psychogalvanic cycle shall be completed, and to a certain extent while it is being carried on. The galvanometers will be required for fundamental attacks on problems such as those of speech and thinking; and various accessory apparatus will also be essential or accessory for certain other problems of a lengthy and fundamental nature. What I really am proposing, therefore, is a national psychological laboratory, similar in some of its functions to the Bureau of Standards, but not under federal control. Such a laboratory can be under relatively permanent direction and can undertake programs of research too lengthy, too expensive and too complicated for other institutions. In such a laboratory truly cooperative results of the highest value can be obtained. Men working in other laboratories on details of the problems undertaken in the national laboratory could make arrangements to transfer their work there during a year's leave of absence, or in summers. Work done here can be subjected to criticism while in progress, instead of afterwards, and the cooperative method can insure greater certainty as to conditions. Such a national laboratory, I believe, could be of really inestimable advantage to psychology, not only because of its availability for the solution of problems unwieldy elsewhere, but because through it standards of research may be elevated.

The day of the isolated experimenter and of fragmentary problems is passing. Unless we find means of shaping our problems into coherent plans of larger unity; unless we find means of carrying out vital research and postponing the merely interesting; unless we can pool our constructive and critical abilities, we shall be out of step with the advance of scientific method.

Another of the troubles of laboratory psychology, not its last, but the last I will mention, concerns publication of research results. Publication at present is in an unsatisfactory position. Costs to authors for monographs are too high. Subscription prices to journals are too high. There are not enough journals, yet there are more than we can support. Under such conditions the tendency is to suppress data which might be valuable, and to publish conclusions which are usually worthless. Stuff is published which ought to be burned, and research which ought to be published sleeps in pigeonholes. Publication is on an unsatisfactory basis both commercially and scientifically. Publications of a sound type should be more generally supported by the company of psychologists individually. They can not be so supported until prices are reduced, and prices can not be reduced until wider support is given. Here we have the old problem of the irresistible force and the immovable body.

The problem of abstracting is closely allied with that of original publication. It is openly admitted that the present abstracting experiments in psychology and biology may not give the results which were hoped. Nor can we reasonably expect satisfactory results on the basis of amateur work. Unless we have a group of well-paid abstractors, with at least doctoral training in the fields they cover and giving their whole time to the work, the abstracting business will be a disappointment.

Now I am fully aware that my proposals are open to many objections. In the first place, they are dangerous. They seem to tend toward centralization of power which can dictate to institutions and individuals. Centralization, maybe; but dictation—fiddlesticks! On the contrary, the committees which should administer such trusts would be extremely unpopular, and would do as much good by stirring up attempts to do without their aid as they would through their aid. The administration would be incompetent, certainly; but it would not dare be as incompetent as our departments are. The greatest objection of all is this—the schemes are financially Utopian. There isn't that much money. Well, money is being spent at present on far less definite and less vital projects. We may not be able to get money, but if we see clearly the needs, and the benefits that would accrue from these plans, or from still better plans which you may suggest, then we are slackers in our duties if we do not present our case. That is all that I am interested in at the present moment.

KNIGHT DUNLAP
THE JOHNS HOPKINS UNIVERSITY

FREDERICK CHEEVER SHATTUCK[1]

A SHREWD and kindly judge of human nature, a whimsically humorous commentator on men and affairs, a wise physician rich in the learning derived from large experience, an impressive and stimulating clinical teacher, a far-sighted, enterprising and generous supporter of important new developments in medicine—these are some of the lasting impressions of Dr. Shattuck which lie deep in the memory of his colleagues in the Harvard Medical School.

His association with the Medical School was long and distinguished. Six years after his graduation in 1873, he was appointed clinical instructor in auscultation and percussion, and as instructor in those subjects and later in theory and practice he continued for nine years, until 1888. He then became Jackson professor of clinical medicine, a title which he honored

[1] Minute placed on the records of the Faculty of Medicine, Harvard University, at the meeting of February 1, 1929.

through twenty-four years of illustrious service. His amphitheater lectures and demonstrations at the Massachusetts General Hospital were model exercises, characterized by careful selection of instructive cases and by clear and definite emphasis on the most significant features in them—an emphasis reinforced by his own very wide acquaintance with the manifestations of disease. A playful humor which kept both the patients and the students in good spirits pervaded his informal clinical instruction. Frequently an apt quotation from the Bible or a pertinent literary reference left in the minds of the students an indelible record of the main points to be remembered. Dr. Shattuck was a great clinical teacher.

For more than a decade, from 1898 to 1909, he was a member of the important faculty committee on the course of study. His interest in efficient instruction led him to recognize not only the defects of the rotating service in the hospital, where each visiting physician was on duty only four months in the year, but also the possibilities of duplication and omission because of the existence of two separate departments in the Medical School, Clinical Medicine and the Theory and Practice of Physic, each teaching independently. Convinced that continuity of policy both in the hospital and in the Medical School was essential for medical progress and for reliable medical instruction, he heartily cooperated in a plan which gradually evolved into continuous service of a single directing head at the hospital and into one department of medicine in the Medical School. His foresight made possible the present satisfactory arrangements between the Medical School and the several hospitals in Boston where Harvard students are taught.

When in his sixty-fifth year Dr. Shattuck resigned the Jackson professorship, he had served the Medical School for a third of a century. He might reasonably have looked forward to years of comfortable retirement. That course did not suit his temper, however, and although a professor emeritus he was destined to continue in service for sixteen years more. During this later period he made in some respects his most distinctive contributions to the development of medical activities.

In 1913 it was proposed that a department of tropical medicine be established for an experimental period of five years, during which the desirability of its permanent continuance should be determined. With indefatigable industry Dr. Shattuck immediately undertook to raise the funds necessary for the favorable outcome of the venture. His good judgment and his wisdom were so well known in the community and his advice had been so often followed that his efforts were soon successful. Before the trial period was ended he himself generously endowed the chair of tropical medicine and thereby provided for its permanence. His interest in the cultivation of this field of medical undertaking, as evidenced by constant support and encouragement, continued to the end of his life.

The help which might be given by medical research to the industries of New England appealed to Dr. Shattuck's imagination, and in 1916 he collected a fund to be used during five years to demonstrate the usefulness of medicine in promoting the health of working people. A committee on industrial hygiene was created to administer the fund, with Dr. Shattuck as chairman. He concerned himself vigorously with the enterprise and was especially active in devising ways to render the skill and insight of medical investigators available for the solving of problems of industrial hazards. The valuable results of this experiment in the application of medicine to community welfare had large influence in the establishment of the Harvard School of Public Health.

Towards his intimate friends Dr. Shattuck showed a warm and devoted affection. It was typical of him that he paid his tribute to them in ways which both honored them and served noble ends. Out of a high regard for Dean Edsall he recently founded in his name a handsomely large revolving loan fund which will permanently provide financial assistance for students who otherwise could not obtain here a medical education. The names of two others, outstanding members of the medical profession in Massachusetts, will also be known to untold future generations because of his whole-hearted admiration. In 1910 he established the Henry Pickering Walcott Fellowship in Clinical Medicine, in 1913 the Arthur Tracy Cabot Fellowship in Surgery. Both fellowships have already proved of inestimable worth in providing opportunities for research by able young investigators.

Dr. Shattuck served the Harvard Medical School loyally for almost fifty years. As a teacher he insisted that his students should acquire sound knowledge and should adhere to high standards of practice. As a physician he had a rare insight into the nature of both the patient and the disease, a keen critical judgment and a skill in bringing comfort and cheer to the sick that was inimitably a display of his own genius. Courtesy, simplicity and directness of thought and speech, a penetrating humor, and utter frankness and sincerity stood forth as his most striking qualities. When with advancing years he might have been expected to grow fixed and reactionary, he showed the freshness and enthusiasm of youth; he seized eagerly upon new opportunities for promoting the progress of medicine and helped to bring them triumphantly to successful issues. By good fortune he was spared to us until nearly his eighty-second year, and when on

January 11 he passed away he left a memory of human character and of unselfish devotion to professional ideals which we who were privileged to know him shall long cherish.

WALTER B. CANNON,
HENRY A. CHRISTIAN,
RICHARD P. STRONG,
Committee

SCIENTIFIC EVENTS

BRITISH SOLAR ECLIPSE EXPEDITIONS[1]

THERE will be a total eclipse of the sun on May 9, at 6 o'clock in the morning by Greenwich time, invisible in any phase in England, but to be seen as a total eclipse from a track that lies in the Indian Ocean south of Madagascar, in the west, and crosses Sumatra, the Malay States, Siam, Cambodia and the Philippines, in the east. In these eastern regions the sun will be high in the sky and the duration of totality on the central line will be about five minutes. This long duration justifies the effort of making much preparation and a long journey for observation of the eclipse, and at the end of next week expeditions made up of observers from Greenwich and Cambridge will set out for that purpose.

Dr. John Jackson, chief assistant of the Royal Observatory, and Dr. Carroll, assistant director of the Solar Physics Observatory at Cambridge, will proceed to Alor Star, in Kedah, in the Malay Peninsula, where they will be joined later by Dr. Aston, of Cambridge. Professor F. J. M. Stratton, lately called to the chair of astrophysics in the University of Cambridge, who was the leader of an expedition to Sumatra to observe the solar eclipse of January 14, 1926, when the duration was about four minutes, will, accompanied by Mr. P. J. Melotte, of the Royal Observatory, Greenwich, occupy a station at Pattani, on the east coast of southern Siam, where they hope to have the help of Dr. Royds, director of the Observatory at Kodaikanal, southern India, and Colonel J. Waley Cohen, who took part with Professor Stratton in the eclipse of 1926.

At both places the experiment will be made to detect the Einstein effect of the bending of rays of light by the attraction of a massive body that they pass. In other words, the endeavor is made to find whether the relative positions of the individuals of a group of stars are precisely the same when the sun lies among them as when it does not, since by theory the supposed Einstein attraction is not the same for all of them. The answer to the question is looked for by photographing the stars that may be seen round the sun when the sky is darkened by eclipse, and comparing the result with a photograph taken some months later when they are seen in the night sky. To do this Dr. Jackson will take with him a telescope of comparatively small diameter, 7-inch, but of 21 feet focal length, to be used with a cœlostat, or rotating mirror, that will feed it with light from the celestial scene, the telescope itself remaining horizontal and stationary during the exposure of the plates.

At Pattani the instrument to be used for the same purpose is the Greenwich Astrographic telescope of 13-inch aperture and 11 feet focal length on an ordinary equatorial mounting. It is necessary in measuring the photographs when taken that their linear scale shall be accurately known, and to ensure this a program has been arranged for photographing not only the stars immediately round the eclipsed sun, but also a field a little distance away alternately, and several times during the precious five minutes—a task which will necessitate deft handling by the operators.

The combined program includes other tasks no less important, dealing with problems in solar physics—a study of the relative intensities of the lines H and K and the triplet X of ionized calcium in the infra-red, to test Professor Milne's theory of the calcium chromosphere; spectrophotometry of the chromosphere with a four-prism quartz spectrograph, formerly the property of the late Colonel Grove-Hills; determination of wave-lengths of lines in the corona and of its rotation and of the state of polarization of its light. It need scarcely be said that direct photographs of the corona with varying length of exposure and on varying scale will be taken if the weather permits, to continue the comparatively long series of these records that already exists.

[1] From the London *Times*.

THE FORESTRY PRIZE

A FRIEND of forestry, who wishes to remain anonymous, has given the Society of American Foresters (headquarters, Lenox Building, Washington, D. C.) $1,250 to be awarded as prizes of $1,000 and $250 for the best essays describing the present forestry situation in the United States and proposing a nation-wide remedy for its solution. The purpose of the donor is to stimulate the study of the national problem of forestry and to bring out constructive suggestions for meeting it in an effective way.

The conditions of the prize are as follows:

(1) Essays submitted in the contest shall cover: *First*, the actual forestry situation in the United States to-day; *second*, a nation-wide remedy which (a) will, if applied, solve the problem of a permanent and sufficient supply of forest products and secure other benefits of forests essen-