Australia, Missouri, New York, California, Idaho, Anaconda Copper Company, the Utah Coal Operators' Association, the Tourmaline King Mine, the Union Oil Company, the Mascot Copper Company, the After-thought Mining Company, the Noble Electric Steel Company, the Bunker Hill and Sullivan Company, the Hockensmith Wheel and Mine Car Company, the Concordia Safety Lamp Company, the Chicago Pneumatic Tool Company and Mrs. Phoebe A. Hearst.

UPON the occasion of moving into its new quarters, the department of chemistry of the University of Illinois has issued a bulletin containing complete information of the courses given. The bulletin contains also a history of the department and pictures of the different buildings it has occupied during its growth. It contains also a list of the students registered in the chemistry courses and all alumni of the department. This bulletin will be of service on the occasion of the meeting of the American Chemical Society during the week of April 17 to 21.

A STATUTE which makes a certain amount of research a necessary qualification for the honor school of chemistry at Oxford, has been approved in congregation. The professor of chemistry, Mr. W. H. Perkin, said the main object of the scheme was to secure that every undergraduate who desired a class in chemistry must have had a year's training in the methods of research. As a result they would be able to engage in independent research and would be of more value to the country whether they ultimately adopted a teaching or an industrial career.

THE faculty of the College of Physicians and Surgeons, of Columbia University, have unanimously voted in favor of the establishment of a dental department, to be connected with the medical school. A committee of prominent dentists of the city have presented plans to the medical faculty which have been approved. The course is to be four years.

AT Yale University, Dr. Rhoda Erdmann has been appointed lecturer in biology, for the year 1916–17, on the Sarah Berliner Foundation.

DR. FRANK BILLINGS, of Chicago, has been appointed visiting lecturer on medicine at Harvard University.

AT the University of Cambridge, Mr. S. W. Cole, of Trinity College, has been appointed university lecturer in medical chemistry, and Mr. C. S. Gibson, of Sidney Sussex College, assistant to the professor of chemistry.

DISCUSSION AND CORRESPONDENCE

SEMINARY COURSES IN THE HISTORY OF SCIENCE

THE question of giving more attention to the history of science in the training of scientific men, which has already been raised in recent issues of SCIENCE, is one which should not be allowed to pass without some tangible result in the form of new courses within that little exploited field. As one who at biennial periods has conducted a seminary in the history of geology, I may perhaps be permitted to draw attention to some of the special benefits, to both teacher and pupils, which are likely to accrue from such courses.

Most important, perhaps, of the results obtained are the following: (1) A wider knowledge of the entire field of the science together with the intimate interrelations of its several parts; (2) a comprehension of what may be termed the psychology of hypothesis-making and its dependence upon the local environment of the maker, upon pure analogy, upon the scientific vogue of the period, or upon the dominating influence of leading minds; (3) a greater caution in setting up new theories upon small evidence through learning of the number and the variety of earlier theories and the relatively small number of them which have survived the test of time; (4) the valuable and often wholly unexpected side-lights which are thrown upon problems within a special field by discoveries made in other fields which were perhaps thought to be but little related.

Of these benefits I am inclined to think that much the most valuable is (2)—the realization that the scientists, as well of to-day as of yesterday, are not essentially different from their

brother mortals in the avocations, but are subject to much the same weaknesses of mental bias growing out of their early training, their religious or other beliefs, the effects of dramatic demonstrations, or the emotional effects produced by oratory and clever sophistry, as contrasted with sound reasoning divorced from such considerations.

In this connection I should like to cite a few illustrations. Who will venture to measure the part played by the unique rings of the planet Saturn in determining the form of the nebular hypothesis of Laplace, until lately accepted doctrine though now shown to be untenable? Is it not easy to see that the doctrine of a solid "crust" above a liquid earth interior—a part of the nebular hypothesis—was set up and readily accepted because the theorist who devised it inhabited a region where water congeals during the winter season and floats upon its liquid equivalent—the analogy was carried over to the substance whose relative densities in solid and liquid form were not known, from analogy with a well-known substance. Only recently has it been definitely learned that congealed rock is heavier than its liquefied form. Again, the "centrum," or explosion, theory of earthquakes, which till recently held the center of the stage in seismology, can be traced to the fact that its founder was a builder of cannon, and acquired such prestige during the Crimean War through his knowledge of ballistics that he received unusual opportunities to study a famous earthquake under the Aegis of the powerful Royal Society of London. A secondary factor in the ready acceptance of his theory by physicists particularly, was his application of the brilliant studies of Huyghens on wave propagation. Examples might easily be multiplied in order to illustrate the controlling influence of fortuitous circumstances or of striking, as opposed to solid, arguments in determining the character of the body of accepted doctrine within a science. Each worker who has given attention to the subject, will surely have encountered similar illustrations within his own field, and I feel sure that if courses in the history of science were to be more generally undertaken, they would hardly be abandoned through any lack of interest.

Wm. H. Hobbs
University of Michigan,
March 7, 1916

DEMOCRATIC ORGANIZATION IN A COLLEGE DEPARTMENT

To the Editor of Science: The work of the Entomological Division of the Minnesota Agricultural College and Station has increased to such an extent in the past four years, that, on November 1, 1915, a reorganization of the division took effect. Two other divisions were placed on the same basis. The new organization is as follows:

The name of the division is changed to that of Economic Zoology. It is divided into four sections: (*A*) Economic Vertebrate Zoology, Professor F. L. Washburn in charge, who, as state entomologist, also conducts nursery inspection work and has charge of work with mill and warehouse insects and with Minnesota Hymenoptera. Mr. Washburn retains his title of professor of entomology in the University of Minnesota. (*B*) Spraying and Tree Insects, Associate-Professor A. G. Ruggles in charge. (*C*) Field Crop Pests and Parasites, Assistant Professor C. W. Howard in charge. (*D*) Greenhouse and Truck Crop Insects, Assistant Professor William Moore in charge.

The administration of the division lies in the hands of a committee composed of the heads of sections. The chairman of the committee (an executive position) is appointed annually by the dean of the college, with the approval of the president of the university and of the board of regents. Professor F. L. Washburn was appointed chairman for the present year. The position of chairman carries with it that of entomologist to the experiment station and a state law provides that the station entomologist shall be state entomologist.

This organization is rather a remarkable step in the direction of greater democracy in the management of a university department and may interest entomologists and other science workers in universities.

F. L. Washburn
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