

vision, under the act of April 21, 1910, vesting control in the hands of the secretary of commerce and labor. The fur-seal and salmon fisheries have been for years under federal control, and are now taken out of the division of scientific inquiry, unifying under one head the whole Alaskan service. The new division has a total personnel of 25 persons and an annual salary appropriation of \$41,530. Of the personnel, eleven positions are new ones and consist of the chief, an assistant chief, three clerks, one assistant salmon agent, one warden and four deputy wardens. The increases apply mainly to the fur-bearing animals and the salmon fisheries, the fur-seal service having received in the year preceding additions to its personnel, made necessary by the expiration of the lease of the Pribilofs and the taking over by the government of the entire business of taking and selling seal-skins. The chief of the Alaska Fisheries Service will be Dr. Barton W. Evermann, for eight years chief of the Division of Scientific Inquiry. Dr. H. F. Moore, for eight years principal scientific assistant in the Division of Scientific Inquiry, succeeds Dr. Evermann as chief of that division. Mr. M. C. Marsh remains as chief Alaska salmon agent and Mr. Walter I. Lembkey as chief fur-seal agent.

#### UNIVERSITY AND EDUCATIONAL NEWS

THROOP POLYTECHNIC INSTITUTE, Pasadena, Cal., has received for endowment four gifts aggregating a quarter of a million dollars. The largest is \$150,000, there is one of \$50,000, and there are two of \$25,000 each. The income becomes available after July 1, 1911.

MR. JAMES A. PATTEN has added \$50,000 to the \$200,000 which he had given to the Northwestern Medical School for the study of tuberculosis.

A BUREAU of research in municipal government is to be established at Harvard University, to be maintained by a gift of \$2,500 a year for ten years offered by Mr. Frank Graham Thomson, of the class of 1897, and Mr. Clarke Thomson, of the class of 1899, both of Philadelphia, Pa. Professor W. B.

Munro is to direct the work of the bureau. In connection with this bureau material bearing on national and state government is to be collected, the work to be maintained by an anonymous gift of \$1,000 a year for five years; Dr. Arthur N. Holcombe, instructor in government, is to be in charge.

MISS MARY ANNE EWART has bequeathed £20,000 to Newnham College, Cambridge, for scholarships for women students and £10,000 to Somerville College, Oxford, for like purposes.

NORTHWESTERN UNIVERSITY has arranged an architectural competition for the development of the university campus. It is proposed to erect at once dormitories costing \$150,000 and in the near future an academic building costing about \$180,000.

THE upper wall of the west tower of the William Rainey Harper Memorial Library, in course of construction at the University of Chicago, has fallen, demolishing the interior of the tower from top to bottom. The loss, which falls on the contractors, is estimated at \$50,000.

PLANS for the first summer session of the Johns Hopkins University have been announced. Work will begin on July 5 and will last six weeks.

THE Nebraska legislature, reversing a previous vote, has permitted the University of Nebraska to apply for admission to the benefits of the Carnegie Foundation.

BOWDOIN COLLEGE proposes to adopt a plan for admission to college similar to that of Harvard. Students are required to present a record of their school studies and to pass an examination in four subjects only.

DR. L. H. MURLIN, president of Baker University, has accepted the presidency of Boston University.

MR. WILLIAM J. DUPPERT, of the United States Forestry Service, has been appointed instructor in forestry at the University of Nebraska to take part of the work of the late Professor Frank J. Phillips.

MR. A. FRANKLIN SHULL, assistant in zoology in Columbia University, has been appointed acting assistant professor of zoology at the University of Michigan, to succeed Dr. A. S. Pearse, who has gone to the University of Manila.

MR. DUNHAM JACKSON, now studying at Göttingen on a Harvard traveling fellowship, has been appointed instructor in mathematics at Harvard University.

At the Normal College, New York City, Charles T. Kirk, instructor, has been promoted to be assistant professor of geology, and Miss Emily O. Long, to be assistant professor of botany.

#### DISCUSSION AND CORRESPONDENCE

##### THE METHOD OF SCIENCE, A REPLY

A RECENT number of *SCIENCE* (January 27, 1911), has a forceful address by Dr. Minot on the "Method of Science." It is a new presentation of a topic fully discussed from the attitude of pre-evolutionary thought, but in such a manner and from such premises that its logic can not serve as a basis of present problems. I do not have the feeling of disrespect for the old thought that Dr. Minot seemingly has, but I agree with him that its principles and methods give little help in solving the problems science now faces. But at this point our differences begin, for in his restatement of principles, admirable as it is, he cuts the ground from under the social sciences by putting up standards that they can not meet. I do not think he meant to do this, yet the feeling he shows against the old philosophy warrants the inference that he would pass a similar judgment on the results of social science.

A new statement of the laws of thought is certainly needed. Early logic was devised by the theologians to prove the existence of supersensual units. As instruments for this end the so-called laws of thought are effective. But we need other rules to solve present problems. Not only is this so, but the methods of investigation have been so altered during the past fifty years as to create new problems. Accurate measurements are a new device.

There were cases of accurate measurement before the present epoch, but they were not numerous enough to create a peculiar type of reasoning and thus to force a revision of the rules of logic.

The old division was between inductive and deductive logic. This controversy is now practically dead and in its place is arising one between inductions based on observation and those on experiment. Observations are generalizations under complex conditions, while experiment means isolation, simplicity of environment and accurate measurement. Workers in physical science distrust observations and demand in their place carefully verified results. This change is not a matter of theory, but due to practical situations faced by scientists in their various fields. The new medicine of which Dr. Minot is so good a representative gives an excellent illustration of the situation that forces him to attempt a reformulation of the laws of thought. The old practitioner was an observer: he diagnosed cases from symptoms. The new school experiments and measures. To say that science is exact measurement means practically to shut out the old physician who carried his knowledge in his head and whose office was not a chemical laboratory.

But if the laws of thought needed to shut diagnosis out of medicine are formulated as general laws, rules are set up that exclude all social judgments derived from observation. The tendency to do this is already visible in biologic sociology whose premises are taken bodily from biology. Bold deductions are made and conclusions drawn that sweep aside all generalizations based on observation. Here is a sample of reasoning of which we will have many more if Dr. Minot's rules of thinking win acceptance. I quote from a recent magazine article. "No generalization has ever exercised such a far-reaching effect on thought as the theory of natural selection. It is hardly necessary to point out that the corresponding belief in sociology is that all progress must come from the gifted individual, from the 'sport' who survives as the best of his kind. Darwinism lays stress not on the democratic