tial to the public welfare; (b) will be applicable in actual practice, and (c) can be applied in time to meet the nation's needs. The essays must be based not on hypothetical assumptions, but on the actual situation in the United States to-day.

(2) The essays must be typed and must not exceed 3,000 words, exclusive of a summary of conclusions which should be presented at the beginning of the paper.

(3) The contest is open to any individual who desires to compete.

(4) Essays should not be signed by the author's real name but by a pseudonym. This pseudonym should be placed on the outside of an envelope containing the author's real name and transmitted with the essay.

(5) The winning essays shall be published in the *Journal of Forestry*. The Committee of Award shall have the right to select from the other essays those which it deems worthy of publication and they will be published also in the *Journal of Forestry*. The remainder of the essays will be returned to the authors if they request their return and provide postage.

(6) The Committee of Award reserves the right to withhold the prize providing no essays which are in its judgment worthy of the award are received.

(7) All essays submitted in the contest should be forwarded to either of the two members of the Committee of Award, namely, S. T. Dana, School of Forestry and Conservation, University of Michigan, Ann Arbor, and Raphael Zon, Lake States Forest Experiment Station, University Farm, St. Paul, Minnesota, in time to reach them not later than September 30. The awards will be announced at the annual meeting of the Society of American Foresters in December, 1929.

P. G. REDINGTON,
President of the Society of American Foresters

WALTER RATHBONE BACON SCHOLARSHIP

UNDER the terms of the will of the late Virginia Purdy Bacon, of New York, the Smithsonian Institution some years since was bequeathed the sum of $50,000 to establish a traveling scholarship as a memorial to her husband, Walter Rathbone Bacon, for the study of the fauna of countries other than the United States. The amount available is the interest on the capital invested (about $3,000 a year), the incumbent to hold the scholarship not less than two years.

The institution has decided to offer an additional scholarship in 1929.

Applications for this scholarship, addressed to the secretary of the Smithsonian Institution, should be submitted not later than April 15. The application should contain a detailed plan for the proposed study, including a statement as to the faunal problems involved; the reasons why it should be undertaken; the benefits that are expected to accrue; the length of time considered necessary for the carrying out of the project; the estimated cost, and the scientific and physical qualifications of the applicant to undertake the project.

The scholarship will be awarded for a term of two years. If at the expiration of the term it is desired to extend the time, the incumbent shall make application a sufficient time in advance, accompanied by a statement as to the necessity for such extension.

All collections, photographs, records and equipment become the property of the institution.

The incumbent shall not engage in work for remuneration or receive salary from other sources than the institution or its branches during the period of occupancy of the scholarship.

C. G. ABBOT,
Secretary

RESEARCH ON THE ALLOYS OF IRON

AN extended research in alloys of iron is planned by the Engineering Foundation in cooperation with the American Institute of Mining and Metallurgical Engineers.

The industries, universities and technical schools, bureaus of the United States government, scientific organizations and foreign agencies will aid. Practically all industries are affected. The initial task is a critical five-year review of all available literature in English and other languages, resulting in a series of monographs and manuals, which will be published at a cost of $150,000.

Following a conference of representatives of makers and users of irons and steels, technical societies, government bureaus and universities, headed by J. V. W. Reynders, a committee on alloys of iron research has been appointed. The chairman is Dr. John Johnston, director of research and technology of the United States Steel Corporation. Other members of the committee are: F. M. Becker, president of the Union Carbide and Carbon Research Laboratories; H. W. Gillett, chief of the division of metallurgy, U. S. Bureau of Standards; James T. MacKenzie, metallurgist and chief chemist of the American Cast Iron Pipe Company; A. J. Wadhams, manager of research and development of the International Nickel Company.

Mr. Alfred D. Flinn, of the Foundation, has issued a statement in which he points out that "the future progress of the American iron and steel industry will be greatly affected by its ability to maintain a strong position in alloy irons and steels. It has taken forty or fifty years to develop the present state of the art for carbon steels through contributions from time to time by those engaged in iron and steel manufactures. The world is moving too fast to await a similar deliberate development for alloy irons and steels. The time appears opportune for cooperative research to be

devoted largely to the fundamentals, leaving the individual companies to build upon this substructure their own specific technical developments." The American Institute of Mining and Metallurgical Engineers is cooperating in the development of this new project.

The second phase of the program, which, it is expected, will extend over a long period of years, will be research directed toward increasing fundamental knowledge of iron and its combinations with other substances, particularly alloys of pure iron with one or two or three or more other pure metals; also the effects of the impurities incident to practical operations.

For other research the foundation has appropriated $10,000. At Lehigh University, Professor Bradley Stoughton is investigating combinations of silicum with iron. At the Carnegie Institute of Technology, Pittsburgh, Professor V. N. Krivobok is studying combinations of manganese with iron.

CHEMICAL EDUCATION AT THE JOHNS HOPKINS UNIVERSITY

THE numerous inquiries about the chair of chemical education, provided by Francis P. Garvan, president of the Chemical Foundation, seem to warrant a few preliminary remarks at this time. This chair has been established in the department of chemistry of the Johns Hopkins University and has for its primary objective the promotion of chemistry through chemical education. The principal project being investigated at the present time is connected with the regular chemical work of the scholastic year.

During the scholastic year, there is a program of study in the selection and education of prospective leaders in the field of chemistry. In the study to be pursued, emphasis is to be laid equally upon the selection of men to be trained and the training of men selected. In order to limit the project and, at the same time, to place it upon a truly national basis, the plan adopted makes ultimate provision for one student from each of the forty-eight states. Selection is to be made from the sophomore, junior or senior classes of the colleges and universities of the respective states. The time of selection is indicated by the desirability of obtaining students as soon as possible after they have had reasonable opportunity to determine the field in which they desire to specialize. It is, furthermore, in harmony with the present plan of the Johns Hopkins University, which affords the student an opportunity to acquire the Ph.D. degree in a minimum of four years after the completion of the sophomore year.

The selection is accomplished through state committees which evaluate the student's complete previous scholastic record and the following personal qualities as rated by his instructors: health, ability to cooperate, creative ability, intellectual honesty, persistency, faculty of observation, enthusiasm, initiative, reliability, conduct, morality, scholarship.

As an assurance that men of unusual promise shall not be debarred by lack of funds, a four-year fellowship of one thousand dollars annually will be offered in each state.

Among the fellowships to be thus offered are those established by: The Eli Lilly Company, of Indianapolis, Indiana; The J. T. Baker Chemical Company, of Phillipsburg, New Jersey; The Firestone Tire and Rubber Company, of Akron, Ohio; Dr. H. A. B. Dunning, of Hynson, Westcott and Dunning, Baltimore, Maryland; Bill Raskob Foundation, Wilmington, Delaware; Kewaunee Manufacturing Company, Kewaunee, Wisconsin; Francis P. Garvan, New York, N. Y.; Brown Company, Portland, Maine; Brown Company, Berlin, New Hampshire.

In the training of these selected men, fundamental courses in mathematics, physics and English, as well as the four major branches of chemistry (inorganic, organic, physical and analytical), will be emphasized. There will be no attempt to specialize in the various applications of chemistry. The elective system of study for the student is under an advisory committee of the department.

An explorative opportunity will be offered in the teaching of chemistry and in industrial work to determine the line of work for which the student is best fitted.

Those who choose teaching as a profession will have the opportunity of taking four subjects in addition to the regular curriculum for a Ph.D. degree in chemistry. The subjects are: educational psychology, philosophy of education (or history of education), theory and practice in chemical education and comparative study of chemical development. These subjects will be presented with a view to fitting the candidate to teach in colleges or universities. The satisfactory completion of these subjects will be rewarded by a certificate, which will be given in addition to the Ph.D. degree in chemistry.

In addition to pursuing the fundamental curriculum above outlined, the students will have the opportunity of coming into personal contact with leading European and American chemists through a series of special lectures, means for which have been provided by Dr. A. R. L. Dohme, of Sharpe and Dohme, Baltimore, Maryland.

SCIENTIFIC NOTES AND NEWS

DR. W. W. KEEN, emeritus professor of surgery at the Jefferson Medical College, celebrated his ninety-second birthday on January 19. An Associated Press dispatch reports that on February 13 Dr. Keen un-