, Texas

THE ELIZABETH BALDWIN LITERARY SOCIETY SCHOLAR

James Kinchen Nance, Class 1938, of Fort Worth, Texas

THE PALLAS ATHENE LITERARY SOCIETY SCHOLAR

Ruth Edna Tausend, Class 1937, of Houston, Texas

THE DANIEL RIPLEY SCHOLARS

(*Alphabetical*)

Cyril Harold Delevanti, Class 1938, of Houston, Texas
George Whitelaw Mackey, Class 1938, of Houston, Texas

THE JUNIOR ENGINEERING SCHOLAR

Donald Eugene Norgaard, Class 1936, of Dallas, Texas

THE EDITH RIPLEY SCHOLARS

(*Alphabetical*)

Winiferd Joan deWaal, Class 1936, of Houston, Texas
Sarah Nancy Jones, Class 1936, of Houston, Texas
Marie Louise Surgi, Class 1936, of Houston, Texas

THE MARY PARKER GIESEKE SCHOLAR

Walter Hearne Jarvis, Class 1938, of Grand Saline, Texas

THE THOMAS AUBREY DICKSON AND PAULINE MARTIN DICKSON SCHOLARS

(*Alphabetical*)

Roy Benson Greer, Class 1936, of League City, Texas
Ida Mary Schnurr, Class 1937, of Houston, Texas
Edward Howard Smith, Class 1936, of Granville, Ohio
Harold Walton Tucker, Class 1936, of Houston, Texas

THE FRIENDS OF RICE SCHOLARS

(*Alphabetical*)

W. Howard Nicholls, Class 1937, of San Antonio, Texas
Harris W. Shelton, Class 1937, of Dallas, Texas
John Walter Sylvester, Class 1936, of Brownsville, Texas

THE LADY GEDDES PRIZE IN WRITING

Wylie Walker Vale, Class 1938, of Houston, Texas

THE SAMUEL FAIN CARTER FELLOW

Joseph Williams Hahn, B.A. "with honours in Mathematics" (Rice) 1932, M.A. (Rice) 1934, of Beaumont, Texas

LIST OF STUDENTS

1935–36

LIST OF STUDENTS

GRADUATE STUDENTS

Aucoin, Anthony Andrew* . *Houston, Texas*
B.A., Rice, 1934
Barrick, Nolan Ellmore* . . *Houston, Texas*
B.A., Rice, 1935
Bock, Isabelle . . . . . *Houston, Texas*
B.A., Rice, 1935
Borgstrom, Floreine Anthea* *Houston, Texas*
B.A., Rice, 1935
Bresky, Leon . . . . . *Houston, Texas*
B.A., Rice, 1933
Brown, Esther Louise . . . . *Houston, Texas*
B.A., Rice, 1929
Claypool, Martha Jane . . . *Houston, Texas*
B.A., Rice, 1934
Clemens, Robert Weidmier . *Houston, Texas*
B.A., Rice, 1935
Coppoc, William Joseph* . . *Larned, Kansas*
B.S., Ottawa University, 1935
DeYoung, Richard, Jr.* . . . *Houston, Texas*
B.A., Rice, 1935
Drake, John Sampson . . . *Orange, Texas*
B.S., Davidson College, 1934
Edwards, Henry Coley* . . . *Pensacola, Florida*
B.A., Rice, 1934
B.S. in Arch., Rice, 1935

*Candidacy for advanced degree approved.

Ekholm, Wesley Clarence* . *Fort Worth, Texas*
B.S. in Ch.E., Rice, 1934

Elkins, Margaret Modena* . *Houston, Texas*
B.A., Rice, 1935

Fisher, Wilton Monroe* . . . *Wichita Falls, Texas*
B.A., University of Oklahoma, 1932

Foulks, Caroline Spencer* . . *Houston, Texas*
B.A., Rice, 1935

Gabler, Henry Edward* . . . *Norwich, New York*
B.Ch.E., Clarkson College of Technology, 1935

Gainey, John Vincent . . . . *Houston, Texas*
B.A., Rice, 1935

Gillett, Donald Bockoven* . *Welsh, Louisiana*
B.A., Rice, 1934

Gould, Martin James* . . . *Houston, Texas*
B.A., Rice, 1935

Graf, Hazel May* . . . . . *Loma Linda, California*
B.A., Rice, 1934

Green, John Willie, Jr.* . . . *Houston, Texas*
B.A., Rice, 1935

Greenwood, Benjamin Franklin, Jr. . . . . *Houston, Texas*
B.A., Rice, 1935

Hahn, Joseph Williams* . . *Beaumont, Texas*
B.A., Rice, 1932
M.A., Rice, 1934

Hallman, Ralph Jefferson* . *Midland, Texas*
B.A., Rice, 1934

Hamill, Raymond Dale* . . *Arvada, Colorado*
B.A., Rice, 1934
Hawley, George Newton . . *Houston, Texas*
B.S. in E.E., Rice, 1931
Henson, Robert Lee* . . . . *San Antonio, Texas*
B.S. in E.E., Rice, 1935
Horton, Claude Wendell* . . *Houston, Texas*
B.A., Rice, 1935
Hurley, Frank House, Jr.* . *Houston, Texas*
B.A., Rice, 1933
M.A., Rice, 1935
Johnson, Herbert Howard . . *El Campo, Texas*
B.A., Rice, 1935
Johnston, Helen Elizabeth* . *Houston, Texas*
B.A., Rice, 1935
Kennedy, Ernest Carlton* . . *Sonora, Texas*
M.E., University of Texas College of Mines and Metallurgy, 1921
M.A., University of Texas, 1926
Ladner, Andrew Walter . . . *Houston, Texas*
B.A., Rice, 1935
Lancaster, Edgar Henry, Jr. . *Houston, Texas*
B.A., Rice, 1934
Lancaster, Elizabeth Ross . . *Houston, Texas*
B.A., Rice, 1935
Little, Robert Narvaez . . . *Houston, Texas*
B.A., Rice, 1935
McElrath, Eby Nell* . . . . *Gainesville, Texas*
B.A., Rice, 1935

Martin, Margaret Lee . . . *Houston, Texas*
B.A., Rice, 1931
M.A., Rice, 1933
Miller, George John . . . . *Houston, Texas*
B.A., Rice, 1935
Miron, Thelma . . . . . *Houston, Texas*
B.A., Rice, 1935
Morris, Seth Irwin . . . . . *Houston, Texas*
B.A., Rice, 1935
Nagai, Mary Aiko . . . . . *Almeda, Texas*
B.A., Rice, 1934
Offutt, Edward Preble, Jr.* . *Southboro, Massachusetts*
A.B., Dartmouth College, 1935
Perkins, Roderic Beltron, Jr.* *Houston, Texas*
B.A., Rice, 1935
Rees, Warren Alonzo . . . . *Houston, Texas*
A.B., Southwestern University, 1921
M.A., University of Texas, 1926
Rick, Robert Gordon . . . . *Houston, Texas*
B.A., Rice, 1935
Rogers, Fred Terry, Jr.* . . *Dallas, Texas*
B.A., Rice, 1935
Sanders, Odell Kenton* . . . *McDade, Texas*
B.A., Rice, 1935
Scott, Walter Tandy* . . . . *San Antonio, Texas*
B.A., Rice, 1933
M.A., Rice, 1935
Sherwood, Byrne Norman . . *Houston, Texas*
B.A., Rice, 1935

Shipley, George Hale, Jr. . . *Houston, Texas*
B.S. in Ch.E., Rice, 1935
Smith, Virginia Katherine . . *Houston, Texas*
B.A., Rice, 1935
Sumners, Thomas Woodward *Houston, Texas*
B.A., University of Texas, 1925
Weichert, John Phillips* . . *Houston, Texas*
B.A., Rice, 1934
Westheimer, Eugene Gerald* *Houston, Texas*
B.A., Rice, 1932
Witte, James Durward . . . *Houston, Texas*
B.A., Rice, 1930
Witte, Ruth Elverta Henderson *Houston, Texas*
B.A., Rice, 1935
Wood, Arthur Bachman . . *Denison, Texas*
B.S. in E.E., Rice, 1935
Zenor, Hughes Mead* . . . *Houston, Texas*
A.B., Oklahoma City University, 1930
M.S., University of Oklahoma, 1932

SENIORS**

Adams, Francis Vallee . . . *Galveston, Texas*
Albert, Mayo William . . . *Houston, Texas*
Allen, George Herder . . . . *Eagle Lake, Texas*
Allen, Harriet Whiteside . . *Houston, Texas*
Andrus, Bailey Crawford . . *Houston, Texas*
Appleby, Walter Goode . . . *Houston, Texas*

**As classified October 1st, 1935.

Arai, Eiko . . . . . *Genoa, Texas*
Armstrong, John William . . *Houston, Texas*
Arnim, Ben F., Jr. . . . . *Houston, Texas*
Arnold, Kingsland . . . . . *Brooklyn, New York*
Atkins, Jesse West . . . . . *Beeville, Texas*
Averill, John Reed . . . . . *Houston, Texas*
Aves, Frederick Huston . . . *Galveston, Texas*
Axelrad, Beulah . . . . . *Houston, Texas*
Baldwin, John Robert . . . *Cameron, Texas*
Bale, Allen Melbert . . . . *Dallas, Texas*
Barber, Alberta . . . . . *Houston, Texas*
Barnes, Harriet Virginia . . *Houston, Texas*
Battestin, Wilson Ivanhoe . . *Houston, Texas*
Bauer, Paul Louis . . . . . *Houston, Texas*
Bennett, Mildred Lucille . . *Houston, Texas*
Bentley, Mary Ellen . . . . *Houston, Texas*
Bentley, Russell Bonner . . *Dallas, Texas*
Bentz, Isadore Clarence . . . *Palacios, Texas*
Blair, William Paul . . . . *Vernon, Texas*
Blake, Norman Bruce . . . *Houston, Texas*
Bollman, Henry Clyde, Jr. . *Tyler, Texas*
Boone, Lawrence Douglas . . *Dallas, Texas*
Boyd, Marjorie Ellen . . . . *Houston, Texas*
Braden, Albert Henry, Jr. . . *Houston, Texas*
Brandes, Robert Gabro . . . *Beaumont, Texas*
Brandon, Carmen Richard . *Dallas, Texas*
Branum, Gerald Clifford . . *Houston, Texas*
Briggs, Frank Ford . . . . . *Galveston, Texas*
Bringhurst, Grace Elisabeth
Sims . . . . . *Houston, Texas*
Brooke, Chase Jackson, Jr. . *Rosita, Coahuila, Mexico*

Brothers, Louis Harry . . . *San Angelo, Texas*
Brown, Nyna Dot . . . . . *Houston, Texas*
Browne, Charles Winslow . . *Houston, Texas*
Bryan, Ralph Dewilton . . . *Houston, Texas*
Calhoun, Lillian Grafton . . *Houston, Texas*
Campbell, Ben Singleton, Jr. *Houston, Texas*
Cashman, John Edgar . . . *Houston, Texas*
Cauthan, Paul Hamilton, Jr. *Trinity, Texas*
Cecalek, Rudolph Frank . . *Houston, Texas*
Chamberlin, James Allen . . *Houston, Texas*
Chapman, James Winston . . *Houston, Texas*
Clark, James Mott . . . . . *Houston, Texas*
Cole, Ernest Allen, Jr. . . . *Temple, Texas*
Comiskey, Jack Woodrow . . *Houston, Texas*
Conrad, Hazel Anita . . . . *Pasadena, Texas*
Costley, John Jefferson . . . *Houston, Texas*
Craddock, Emmie . . . . . *Houston, Texas*
Crain, Mary Elisabeth . . . *Houston, Texas*
Crate, Harry William . . . . *Kerrville, Texas*
Crawford, Walter Joshua . . *Beaumont, Texas*
Davis, Johnnie Elizabeth . . *Houston, Texas*
Dawson, Gwendolyn Nadine . *Houston, Texas*
Dawson, Robert John . . . *Houston, Texas*
Dean, Dorothy Angela . . . *Houston, Texas*
Deering, Gladys Marie . . . *Houston, Texas*
deWaal, Winiferd Joan . . . *Houston, Texas*
Dobbs, Almon Cotton . . . *Houston, Texas*
Doggett, John Rentz, Jr. . . *Houston, Texas*
Dowe, Virgil Benner . . . . *Houston, Texas*
Dunaway, James Karl . . . *Bellville, Texas*
Dyer, Edwin Hawley . . . . *Houston, Texas*

Eaton, Rochestor Thomas, Jr. *Houston, Texas*
Elder, Hartwell Ernest . . . *Houston, Texas*
Eliassof, William Robert . . *Tyler, Texas*
Epley, Arthur Wilson, Jr. . . *Fairbanks, Texas*
Estill, Nancy Lee . . . . . *Houston, Texas*
Fairbrother, Horace Walton, Jr. *Houston, Texas*
Fasullo, George Pete . . . . *Houston, Texas*
Fenity, Carl Lester, Jr. . . . *Houston, Texas*
Ferris, Nanine Howard . . . *Port Arthur, Texas*
Fink, Evelyn Ethel . . . . . *Houston, Texas*
Fitzhugh, Robert Richard, Jr. *Ardmore, Oklahoma*
Fowler, James McFarland . . *Houston, Texas*
Freeman, Celia . . . . . *Houston, Texas*
Freundlich, Adele Ray . . . *Houston, Texas*
Freundlich, Charles Gilbert . *Houston, Texas*
Frost, Jay Miles, III . . . . *Houston, Texas*
Gates, Marshall DeMotte, Jr. *Port Arthur, Texas*
Gehring, Herman Victor . . *Houston, Texas*
Gibson, Isabel Edith . . . . *Houston, Texas*
Glasson, Kathlyn Marie . . *Houston, Texas*
Godsey, William James . . . *Beaumont, Texas*
Good, Samuel Floyd . . . . *Houston, Texas*
Gorton, Mary Malinda . . . *Galveston, Texas*
Grant, Andrew Davis . . . . *Bryan, Texas*
Greer, Roy Benson . . . . . *League City, Texas*
Gribble, Risdon Oliver . . . *Nacogdoches, Texas*
Griggs, Hall Wesley . . . . *West Columbia, Texas*
Haley, Barney Mack . . . . *San Angelo, Texas*
Hall, Eddie Christine . . . *Houston, Texas*
Hanks, Clyde Walton . . . . *Palestine, Texas*
Hans, Edward Walter . . . *Houston, Texas*

Harling, Thomas Jefferson, Jr. *Houston, Texas*
Harp, William Myers . . . . *Houston, Texas*
Harris, Daniel Melvin . . . *Houston, Texas*
Harris, Hunter Pinckney, Jr. *Fulshear, Texas*
Hawley, Mary Jane . . . . *Houston, Texas*
Hewitt, Lucile Bowe Davis . *Houston, Texas*
Hightower, Leonard Elmore . *Eastland, Texas*
Hildebrandt, John Poindexter *Houston, Texas*
Hodges, Maurice Andrew, Jr. *Houston, Texas*
Hogge, Arthur Clifton, Jr. . *Houston, Texas*
Houck, Wayne Segar . . . . *Park Ridge, Illinois*
Huebotter, Earl Ewald . . . *Houston, Texas*
Humphreville, Jeanne . . . *Houston, Texas*
Jackson, Henry Allen . . . . *Dallas, Texas*
Jared, John Ballard, Jr. . . . *Riverside, California*
Johnson, Harold Raymond . *Smithville, Texas*
Johnson, Leonard Benson . . *Houston, Texas*
Johnson, Minnadale Ray . . *Houston, Texas*
Johnston, Dean . . . . . *Houston, Texas*
Jones, Franklin Clifford, Jr. . *Houston, Texas*
Jones, Hershul Thomas . . . *Houston, Texas*
Jones, Sarah Nancy . . . . *Houston, Texas*
Jordan, Martha Frances . . *Corsicana, Texas*
Journeay, William Henry . . *Houston, Texas*
Kaplan, Myer . . . . . *Houston, Texas*
Katz, Leah . . . . . *Houston, Texas*
Kennedy, Mary Lucile . . . *Houston, Texas*
Kilgore, Ullmann . . . . . *League City, Texas*
Knowles, William Mack . . *Palestine, Texas*
Kocurek, Joseph Arthur . . *Houston, Texas*
Kottwitz, Reginald Paul . . *Houston, Texas*

Kreiter, Bernard Albert . . . *Houston, Texas*
Ladner, Charles Edwin . . . *Houston, Texas*
Lechenger, Pauline Cecile . . *Houston, Texas*
Lee, James Thompson . . . *Wichita Falls, Texas*
Leggett, Logan Hart . . . . *Houston, Texas*
Letts, Norman Edward . . . *Houston, Texas*
Lewis, Kemp Sloan, Jr. . . . *Dallas, Texas*
Lewis, Thomas Leslie, Jr. . . *Houston, Texas*
Lockhart, William Harold . . *Houston, Texas*
Lorimer, William Van . . . *Perry, Ohio*
Luckel, Alice Clare . . . . . *Houston, Texas*
Luckel, Charles Conrad . . . *Houston, Texas*
McComb, David . . . . . *Carmona, Texas*
McConnell, Vernon Owen . . *Houston, Texas*
McLachlan, Argyle . . . . . *Victoria, Texas*
Malloy, Harriet Coit . . . . *Palestine, Texas*
Malone, Mildred . . . . . *Houston, Texas*
Manuel, James Marshall . . *Goose Creek, Texas*
Mason, Monroe James . . . *Houston, Texas*
Mays, Sam Rayburn . . . . *Celeste, Texas*
Meredith, Wilmer Thomas . *Longview, Texas*
Miller, Tom Polk . . . . . *Houston, Texas*
Mintz, Sam . . . . . *Houston, Texas*
Miron, Simon . . . . . *Houston, Texas*
Moore, Elsie Roberta . . . . *Houston, Texas*
Moore, Henry Paisley . . . *Mexia, Texas*
Moore, Stanley Cockrell . . *Wharton, Texas*
Morgan, James Henry . . . *Houston, Texas*
Morris, William Carloss, Jr. . *Houston, Texas*
Mount, Mary Isabel . . . . *Houston, Texas*
Much, Charles Frederick . . *Alvin, Texas*

Much, Joe Clifford . . . . . *Alvin, Texas*
Myer, Ella Campbell . . . . *Houston, Texas*
Nealy, Vincent Lee . . . . . *Houston, Texas*
Neuhaus, William Oscar, II . *Houston, Texas*
Newsome, Joe Arthur, Jr. . . *Houston, Texas*
Nicholls, W. Howard . . . . *San Antonio, Texas*
Nirken, Edgar . . . . . *Houston, Texas*
Norgaard, Donald Eugene . . *Dallas, Texas*
O'Connor, Lawrence Joseph, Jr.*Houston, Texas*
O'Fiel, Charlyne Louise . . . *Houston, Texas*
Ofner, Charles Francis . . . *San Antonio, Texas*
Oliver, Eugene, Jr. . . . . *Houston, Texas*
Page, Grace Joyce . . . . . *New York, New York*
Palmer, Joseph Harold . . . *Houston, Texas*
Parker, Katharine Red . . . *Houston, Texas*
Parker, Leonard Anthony
Bowles . . . . . *Houston, Texas*
Pearson, Kathryn . . . . . *Houston, Texas*
Pestell, Walter Peyton . . . *Houston, Texas*
Peterson, Russell Ater . . . *Houston, Texas*
Polk, Eleanor Margaret . . . *Houston, Texas*
Pomerantz, Miriam Adel . . *Houston, Texas*
Pond, Samuel Ross . . . . . *Houston, Texas*
Pontello, Louis Angelo, Jr. . *Houston, Texas*
Poole, Lucile Annis . . . . . *Texline, Texas*
Poutra, Margaret Belle . . . *Houston, Texas*
Prade, Nat Harman . . . . *Leakey, Texas*
Procter, William Frank . . . *Houston, Texas*
Puntch, Mary Zita . . . . . *Houston, Texas*
Radoff, J. P. . . . . *Houston, Texas*
Rainey, John Bradshaw, Jr. . *Houston, Texas*

Red, David Douglass . . . . *Houston, Texas*
Reddicliffe, Harold Arthur . *League City, Texas*
Reid, Hugo Kittrell . . . . *Texarkana, Arkansas*
Rhein, Walter Joseph . . . . *Houston, Texas*
Roos, Lewis Van Skite . . . *Princeton, New Jersey*
Roy, Marie Antoinette . . . *Houston, Texas*
St. John, Richard Hornbrook *Temple, Texas*
Sanders, Bernard Maurice . . *Houston, Texas*
Sanders, Charles Malvin, Jr. *Lake Charles, Louisiana*
Sawtelle, James Emsley . . . *Houston, Texas*
Scarborough, Dorothy Winifred *Houston, Texas*
Schleser, Erich . . . . . *Freeport, Texas*
Schnurr, Alice Corena . . . *Houston, Texas*
Schreiber, Annette Mary . . *Houston, Texas*
Schurman, Leon Robert . . *Houston, Texas*
Sears, Edward Johnson . . . *Indianapolis, Indiana*
Sellingsloh, Gus . . . . . *Houston, Texas*
Sentell, Margaret Josephine . *Alvin, Texas*
Sherrill, William Morgan . . *Houston, Texas*
Shook, Robert Leroy . . . . *Houston, Texas*
Smith, Edward Howard . . . *Granville, Ohio*
Smith, Eleanore Dorothy . . *Houston, Texas*
Smith, Sidney George . . . *Houston, Texas*
Spence, Joseph Walton . . . *Eagle Pass, Texas*
Squyres, Charles Seaman . . *Gainesville, Texas*
Stafford, John William . . . *Houston, Texas*
Stafford, Joseph Lang . . . *Houston, Texas*
Stell, Manson Guy, Jr. . . . *Houston, Texas*
Stevens, Jane Templeton . . *Houston, Texas*
Stovall, Florence Helen . . . *Houston, Texas*
Stuart, Mary Louise . . . . *Houston, Texas*

Studer, Edward Alexis . . . *Houston, Texas*
Stuermer, Adolph Dietrich . *Nordheim, Texas*
Summers, Ruth Louise . . . *Houston, Texas*
Sumners, Thomas David . . *Houston, Texas*
Surgi, Marie Louise . . . . *Houston, Texas*
Switzer, Margaret Ardell . . *Houston, Texas*
Sylvester, John Walter . . . *Brownsville, Texas*
Talbert, Milton Lumpkin . . *China Springs, Texas*
Taylor, Courtney Longcope . *Houston, Texas*
Terranella, Frank . . . . . *Dallas, Texas*
Tidwell, George Minor, Jr. . *Mexia, Texas*
Tsanoff, Nevenna . . . . . *Houston, Texas*
Tucker, Harold Walton . . . *Houston, Texas*
Tufts, Margaret Bell . . . . *New Orleans, Louisiana*
Vogt, Charles Frank . . . . *Houston, Texas*
vonRosenberg, Charles Herman *Houston, Texas*
Wallace, John Edwin . . . . *Kansas City, Missouri*
Warren, William Steer, Jr. . *Houston, Texas*
Waters, Henry Clay, Jr. . . *Houston, Texas*
Watkin, Annie Ray . . . . *Houston, Texas*
Whiteside, Camile Runnels . *Houston, Texas*
Williams, Julian Carrol . . . *Houston, Texas*
Wilson, Allen B. . . . . *Hobby, Texas*
Wilson, Dorothy Alice . . . *Houston, Texas*
Wilson, Robert Howard, Jr. . *Houston, Texas*
Wise, Denton Belford . . . *Paris, Texas*
Witt, Harry William . . . . *Houston, Texas*
Wobus, Hermann Becker . . *Houston, Texas*
Wyatt, Dorothea Eileen . . *Conroe, Texas*
Yeager, John Glenn . . . . *Houston, Texas*
Yellin, Bernard . . . . . *Houston, Texas*

JUNIORS*

Abbate, Joe . . . . . *Houston, Texas*
Adkins, Ward Noble . . . . *Houston, Texas*
Alber, Elsie . . . . . *Houston, Texas*
Albrecht, Florence Mai . . . *Houston, Texas*
Allen, Sarah Nell . . . . . *Houston, Texas*
Andrews, John Edwin . . . *Houston, Texas*
Arai, Kazko . . . . . *Genoa, Texas*
Ard, Billy Glynn . . . . . *Greenville, Texas*
Ashburn, Margaret . . . . . *Greenville, Texas*
Austin, Margaret Catherine . *Houston, Texas*
Bailey, Florence Audrey . . *Houston, Texas*
Barnes, Addison LaFayette . *Houston, Texas*
Barnes, Melvin Marvin . . . *Chester, Texas*
Barnston, Alfred Jules . . . *Houston, Texas*
Barrett, Mary Catherine . . *Houston, Texas*
Bartlett, Sarah Kendrick . . *Marlin, Texas*
Bauer, Howard Page . . . . *Houston, Texas*
Beaulieu, William Clarence . *Houston, Texas*
Belt, Maurice . . . . . *Houston, Texas*
Biering, Bob Charles . . . . *San Antonio, Texas*
Biggio, Chester Congdon . . *Houston, Texas*
Blanton, William Neal, Jr. . *Houston, Texas*
Boyd, Joseph Lyndon . . . *Houston, Texas*
Boyle, Edward Cooksley . . *Houston, Texas*
Brandenberger, John William *Houston, Texas*
Brice, William Eugene . . . *Camden, Texas*
Briggs, Fred, Jr. . . . . *Houston, Texas*
Brookner, Ralph Jay . . . . *Beaumont, Texas*

*As classified October 1st, 1935.

Brooks, Randall Earl . . . . *Ennis, Texas*
Brosius, Margaret Lynn . . *Houston, Texas*
Brown, Myrta Claire . . . . *Houston, Texas*
Brown, William Oscar . . . *Houston, Texas*
Brown, Willow Belle Frances *San Angelo, Texas*
Bryan, James Monroe . . . *Tyler, Texas*
Bryant, Frank Albert . . . . *Baytown, Texas*
Buck, Willard Ewing . . . . *Phoenix, Arizona*
Burch, Allen Eugene . . . . *Houston, Texas*
Burr, Dorothy Mabel . . . . *Humble, Texas*
Burrell, Forrest Bedford . . *Houston, Texas*
Burt, Mary Elizabeth . . . *Houston, Texas*
Bussa, Harry Irvin . . . . . *Houston, Texas*
Byrnes, Margaret Louise . . *Houston, Texas*
Cavenagh, Frank, Jr. . . . . *Houston, Texas*
Chambliss, Grover C., Jr. . . *Anahuac, Texas*
Chandler, Dorothy Belle . . *Houston, Texas*
Clevenger, Helen . . . . . *Houston, Texas*
Close, Mabelgrace . . . . . *Pasadena, Texas*
Cole, Paul Raymond . . . . *Odessa, Texas*
Collier, Everett Dolton . . . *Houston, Texas*
Collins, Howard William . . *Port Arthur, Texas*
Collins, Theron Tilford, Jr. . *Greenville, Texas*
Colvin, Helen Inez . . . . . *Houston, Texas*
Cook, Winfield Hollis . . . . *Dallas, Texas*
Cooper, Percy Lewitt, Jr. . . *Houston, Texas*
Crowder, Robert Graham . . *Fort Worth, Texas*
Daigle, Henriette I. . . . . *Houston, Texas*
Davis, Margaret Elinor . . . *Houston, Texas*
Davis, Virginia . . . . . *Houston, Texas*
Degnan, James Haines . . . *Houston, Texas*

Delambre, Lorry Constants . *Houston, Texas*
Dinsmoor, Mary Louise . . . *St. Marys, West Virginia*
Dodd, James Grady . . . . *Houston, Texas*
Dorman, Jean Elton . . . . *Houston, Texas*
DuPree, Raymond Benjamin *Houston, Texas*
Dwigans, Ruth Adair . . . . *Ganado, Texas*
Dwyer, Theodore Huder . . *Houston, Texas*
Echols, Harry Augustus, Jr. . *Houston, Texas*
Eckhardt, William Rudolf, III *Houston, Texas*
Evans, Howard Lee . . . . *Houston, Texas*
Fargerson, Vivian Elizabeth . *Houston, Texas*
Farren, Paul Lester . . . . *Houston, Texas*
Feagan, Richard Wynne . . *Hamlin, Texas*
Fink, Mildred Dorothy . . . *Houston, Texas*
Fisher, Bernard Meredith . . *Columbia, Louisiana*
Fite, Ralph Hillin . . . . . *Houston, Texas*
Flint, Mary Madeline . . . *Houston, Texas*
Forbes, Edward King . . . . *Electra, Texas*
Forbes, John Robert . . . . *Houston, Texas*
Fourmy, Frank Campbell . . *Houston, Texas*
Fowler, Josephine . . . . . *Houston, Texas*
Frankie, Johnnie . . . . . *San Benito, Texas*
Frederick, Ben Frederick, Jr. *Houston, Texas*
Friedman, Joseph Walter . . *Austin, Texas*
Gamble, Robert Warren . . *Beaumont, Texas*
Gates, Mary Caroline . . . *Houston, Texas*
Gillespie, Minne Moore . . . *Houston, Texas*
Gillette, Reagan Word . . . *Houston, Texas*
Gillis, Robert Raymond . . . *Houston, Texas*
Glascock, Mary Henrietta . . *Houston, Texas*
Gleaves, Leonard Lee . . . . *Dallas, Texas*

Goodrich, Jerome Duncan . . *Houston, Texas*
Gordon, Wendell Chaffee . . *Houston, Texas*
Goyen, Charles William . . . *Houston, Texas*
Graff, Clifford Otis . . . . . *Houston, Texas*
Gray, Louis Patrick. . . . . *Houston, Texas*
Gready, Howard Francis . . *Houston, Texas*
Greenwood, Marvin Henderson *Houston, Texas*
Griffiths, James Thompson, Jr. *Alta Loma, Texas*
Hale, Mary Jane . . . . . *Houston, Texas*
Hall, Elizabeth Anne . . . . *Houston, Texas*
Hallman, Gerald Beights . . *Midland, Texas*
Harbordt, Charles . . . . . *Monterrey, Nuevo Leon, Mexico*
Hardy, Ruth Elizabeth . . . *Houston, Texas*
Harris, Geraldine Violet . . . *Houston, Texas*
Haseltine, Nathaniel Greene . *Carpinteria, California*
Haymes, Albert Burke . . . *Houston, Texas*
Henderson, James Louis . . *Houston, Texas*
Heyck, Frances Marie. . . . *Houston, Texas*
Hill, John Burke . . . . . *Houston, Texas*
Hinzie, Marjorie Audrey . . *Palestine, Texas*
Holloway, Sellers Hosah . . *Houston, Texas*
Holmes, Harry Newton . . . *Houston, Texas*
Holt, Ruth Elizabeth . . . . *Houston, Texas*
Hopkins, Allene Marie . . . *Houston, Texas*
Horne, Olive Chesley . . . . *Houston, Texas*
Horton, Jack Carter . . . . *Houston, Texas*
House, Edwin Bonner . . . *Houston, Texas*
Howard, David Stewart, Jr. . *New Hartford, New York*
Hudson, Marion Brown . . . *Houston, Texas*
Hudspeth, Emmett Leroy . . *Arlington, Texas*

Humphreville, Lanelle. . . . *Houston, Texas*
Hurley, Henry Charles, Jr. . *Houston, Texas*
Hurley, Mary Margaret . . *Houston, Texas*
Hutchins, Selwyn Percival Rice *Marlin, Texas*
Illes, Robert Enoch . . . . *Dallas, Texas*
Jackson, Mary Lucille . . . *Houston, Texas*
Jackson, William Kenyon . . *Rio de Janeiro, Brazil*
James, Patrick Henry . . . *Houston, Texas*
Jewett, Dorothy Gladys . . *Houston, Texas*
Johnson, Byron Kenneth . . *New York Mills, Minnesota*
Jones, Henry Blandin . . . . *Houston, Texas*
Kay, Meta . . . . . *Houston, Texas*
Keating, Ernest Wilbur . . . *Blackwell, Texas*
Keller, Dorothy Bernadine . *Houston, Texas*
Kelly, Herman Floyd . . . . *Gainesville, Texas*
King, George Randolph . . . *Houston, Texas*
Kobayashi, Hope Fuku . . . *Webster, Texas*
Kobb, Sol Rudy . . . . . *Houston, Texas*
Krueger, Alba Virginia . . . *Houston, Texas*
Kutschenreuter, Paul Herbert *Houston, Texas*
Lee, Mildred Oliene . . . . *Houston, Texas*
Lehmann, Ruth Elizabeth . . *Houston, Texas*
Levingston, Clarence William *Orange, Texas*
Levy, Regina Lorraine . . . *Houston, Texas*
Liljestrand, Walter Emanuel *Elsa, Texas*
Lloyd, Elizabeth Darden . . *Houston, Texas*
Lodge, Harris Louwien . . . *Houston, Texas*
Long, James Harry . . . . . *Pearland, Texas*
Long, Maurine . . . . . *Houston, Texas*
Love, Frances Marshall . . . *Houston, Texas*
Lynn, Jack McGregor . . . *Ballinger, Texas*

McCants, Malcolm Thomas . *Houston, Texas*
McCauley, John James . . . *Hubbard, Texas*
McCown, Thomas Ashby . . *Alvin, Texas*
McDaniel, Roy Shelton . . . *Beaumont, Texas*
McDavid, Patrick Mayes . . *Seymour, Texas*
McGaffey, Mary Jane . . . *Houston, Texas*
McGee, James Butler, Jr. . . *Houston, Texas*
McNair, Helen Frances . . . *Houston, Texas*
Maguire, William Lucius . . *Houston, Texas*
Maresh, Anna Beth
Kutschbach . . . . . *Houston, Texas*
Maske, Betty Brent . . . . *Houston, Texas*
Miller, Mary Emily . . . . *Houston, Texas*
Moilliet, Marguerite . . . . *Seymour, Texas*
Moore, Mary Lou . . . . . *Houston, Texas*
Morgan, Berney Lambeth . . *Cooper, Texas*
Morgan, Dorothy La Verne . *Houston, Texas*
de la Moriniere, Juliette . . *Houston, Texas*
Morris, Harold Brett . . . . *Houston, Texas*
Morris, Joe Alexander . . . *Houston, Texas*
Morris, Wilford Victor . . . *Houston, Texas*
Motheral, George Ed . . . . *Houston, Texas*
Murphy, Daniel Francis . . *Galveston, Texas*
Myers, Walter Steen . . . . *Houston, Texas*
Nagai, Mamie Hayako . . . *Almeda, Texas*
Nallin, James Joseph, Jr. . . *Shreveport, Louisiana*
Neece, John Prendergast, Jr. *Mexia, Texas*
Nichols, Ralph Gregory . . . *Houston, Texas*
Nitze, Marjorie Elizabeth . . *Houston, Texas*
Norman, William Harvey . . *San Antonio, Texas*
Orr, Willis Poindexter . . . *Houston, Texas*

Owen, Wade, Jr. . . . . *Athens, Texas*
Pearson, Marian . . . . . *Houston, Texas*
Pearson, Patricia . . . . . *Houston, Texas*
Peden, Alexander Phillips . . *Houston, Texas*
Poole, Doris Eletta . . . . . *Houston, Texas*
Pulley, Thomas Edward . . *Houston, Texas*
Putnam, Helen Ingram . . . *Houston, Texas*
Quebe, Frederick Henry . . *Waco, Texas*
Redman, Travis Holland . . *Houston, Texas*
Richardson, Dean Edward . *Beaumont, Texas*
Rieger, Jane . . . . . *Houston, Texas*
Roberts, Thomas Hiram . . *Rosebud, Texas*
Rochelle, Marinelle . . . . . *Houston, Texas*
Rogers, John Sinclair . . . . *Houston, Texas*
Rose, Jay Harold . . . . . *Houston, Texas*
Royall, Richard Royster . . *Houston, Texas*
Ruff, Dorothy Loraine . . . *La Porte, Texas*
Ryan, Cornelius O'Brien . . *Houston, Texas*
Sadler, William DeWitt . . . *Mart, Texas*
Sadlier, Muriel Elaine . . . *Houston, Texas*
Scardino, Peter Lester, Jr. . *Houston, Texas*
Schiller, James Curtiss . . . *Houston, Texas*
Schleeter, William Vesper . . *Houston, Texas*
Schnitzer, George Cecil, Jr. . *Houston, Texas*
Schnurr, Ida Mary . . . . . *Houston, Texas*
Sears, Nelson Bernard . . . *Indianapolis, Indiana*
Segal, Jerome Joe . . . . . *Houston, Texas*
Sellers, Clemille Franklin . . *Houston, Texas*
Shelton, Dowlen . . . . . *Houston, Texas*
Shelton, Harris W. . . . . *Dallas, Texas*
Sherman, Karl Harberg . . . *Waco, Texas*

Shoss, Morris . . . . . *Houston, Texas*
Sisk, Eugene Bounds, Jr. . . *Houston, Texas*
Smith, A. Frank, Jr. . . . . *Houston, Texas*
Smith, Eliphlet Arnold . . . *Conroe, Texas*
Smith, Raymond Roy . . . *San Antonio, Texas*
Smith, William Dorsett . . . *Houston, Texas*
Smyth, Rodger Grigsby . . . *Uvalde, Texas*
Stanford, William Aaron . . *San Angelo, Texas*
Stark, Benjamin Olin . . . . *Houston, Texas*
Stark, Elwood E. . . . . *Houston, Texas*
Steele, Jack Caudle . . . . . *Roscoe, Texas*
Stein, Rose Lee . . . . . *Rosenberg, Texas*
Stevens, Eleanor Adriance . . *Angleton, Texas*
Sullivan, Frank B. King . . *Houston, Texas*
Surles, Ruth Eloise . . . . . *Houston, Texas*
Tarrer, James Keith . . . . *Little Rock, Arkansas*
Tausend, Harold Jack . . . *Houston, Texas*
Tausend, Ruth Edna . . . . *Houston, Texas*
Taylor, Charlotte . . . . . *Houston, Texas*
ten Brink, Karl Cornelius . . *Wichita Falls, Texas*
Tenery, John Henry, Jr. . . *Dallas, Texas*
Tinterow, Maurice Meyer . . *Galveston, Texas*
Townes, Christopher Garrett *Houston, Texas*
Treadwell, John Holland . . *Menard, Texas*
Trible, John Bowles. . . . . *Houston, Texas*
Triplett, Mary Ellen . . . . *Houston, Texas*
Tynes, Lee Nelson . . . . . *Houston, Texas*
Vinson, Martha Brice . . . . *Houston, Texas*
Wagoner, Arthur Lawrence . *Arlington, Texas*
Wall, Mary Virginia . . . . *Port Arthur, Texas*
Wallace, William Brooks . . *Eagle Lake, Texas*

Wallis, William McVicker . . *Houston, Texas*
Walsh, David Paul . . . . . *San Antonio, Texas*
Weber, Chester Herman . . *Beaumont, Texas*
Webre, Lloyd Posey . . . . *Houston, Texas*
Weichert, David Richard . . *Houston, Texas*
Weiser, Dorothy Boyer . . . *Houston, Texas*
Wells, Clarence Asa . . . . *Houston, Texas*
Werner, Evelyn Alberta . . *Houston, Texas*
Westheimer, David . . . . . *Houston, Texas*
White, Robert Daniel . . . *Ennis, Texas*
White, William Parker . . . *Houston, Texas*
Williams, Byron Wallace . . *Dallas, Texas*
Williams, Edward Carson . . *Houston, Texas*
Williamson, Mary Eugenia . *Houston, Texas*
Wilson, Vernon Orley . . . . *Baytown, Texas*
Wisenberg, Dorothy Janice . *Houston, Texas*
Wolfram, Lionel Foster . . . *Houston, Texas*
Wright, Merrill Clair . . . . *Houston, Texas*
Young, Frances . . . . . *Katy, Texas*
Young, Joe . . . . . *San Angelo, Texas*
Young, Reginald Gladish . . *Houston, Texas*

SOPHOMORES*

Adams, Charles Henry . . . *Galveston, Texas*
Alexander, Warren Amos . . *Fairbanks, Texas*
Alexander, Woodrow Wilson . *Houston, Texas*
Anderson, Thomas John . . *Bay City, Texas*
Andrews, Lillian Marguerite . *Houston, Texas*
Bailey, Scott Field . . . . . *Houston, Texas*

*As classified October 1st, 1935.

Baird, Kenneth Hunter . . . *Houston, Texas*
Baird, Raleigh William, Jr. . *Dallas, Texas*
Balcke, Lola Mae . . . . . *Houston, Texas*
Banta, Norman Hollis . . . *Electra, Texas*
Barker, John H. . . . . *Houston, Texas*
Bartels, Martha Ruth . . . *Houston, Texas*
Battaile, Henry William . . *Houston, Texas*
Beaulieu, Evelyn Hope . . . *Houston, Texas*
Becker, Georgia Madeline . . *Anderson, Texas*
Behrman, Robert Goodall . . *Naples, Texas*
Bell, Bernard Israel . . . . *Houston, Texas*
Beman, John Shoomer . . . *Houston, Texas*
Bennett, Dean Averill . . . *Houston, Texas*
Bigler, Ruth . . . . . *Houston, Texas*
Blair, Mary Margaret . . . *Houston, Texas*
Blanton, Dorothy Elizabeth . *Houston, Texas*
Blanton, Edlar Bacon, Jr. . . *Houston, Texas*
Bohrer, Lyle Edwin . . . . *Beaumont, Texas*
Boice, Edward Henry . . . *Houston, Texas*
Boone, Berrill Harrison . . . *Navasota, Texas*
Borgstrom, Gus Magnus, Jr. *Houston, Texas*
Brandon, William Dale . . . *Fort Worth, Texas*
Bratten, Virginia Lindsley . . *Houston, Texas*
Bresky, Ruby Lee . . . . . *Houston, Texas*
Britton, Thomas Lemuel . . *Houston, Texas*
Broadway, Kathryn Frances . *Houston, Texas*
Brous, Lloyd Knaur . . . . *Denison, Texas*
Brown, Betsy . . . . . *Houston, Texas*
Brown, Elizabeth Malvina . *Henderson, Texas*
Bruce, Richard H., Jr. . . . *Liberty, Texas*
Buckley, Raynor Lee . . . . *Eagle Pass, Texas*

Burkhart, Hugh Reginald . . *Houston, Texas*
Burns, Marie Olga . . . . . *Houston, Texas*
Burrell, Rebecca Frances . . *Houston, Texas*
Byers, Billie Louise . . . . *Houston, Texas*
Campbell, Max Berkley . . . *Fort Worth, Texas*
Campbell, Patterson Fitzgerald, Jr. . . . . *Las Cruces, New Mexico*
Campise, Nash Oscar . . . . *Houston, Texas*
Campsey, Mary Frances . . *Houston, Texas*
Canafax, Jane . . . . . *Houston, Texas*
Cannizzo, Adele Emma . . . *Galveston, Texas*
Caplin, Arthur Irian . . . . *Abilene, Texas*
Carr, Bert . . . . . *Bay City, Texas*
Carr, Mary Kathleen . . . . *Houston, Texas*
Cartwright, John Reagan . . *Beaumont, Texas*
Clarke, Katherine Virginia . *Houston, Texas*
Cody, Melville Lockett . . . *Houston, Texas*
Coe, Clarence Samuel . . . *Phoenix, Arizona*
Cogdell, Frank Craig . . . . *Abilene, Texas*
Collier, Margaret Rae . . . *Houston, Texas*
Collins, Joseph Vincent . . . *Houston, Texas*
Cook, Arthur Aaron . . . . *Dallas, Texas*
Cook, Clem Howard . . . . *Houston, Texas*
Cook, John Roscoe . . . . . *Houston, Texas*
Cooksey, Edward, Jr. . . . . *Houston, Texas*
Cooper, Mary Alice . . . . *Houston, Texas*
Cornelison, Boyd, Jr. . . . . *Dallas, Texas*
Couzens, Ellen Rea . . . . *Houston, Texas*
Cox, Jane Wingate . . . . . *Houston, Texas*
Crawford, John Franklin, Jr. *Fort Worth, Texas*
Crump, William Lucas . . . *Houston, Texas*

Cruse, Samuel William . . . *Houston, Texas*
Curtis, Mary Louise . . . . *Houston, Texas*
Daigle, Dorothy Virginia . . *Houston, Texas*
Davenport, George Folling. . *Beaumont, Texas*
Davis, Eleanor Grace . . . . *Houston, Texas*
Delevanti, Cyril Harold . . . *Houston, Texas*
Delgado, Luis Vega . . . . *Madero, Tamaulipas, Mexico*
Dill, Herbert Clyde . . . . *Houston, Texas*
Dudley, Mary Margaret . . *Houston, Texas*
Dunlap, Henry Francis . . . *Houston, Texas*
Durrenberger, Edward Beall . *Houston, Texas*
Eggleston, William Joseph . *Houston, Texas*
Ellis, Mary Frances . . . . *Houston, Texas*
Evans, Sarah Catherine . . . *Houston, Texas*
Farmer, Martha Adelia . . . *Houston, Texas*
Felton, Jack Bert . . . . . *Houston, Texas*
Fennelle, Charles Edwin . . *Waco, Texas*
Ferrin, Marion . . . . . *Houston, Texas*
Fields, Roger Quarles . . . . *Tyler, Texas*
Flick, Mary Ellen . . . . . *Houston, Texas*
Floyd, Louis Carl. . . . . *Wink, Texas*
Foote, Mary Louise . . . . *Houston, Texas*
Ford, Harry H., Jr. . . . . *Houston, Texas*
Fosselman, Mary Eleanor . . *Houston, Texas*
Foulks, James G. . . . . *Houston, Texas*
Gerland, Hazel Aileen . . . *Houston, Texas*
Gibson, Kathlyn Bell . . . . *Houston, Texas*
Giddings, Wallace Mathews . *Caldwell, Texas*
Gladish, Virginia Dell . . . *Amarillo, Texas*
Glover, Robert Milner . . . *Lafayette, Louisiana*

Goode, William Josiah . . . *Houston, Texas*
Goodson, Alfred Clement . . *Houston, Texas*
Graham, Sue Thomson . . . *Houston, Texas*
Gray, Hugh Jefferson . . . . *Houston, Texas*
Greenwood, Mary Lois . . . *Houston, Texas*
Greer, Carl Ferrell . . . . . *Fort Worth, Texas*
Greer, Kathryn E. . . . . *Houston, Texas*
Gregory, Robert Henry . . . *Houston, Texas*
Greve, Thomas Edmonds . . *Houston, Texas*
Griffith, Grace Sigel. . . . . *Houston, Texas*
Gripon, Margery Elise . . . *Houston, Texas*
Guthrie, Mary Virna . . . . *Houston, Texas*
Hall, Lewis Tyus . . . . . *Houston, Texas*
Hamblen, Tolar Numa, Jr. . *Houston, Texas*
Hamilton, Guy, Jr. . . . . *Whitewright, Texas*
Handly, Rita Cornelia . . . *Houston, Texas*
Hatcher, Elissa Ruth . . . . *Houston, Texas*
Hoencke, Gustave Cook, Jr. . *Houston, Texas*
Holden, Everitt Russ . . . . *Houston, Texas*
Hollomon, Mary Bernice . . *Houston, Texas*
Holm, Herbert Ernest . . . *Houston, Texas*
Hotmann, Charles Allan . . *Houston, Texas*
Hudson, Richard Lee . . . . *Smithville, Texas*
Hughes, Arthur Thomas . . *San Antonio, Texas*
Jacobs, Louis . . . . . *Houston, Texas*
Jarvis, Walter Hearne . . . *Grand Saline, Texas*
Johnson, Cary Neil, Jr. . . . *Houston, Texas*
Johnson, Celeste Louise . . . *Houston, Texas*
Karkalits, Olin Carroll, Jr. . *Houston, Texas*
Keeper, Zelda Leah . . . . *Houston, Texas*
Kelly, Warner Marion . . . *Denison, Texas*

Kilpatrick, Julia Lillian . . . *La Porte, Texas*
Klindworth, Clifford Walter . *Dallas, Texas*
Kunover, Mary Ursula . . . *Houston, Texas*
Lancaster, York . . . . . *Houston, Texas*
Lane, Jonathan . . . . . *Houston, Texas*
Lane, William Hugh . . . . *Marshall, Texas*
Lawton, Frederick George, II *Houston, Texas*
LeClere, Roberta Gomperts . *Houston, Texas*
Lederer, George William . . *Houston, Texas*
Leesemann, Charles Jules . . *Houston, Texas*
Lefevre, Ortrud Virginia . . *Houston, Texas*
Levin, Ben . . . . . *San Antonio, Texas*
Lilliott, Miriam Jean . . . . *Houston, Texas*
Lindsay, Bert Wetzel . . . . *Houston, Texas*
Loker, George Andrew . . . *Houston, Texas*
Lyne, William Henry . . . . *Houston, Texas*
McAnneny, Adrian Wilson. . *San Antonio, Texas*
McAshan, Sara Margaret . . *Houston, Texas*
McBride, Bonnie Delle . . . *Houston, Texas*
McDowell, Lila Beth . . . . *Houston, Texas*
McElya, Fred Herbert . . . *Houston, Texas*
McGary, John Keith . . . . *Houston, Texas*
McGee, William Sears. . . . *Houston, Texas*
McIntyre, Lillian Hazel . . . *Houston, Texas*
McKallip, Mary Edna . . . *Houston, Texas*
McKee, Robert Lambert . . *Clarendon, Texas*
McLelland, Margaret Rose . *Houston, Texas*
McMahon, John Leo . . . . *Houston, Texas*
McReynolds, Andrew
Wetherbee . . . . . *Sherman, Texas*
McShan, Clarence Hunter . . *Houston, Texas*

McWhinney, Roy LeClaire . *Houston, Texas*
Macaulay, Gertrude Frances . *Houston, Texas*
Mace, A. R. . . . . *Tyler, Texas*
Mackey, George Whitelaw . *Houston, Texas*
Malone, William Chapman, Jr. . . . . *Houston, Texas*
Mansfeld, Louise Margaret . *Houston, Texas*
Marsh, Arthur Paul. . . . . *Port Arthur, Texas*
Marsh, Nat Huyler . . . . . *Houston, Texas*
Marshall, John Lee . . . . . *Sherman, Texas*
Martin, Elizabeth Ann . . . *Baytown, Texas*
Mason, Thomas Robert . . . *Houston, Texas*
Matlage, William Theodore, Jr. . . . . *Sugar Land, Texas*
Matthews, Mary Marshall . *Houston, Texas*
May, Herbert Cleveland . . *Houston, Texas*
Melton, Milton Ernest . . . *Allen, Texas*
Meroney, Geraldine Marie . *Houston, Texas*
Merrill, Frances . . . . . *Houston, Texas*
Miller, Ralph Edward . . . *San Antonio, Texas*
Millsap, Margaret Louise . . *Fairbanks, Texas*
Minto, Mary Barbara . . . *Houston, Texas*
Moore, Anne Catherine . . . *Houston, Texas*
Moore, Charles Edward . . . *San Antonio, Texas*
Morgan, Dorothy Eloise . . *Houston, Texas*
Morgan, George Gay . . . . *Frost, Texas*
Morrison, John Robert . . . *Dallas, Texas*
Muir, Andrew Forest . . . . *Houston, Texas*
Mullis, Alfred Roggie . . . . *Camden, Arkansas*
Muske, Ida Aileen . . . . . *Brookshire, Texas*
Nagel, Nancy Glenn . . . . *Houston, Texas*

Nagle, Dorothy Lois . . . . *Houston, Texas*
Naman, Israel Adrian . . . *Houston, Texas*
Nance, James Kinchen . . . *Fort Worth, Texas*
Norsworthy, William Herbert *Bastrop, Louisiana*
O'Riordan, Mildred . . . . *Houston, Texas*
Orman, Forrest Clarence . . *Houston, Texas*
Pace, Jimmie Lucien . . . . *Houston, Texas*
Park, Frances Marie . . . . *Houston, Texas*
Parker, Robert E. L., Jr. . . *Tobe, Colorado*
Parrish, John Beverly . . . *Dallas, Texas*
Parsons, Richard Lewis . . . *Ada, Oklahoma*
Parsons, Robert Lowrey . . *Houston, Texas*
Patterson, Jack . . . . . *Merkel, Texas*
Perry, William Cox . . . . *Houston, Texas*
Peterson, Mary Beth . . . . *Houston, Texas*
Petty, J. C., Jr. . . . . *Dallas, Texas*
Pfeiffer, Paul Edwin . . . . *Houston, Texas*
Phillips, Wendell Earl . . . *Houston, Texas*
Pike, Beuhring William, Jr. . *Houston, Texas*
Pilkenton, Ruth . . . . . *Houston, Texas*
Planchak, John . . . . . *Houston, Texas*
Platt, John Arthur, Jr. . . . *Houston, Texas*
Ploeger, Vernon Gideon . . . *Houston, Texas*
Pollak, Edward, Jr. . . . . *Houston, Texas*
Pope, Robert Parks . . . . *Houston, Texas*
Price, Sterling David, III . . *Houston, Texas*
Pyle, Loreen Imogene . . . *Houston, Texas*
Rack, Harold Armin . . . . *Waco, Texas*
Ramin, Fred Walter . . . . *Houston, Texas*
Reed, William Forsythe . . . *Houston, Texas*
Resch, Marie . . . . . *Houston, Texas*

Reuter, Pauline Julia . . . . *Houston, Texas*
Richter, Annie Ruth . . . . *Ennis, Texas*
Riordan, Robert Polk . . . *Houston, Texas*
Robbins, John Dana . . . . *Tulsa, Oklahoma*
Roberts, Bobbye Faye . . . *Houston, Texas*
Roberts, Lee Fermon, Jr. . . *Houston, Texas*
Roberts, Rosaline Wright . . *Houston, Texas*
Robinson, David Dean . . . *Houston, Texas*
Roddy, Thomas Carl, Jr. . . *Port Arthur, Texas*
Rogde, William James . . . *El Paso, Texas*
Rothstein, Rebecca . . . . . *Houston, Texas*
Ryall, Thomas Oswald . . . *Victoria, British Columbia, Canada*
Sakowitz, Louise . . . . . *Houston, Texas*
Scarborough, Helen . . . . *Houston, Texas*
Schaffer, Randolph Lee . . . *Rosenberg, Texas*
Scheffler, Cleophus Joseph . . *Yorktown, Texas*
Schild, Doris Lee . . . . . *Houston, Texas*
Schmidt, Margarete Lina Louise . . . . . *Fredericksburg, Texas*
Schramm, Weldon Alfred . . *Shiner, Texas*
Schutte, Henry John, Jr. . . *Houston, Texas*
Schwinn, Frederick Seaman . *Houston, Texas*
Scott, Floyd Logan, Jr. . . . *Houston, Texas*
Seale, Caroline Louise . . . *Houston, Texas*
Seale, William Wesley . . . *Seadrift, Texas*
Shapley, Anna Beth . . . . *Houston, Texas*
Sherman, Wanda Hill . . . *Pasadena, Texas*
Shindler, Callie Owen . . . . *Houston, Texas*
Short, Wendell Culp . . . . *Houston, Texas*
Simmons, Malcolm Cleveland *Houston, Texas*

Sinclair, James Alfred . . . *New Orleans, Louisiana*
Slataper, Felicia . . . . . *Houston, Texas*
Slater, Jean Miriam . . . . *Houston, Texas*
Smith, Anne Marie . . . . . *Fairbanks, Texas*
Smith, Cecil William . . . . *Houston, Texas*
Smith, Harold John . . . . *Port Arthur, Texas*
Smith, J. T., Jr. . . . . *Rotan, Texas*
Sparks, John Wesley . . . . *Houston, Texas*
Sparks, Meredith Morgan . . *Harlingen, Texas*
Spinks, John Le Grande . . *Crockett, Texas*
Spragins, Franklin Keller . . *Houston, Texas*
Sprague, Virginia . . . . . *San Francisco, California*
Steen, Frank William . . . . *Dallas, Texas*
Steinmann, Cora Marie . . . *Houston, Texas*
Stell, Jack Powell. . . . . *Houston, Texas*
Stephen, Rosanne . . . . . *Houston, Texas*
Sterling, Albert Alexander, Jr. *Houston, Texas*
Stern, Henry Adolph, Jr. . . *Demopolis, Alabama*
Stockdick, W. C., Jr. . . . . *Katy, Texas*
Stockton, Jane . . . . . *Houston, Texas*
Stoneburner, Clarence Willis . *Texas City, Texas*
Strozier, Mary Margaret . . *Houston, Texas*
Sullivan, Eleanor Katherine . *Houston, Texas*
Talley, Homer Carroll. . . . *Dallas, Texas*
Talley, William Henry, Jr. . *Houston, Texas*
Tebbs, Judith Cowne . . . . *Houston, Texas*
Thornton, Virginia Marion . *Houston, Texas*
Tittle, Sarah Martha . . . . *Houston, Texas*
Townley, Lucille Frances . . *Houston, Texas*
Tsanoff, Katherine . . . . . *Houston, Texas*
Tungate, Mace, Jr. . . . . *Houston, Texas*

Turbeville, Kathryn Elizabeth *Houston, Texas*
Turner, Margaret Ann . . . *Houston, Texas*
Vale, Wylie Walker . . . . *Houston, Texas*
Vawter, Jean Ray . . . . . *Houston, Texas*
Verlander, Edith . . . . . *Houston, Texas*
Vickers, Thomas Francis . . *Fort Worth, Texas*
Vineyard, Robert Hawes . . *Wharton, Texas*
Volkmann, Edmund Russell *Houston, Texas*
Waddell, David Lewis. . . . *Houston, Texas*
Wagner, Urban Harry, Jr. . *Houston, Texas*
Wallace, Elmer Martin . . . *Eagle Lake, Texas*
Wallace, Marie Marrast . . *Houston, Texas*
Walthall, Louise Charlotte . *Houston, Texas*
Warren, Margaret . . . . . *Houston, Texas*
Watkin, Florence Rosemary . *Houston, Texas*
Wertheimer, Haskell Maurice. *Houston, Texas*
Westcott, Hoyt Sloan, Jr. . . *Dallas, Texas*
Weyrich, Mary Jane . . . . *Houston, Texas*
White, John Michael . . . . *New York, New York*
Wiebusch, Walter Clifford . . *Houston, Texas*
Williams, Bob Moroney . . . *Houston, Texas*
Williams, Dorothy Virginia . *Houston, Texas*
Williams, William Edward . *Houston, Texas*
Williamson, Jane Winifred . *Houston, Texas*
Witte, Frank Davis . . . . *Houston, Texas*
Wolfle, Calvin Edward . . . *Houston, Texas*
Wood, Willard K. . . . . *Houston, Texas*
Worley, James Ellis . . . . *Brownsville, Texas*
Wright, Byron Terry . . . . *De Leon, Texas*
Young, Henry Ben, Jr. . . . *Houston, Texas*
Zylicz, Dorothy Georgia . . *Houston, Texas*

ANNOUNCEMENTS

FRESHMEN*

Adams, David Bain . . . . *Galveston, Texas*
Ahlrich, Edward Will . . . . *Houston, Texas*
Allen, Marguerite Faye . . . *Houston, Texas*
Álvarez, William López . . . *Houston, Texas*
Ames, Richard Henry . . . *Houston, Texas*
Anderson, Clarence Lloyd, Jr. *Bellaire, Texas*
Anderson, Haydee Lorraine . *Houston, Texas*
Armstrong, John Gilbert . . *Houston, Texas*
Arnold, Billie Gene . . . . . *Houston, Texas*
Arnold, Edwin . . . . . *Houston, Texas*
Arthur, Harry Sinclair . . . *Houston, Texas*
AttKisson, Laurie Minnie B. *Houston, Texas*
Axton, James Willis. . . . . *Coffeyville, Kansas*
Bains, Robert Reese . . . . *Baytown, Texas*
Bakke, Oliver Mathias . . . *Houston, Texas*
Barnard, James Lawrence . . *Corpus Christi, Texas*
Barrett, Robert Nicholas . . *Houston, Texas*
Bartmess, Thomas Edgar . . *Houston, Texas*
Barton, Marguerite Ruth . . *Houston, Texas*
Beckenbach, Fred Elizabeth . *Dallas, Texas*
Beeler, Audrey Elizabeth . . *Addicks, Texas*
Beeler, Reba Alice . . . . . *Addicks, Texas*
Bell, Calvin Oschar . . . . *Harwood, Texas*
Bell, John Floyd, Jr. . . . . *Houston, Texas*
Belton, John Dickerson . . . *Beaumont, Texas*
Benckenstein, Charles Height, Jr. . . . . *Vinton, Louisiana*
Bennett, Betty Bright. . . . *Houston, Texas*

*As classified October 1st, 1935.

Berkhoudt, Lambertus . . . *Buffalo, New York*
Berry, Jack Francis . . . . *Houston, Texas*
Berry, William Elbert, Jr. . . *Fort Worth, Texas*
Bethany, Mary Evangeline . *Houston, Texas*
Bethea, Samuel Rice . . . . *Houston, Texas*
Blanton, Benjamin Franklin . *Houston, Texas*
Blocker, Lee . . . . . *Houston, Texas*
Bloomquist, Beatrice Margaret *Houston, Texas*
Bonner, Frances Campbell . *Houston, Texas*
Boucher, Giles Walter . . . *San Antonio, Texas*
Brandt, Ruth Geraldine . . . *Houston, Texas*
Bratten, Jean Holman . . . *Houston, Texas*
Brewer, Lucile Sam . . . . *Houston, Texas*
Britton, Theodore Garfield. . *Houston, Texas*
Brogniez, Raymond Hector . *Houston, Texas*
Bromberg, Edward Samuel . *Dallas, Texas*
Brown, Jerry Alice . . . . . *Houston, Texas*
Browning, Joe Harlon . . . *Athens, Texas*
Browning, Robert Leuschner *Houston, Texas*
Bruce, George Ewing . . . . *Liberty, Texas*
Brummett, Joseph Daniel . . *Pine Bluff, Arkansas*
Bryan, Lucille Ann . . . . . *Houston, Texas*
Buddington, John Frederick . *Dallas, Texas*
Burchfield, Robert Howard . *Houston, Texas*
Burgess, Charles . . . . . *Houston, Texas*
Burklin, William Boyd . . . *Houston, Texas*
Burnham, Dorothy Alvinee . *Houston, Texas*
Burns, Albert Leroy, Jr. . . *Houston, Texas*
Burns, William Rual . . . . *Dallas, Texas*
Burton, Royce Lyle . . . . *Houston, Texas*
Bush, John William . . . . *Waco, Texas*

Butler, Thomas Robert . . . *Longview, Texas*
Cage, Ben Jack . . . . . *Houston, Texas*
Caldwell, Annie Mary . . . *Houston, Texas*
Caldwell, Charles Buford . . *Farwell, Texas*
Calma, Victor Charles. . . . *Houston, Texas*
Campbell, Alfred Towles . . *Houston, Texas*
Carmichael, Richard Alvin . *Millis, Massachusetts*
Carroll, Helen Elizabeth . . *Baytown, Texas*
Carter, Donald James . . . *Houston, Texas*
Carter, Joseph John . . . . *Houston, Texas*
Carter, Mary Frances . . . *Houston, Texas*
Chambers, John Sherman, Jr. *Omaha, Nebraska*
Childers, Phil, Jr. . . . . *Dalhart, Texas*
Christian, Hugh Joseph . . . *Houston, Texas*
Christner, Herbert Drue . . *Fort Worth, Texas*
Church, Walter Lee, Jr. . . . *Houston, Texas*
Clark, Herman William . . . *Waskom, Texas*
Clark, Martha Sidney . . . *Houston, Texas*
Clay, Agnes Margaret . . . *Houston, Texas*
Cocke, Franke . . . . . *Liberty, Texas*
Coffee, Dan Eaton . . . . . *Vernon, Texas*
Colhoun, Charles Alexander . *Houston, Texas*
Collins, Francis Albert . . . *Houston, Texas*
Conners, Corroll Julius Motes *Houston, Texas*
Cooke, Robert Sidney . . . *Kansas City, Missouri*
Coons, Donald William . . . *Houston, Texas*
Corless, Florence Ann . . . *Houston, Texas*
Correvon, Marjorie Ann . . *Houston, Texas*
Couger, Quincy . . . . . *Bunger, Texas*
Craddock, William Percival . *Houston, Texas*
Crain, Catherine . . . . . *Houston, Texas*

Crawford, Dawn Constance . *Houston, Texas*
Craymer, Loring G., Jr. . . . *Houston, Texas*
Daugherty, F. Martin, Jr. . . *San Antonio, Texas*
Davis, Annie Pearl . . . . . *Houston, Texas*
Davis, Elisabeth King. . . . *Houston, Texas*
Dawson, David Duncan . . *Houston, Texas*
Debney, Karl Brown . . . . *Jasper, Texas*
Denbrock, William Augustus *Cleveland, Ohio*
Denman, Mary Anne . . . . *Lufkin, Texas*
Diener, Milton Lawrence . . *Houston, Texas*
Dodson, Joseph Jackson . . *Houston, Texas*
Domingue, Aaron. . . . . *Houston, Texas*
Dowlearn, A. C. . . . . *Houston, Texas*
Dreyer, John Reichert . . . *Houston, Texas*
Dyer, Robert Dreer . . . . *Houston, Texas*
Eckert, Mary Alice . . . . . *Houston, Texas*
Ehrhardt, Catherine Elizabeth *Houston, Texas*
Ellington, John Austin . . . *Brownsville, Texas*
Elliott, Drew Mundel . . . *Normangee, Texas*
Elliott, Ruth Marthalynn . . *Houston, Texas*
Eschenfelder, Alfred . . . . *Houston, Texas*
Evans, George Keiser . . . . *Pasadena, Texas*
Evans, Robert Lee . . . . . *Houston, Texas*
Fallwell, John, Jr. . . . . *Dallas, Texas*
Fasullo, Frank Joseph . . . *Houston, Texas*
Ferguson, James Hollister . . *Dallas, Texas*
Finger, Joseph Seifter . . . *Houston, Texas*
Fischer, Herbert Francis . . *Houston, Texas*
Fish, Harry Alexander . . . *Okolona, Mississippi*
Flanagan, Frances Irene . . *Houston, Texas*
Flemister, William Dunbar . *Dallas, Texas*

Folsom, Alfred Iverson . . . *Dallas, Texas*
Foote, Kathryn . . . . . *Houston, Texas*
Forristall, George David. . . *Houston, Texas*
Foster, Juanita Murel . . . *Houston, Texas*
Foulks, Alice Cary . . . . . *Houston, Texas*
Frame, Wilma Clifton . . . *Houston, Texas*
Francis, Edward Lysaght . . *Dallas, Texas*
Friery, Thomas Wilson . . . *Madisonville, Texas*
Ganchan, Richard Price . . . *Beaumont, Texas*
Gartner, Donald Heywood . *Houston, Texas*
Gassiot, Rankin Arseine . . *Livingston, Texas*
Gay, Rita Claire . . . . . *Houston, Texas*
Glauser, Harry Joseph . . . *Houston, Texas*
Goldhirsh, Simon Seymour . *Galveston, Texas*
Gooch, Frank Branch, Jr. . . *Houston, Texas*
Graham, Fred Thomson . . *Houston, Texas*
Grant, David Norvell Walker,
Jr. . . . . *Randolph Field, Texas*
Grissom, Joseph Bryan . . . *Houston, Texas*
Grubbs, Oscar Columbus . . *Houston, Texas*
Guinn, Alliene . . . . . *Houston, Texas*
Haggard, Eugene . . . . . *Ponca City, Oklahoma*
Haggard, Samuel Edward . . *Ponca City, Oklahoma*
Hail, Mary Virginia. . . . . *Houston, Texas*
Hairston, John Frank . . . . *Houston, Texas*
Hall, Donald Lewis . . . . . *Tulsa, Oklahoma*
Hall, John Dorrance . . . . *Houston, Texas*
Hamill, Frances Annetta . . *Houston, Texas*
Hamilton, Julian Price . . . *Houston, Texas*
Hancock, Paul Clement . . . *El Campo, Texas*
Hanks, Jackson Holcomb . . *Palestine, Texas*

Hanna, Richard Taylor, Jr. . *Brownwood, Texas*
Hanna, William Hughes . . *Alvord, Texas*
Hannah, Mary Bloomfield . . *Houston, Texas*
Hardwick, George King . . . *Houston, Texas*
Hargrove, Robert Clyde . . *Houston, Texas*
Haskins, Sylvia Jewel . . . *Pearland, Texas*
Hayes, Albert Harvey . . . *Houston, Texas*
Hayes, Chester Anthony . . *Houston, Texas*
Hayes, Jack . . . . . *Graham, Texas*
Heaps, Stanley Newton . . . *Houston, Texas*
Heidler, Gilbert Lee . . . . *Houston, Texas*
Helton, John Burke . . . . *Houston, Texas*
Henderson, Charles George . *Alton, Illinois*
Henry, Mary Elizabeth . . . *Houston, Texas*
Henslee, Jess Elbert . . . . *Beaumont, Texas*
Herzik, Charles Erwin . . . *Schulenburg, Texas*
Hewett, Nelson Boone . . . *Dallas, Texas*
Hill, George Russell, Jr. . . *Denison, Texas*
Hill, Maurice . . . . . *Houston, Texas*
Hill, William Glass . . . . . *Dallas, Texas*
Hillyer, Eddie . . . . . *Rosenberg, Texas*
Hines, Jess Willard . . . . . *Simsboro, Louisiana*
Hirsch, Joseph Emerson . . *Houston, Texas*
Holden, William John . . . *Mexico, D. F.*
Holleman, Bessie Louise . . *Houston, Texas*
Holt, Ann Dexter . . . . . *Houston, Texas*
Houston, William Lynnville, Jr. *Houston, Texas*
Huckett, Dorothy Eleanore . *Houston, Texas*
Huegel, Andrew Edward . . *Houston, Texas*
Hueter, Anne Elizabeth . . . *Houston, Texas*
Hunn, Ruth Russell . . . . *Houston, Texas*

Hunter, Sibyl Lenora . . . . *Pasadena, Texas*
Hyman, Max, Jr. . . . . *Houston, Texas*
Ivey, James Monroe, Jr. . . *Houston, Texas*
Jackson, Guy William . . . *San Antonio, Texas*
Jackson, Herbert Brooks . . *Houston, Texas*
Jackson, Thomas Hardy, Jr. . *La Porte, Texas*
Jahn, Charles Birks . . . . *Houston, Texas*
Jerome, Herbert Elliot . . . *Tulsa, Oklahoma*
John, John Spaulding . . . . *Houston, Texas*
Johnson, Artelle Katherine . *Houston, Texas*
Johnson, Chrest Bernhardt, Jr. *Houston, Texas*
Johnson, Margaret Jean . . *Houston, Texas*
Johnson, Tiffin Elmore, Jr. . *Houston, Texas*
Johs, Albert . . . . . *Palacios, Texas*
Jones, Robert Murph . . . . *Houston, Texas*
Junker, Evelyn Elizabeth . . *Houston, Texas*
Keck, David Richard . . . . *Marshall, Texas*
Keep, Harry A. . . . . *Dallas, Texas*
Kegg, David Champion . . . *Houston, Texas*
Kelley, Mary Anne . . . . . *Houston, Texas*
Kennerly, Thomas Lincoln . *Houston, Texas*
Kercheval, Leonard Ian, Jr. . *Houston, Texas*
Kilgore, Clarence Boyd . . . *Goose Creek, Texas*
King, Floy . . . . . *Houston, Texas*
Kirk, William Hennessee . . *Houston, Texas*
Kirkpatrick, Charles Verne . *Houston, Texas*
Kubricht, Theo James . . . *Wallis, Texas*
LaGrone, Max Huel . . . . *Port Arthur, Texas*
Landry, Matthew Andrew . *Port Arthur, Texas*
Lane, Frances Newland . . . *Palmyra, Missouri*
Larsen, Bobby Boyd . . . . *Shreveport, Louisiana*

Laurence, Ernie Leo . . . . *Thornton, Texas*
Leigh, Richard Eugene, Jr. . *Houston, Texas*
Leiper, William Harper . . . *Fort Worth, Texas*
Letscher, Carl Edward . . . *Port Arthur, Texas*
Lewis, Clarence Irwin . . . *Texas City, Texas*
Liles, John Earthman . . . *Conroe, Texas*
Long, Henry Clifford . . . . *Houston, Texas*
Loos, Helen Margaret . . . *Bay City, Texas*
Lord, Elizabeth Florence . . *Houston, Texas*
Lotz, John Shields, Jr. . . . *Houston, Texas*
Low, Billy D. . . . . *Fort Worth, Texas*
Lyttleton, Donald . . . . . *Houston, Texas*
McCardell, Margaret Kenon . *Houston, Texas*
McCarty, Douglas Lavern . *Houston, Texas*
McConnell, Olga Orline . . . *Houston, Texas*
McKee, Robert Alexander . . *Lake Charles, Louisiana*
McKee, Ross . . . . . *Anten Mills, Ontario, Canada*
McNeill, Durward B. . . . . *Sinton, Texas*
McNellie, Lucile Josephine . *Houston, Texas*
Major, Jack Wesley . . . . *Houston, Texas*
Maniscalco, James . . . . . *Houston, Texas*
Mark, George . . . . . *Houston, Texas*
Marsh, Harold, Jr. . . . . *Tyler, Texas*
Martin, John Calhoun . . . *Cameron, Texas*
Martin, Maurine Lafava . . *Almeda, Texas*
Masterson, Thomas G., Jr. . *Henderson, Texas*
Mathews, S. J., Jr. . . . . *Plano, Texas*
Mau, Fredric Eugene . . . . *Houston, Texas*
Mechler, Floyd Alfred. . . . *Hondo, Texas*
Merriman, James Elton . . . *Houston, Texas*

Meyer, Lucille Rucker . . . *Houston, Texas*
Meyer, Virginia Mignonne . *Houston, Texas*
Meyers, Dean Mortimer . . *Houston, Texas*
Middleton, Eric Edwin . . . *Pasadena, Texas*
Miller, Ada Frances . . . . *Houston, Texas*
Miller, Frederick Eugene . . *Dallas, Texas*
Miller, George Van Zandt . . *Big Spring, Texas*
Miller, Robert Joshua . . . *Houston, Texas*
Mills, Arthur Douglas . . . *Ponca City, Oklahoma*
Mills, Marvin Kenneth . . . *Fort Worth, Texas*
Montgomery, Elizabeth
Roberta . . . . . *Houston, Texas*
Montgomery, Foster Wilkerson *Houston, Texas*
Moody, Dan M. . . . . *Houston, Texas*
Moon, George Ravell . . . . *Port Arthur, Texas*
Morgan, Worster Miles . . . *Dallas, Texas*
Morris, Henry Madison . . . *El Paso, Texas*
Morris, Mary Beth . . . . . *Houston, Texas*
Moser, Charles Frank . . . *De Kalb, Texas*
Moser, Willard William . . . *Abilene, Texas*
Mott, Evye Margaret . . . *Houston, Texas*
Mounce, Buford Redmond . *Houston, Texas*
Mowery, Dorothy Elizabeth . *Houston, Texas*
Mowery, Ethyl Lois . . . . *Houston, Texas*
Moyer, Robert Irving . . . *Fort Plain, New York*
Much, Roy Donald . . . . *Alvin, Texas*
Mudgett, William Alan . . . *Henderson, Texas*
Murphy, Robert Joseph . . *Beaumont, Texas*
Muse, James Milton . . . . *Houston, Texas*
Myers, Barbara Maxine . . *Houston, Texas*
Myers, Charles Edward . . . *Houston, Texas*

Naschke, John Hess . . . . *Houston, Texas*
Neeld, Harvey Jackson . . . *Houston, Texas*
Nemir, Ruth . . . . . *Navasota, Texas*
Nethery, Harriet Jane . . . *Houston, Texas*
Noyes, Baldwin Dow . . . . *Dallas, Texas*
Oberholz, Marian Adele . . . *Houston, Texas*
O'Brien, Chris, Jr. . . . . *Shreveport, Louisiana*
O'Kelley, Mary Lucille . . . *Houston, Texas*
Oldham, Oliver Gordon . . . *Houston, Texas*
Olivari, Elizabeth Alicia . . *Houston, Texas*
Palmer, Charles Alfred . . . *Houston, Texas*
Palmer, Jeanne Eloise . . . *Houston, Texas*
Pappas, Argero Efstratios . . *Houston, Texas*
Parish, Walter Alvis . . . . *Houston, Texas*
Parker, Herbert Bryce, Jr. . *San Antonio, Texas*
Parlette, John Robert . . . *Houston, Texas*
Pearlstone, Julius Hart, Jr. . *Dallas, Texas*
Perkins, Mildred . . . . . *Houston, Texas*
Perryman, Butler . . . . . *Houston, Texas*
Peters, John Emmett . . . . *Houston, Texas*
Phillips, James Olcott . . . *Fort Worth, Texas*
Phillips, Robert Lee . . . . *Houston, Texas*
Picton, Martha Ann . . . . *Houston, Texas*
Pierce, Elizabeth Fillmore . . *Houston, Texas*
Pierson, Andrew Luke, III . *Houston, Texas*
Pillot, Katharine Camille . . *Houston, Texas*
Poorman, Elizabeth Ann . . *Houston, Texas*
Pope, Joseph Alvin . . . . . *Houston, Texas*
Price, Herman Dee . . . . . *Dallas, Texas*
Pullen, Thomas F. . . . . *Goose Creek, Texas*
Purcell, William Robert . . . *Mattoon, Illinois*

Quinby, Mary Jane . . . . *Houston, Texas*
Rau, Charles Brooks . . . . *Houston, Texas*
Ray, William Harold . . . . *Houston, Texas*
Redman, Freda Lee . . . . *Crowley, Louisiana*
Redman, William Clark . . . *Houston, Texas*
Reeder, Allen Dean . . . . *Houston, Texas*
Reilly, Lawrence Joseph . . *Baytown, Texas*
Rembert, Hannah Juanita . . *Houston, Texas*
Reynolds, Dorothy Catherine *Houston, Texas*
Reynolds, Herman LaFayette, Jr. . . . . *Houston, Texas*
Rheinlander, Clarence Ernest *San Antonio, Texas*
Rhodes, Tom Burton . . . . *Dallas, Texas*
Robinson, Garland John . . *Houston, Texas*
Robinson, Glenn William . . *Houston, Texas*
Rodgers, Walter Crutcher Leroy, Jr. . . . . *Houston, Texas*
Roe, Ralph Porter . . . . . *Frederick, Oklahoma*
Rogers, Jimmie D. . . . . *Greenville, Texas*
Roome, Walter Cecil . . . . *Louise, Texas*
Russell, Jack Robinson . . . *Hereford, Texas*
Rylander, Clanton, Jr. . . . *Goliad, Texas*
St. John, Henry Hallam . . *Temple, Texas*
Salmeron, Pedro . . . . . *Houston, Texas*
Sample, Harry Milton, Jr. . *Houston, Texas*
Sanders, Paul Hurshel. . . . *Oklahoma City, Oklahoma*
Saunders, David Houston . . *Dallas, Texas*
Saunders, James Robert . . *Houston, Texas*
Sawtelle, Fred Glynn . . . . *Houston, Texas*
Scarborough, Daniel Culpepper, III. . . . . *Shreveport, Louisiana*

Scarbrough, Gilda Juanita . . *Houston, Texas*
Schnell, Mary Catherine . . *Houston, Texas*
Schroeder, Maurice Julius . . *Monterrey, Nuevo Leon, Mexico*
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