geology, and Professor M. Ehle, department of mining of the College of Mines and Engineering. It will include geodetic and topographic surveying, mapping of areal geology, making of geologic cross-sections, studying of mines or prospects and undeveloped ore deposits, and making mine examinations and reports. The region selected lies in the connected Chirichua and Dos Cabezas Mountains, fault-block ranges in southeastern Arizona. The choice of the field was based upon the varied structural features, diversity of formations and their great range in age, rich in metallization and mining development, ideal summer climate, fine camping sites, and accessibility. Maps and bulletins covering the area worked will be prepared by the professors in charge and will be published by the Arizona Bureau of Mines. Such students as are especially well prepared may collaborate on reports, and data secured may also be worked up into theses. The university will furnish a full field equipment, including housing, camp cook, surveying instruments and conveyances. The class is limited to sixteen, and is open to students of all universities and colleges who have had at least a course in physical and historical geology and mineralogy. Applications should be received by June 1. For further information address the director, Arizona Bureau of Mines, Tucson, Arizona.

UNIVERSITY AND EDUCATIONAL NEWS

WE learn from *Nature* that Mr. Lawrence Philipps has offered University College, Aberystwyth, the sum of £10,000 to found a plant-breeding institute for Wales in connection with the agricultural department of the college. He has guaranteed a further sum of £1,000 per annum for ten years towards the maintenance of the institution. The governors of the college have appointed Mr. R. G. Stapleton, who was for some years connected with the college as advisory botanist, to a chair of agricultural botany and to the directorship of the new institution.

THE first school of practical forestry in Scotland has been opened at Birnam, in Perthshire. The school building that has been erected at Birnam is itself an example of what can be done in forestry, being entirely built of home-grown wood. At present the school has twelve students. The course will cover two years and will consist of both practical work and lectures. The Duke of Athol has placed his woodlands at the board's disposal for practical instruction and the aim of the school is both provision of technical instruction and the furnishing of openings for discharged service men.

WILLIAM D. ENNIS, who has since his release from military service been acting professor of mechanical engineering at Columbia University, has been appointed professor in marine engineering in the post-graduate department of the United States Naval Academy.

DR. TOBIAS DANTZIG and DR. G. A. PFEIFFER have been appointed instructors in mathematics at Columbia University.

DR. JAMES DREVER has been appointed Coombe lecturer in psychology at the University of Edinburgh.

PROFESSOR F. SODDY, F.R.S., of the University of Aberdeen, has been elected to the second chair of chemistry recently established in the University of Oxford.

DISCUSSION AND CORRESPONDENCE

ON THE AURORAL DISPLAY OF MAY 2, 1919

TO THE EDITOR OF SCIENCE: The following observations of the auroral flash visible in Washington on the nights of May 2 and 3, 1919 and observed by us between the hours of 3:30 A.M. and 5 A.M. may be of sufficient interest for record. There is one point mentioned later which to us seemed very striking.

The general appearance of the phenomenon reminded one of a searchlight display. The streaks of lighted sky were at times very similar to the streaks of diffused light along the paths of searchlight beams. The brightness of the auroral streaks was comparable in brightness to that of the path of the searchlight beam on clear nights when seen from a great dis-

tance. (This brightness is of the order of 20 microlamberts for a 24-inch 75-ampere searchlamp near by). The streaks appeared over a region of the sky extending some 20 degrees to either side of Polaris and from the horizon up to Polaris and slightly higher. The individual streaks varied in width from several degrees to a fractional part of a degree. There were a few streamers that extended upward very much farther than the others. These did not lie symmetrically with respect to Polaris but to the eastward were more numerous. Over these streaks of lighted sky as background appeared a wavering sheet of lighted sky of lower brightness, whose undulations seemed to travel from the horizon upward. When the brightness of the streaks was great enough the light was a decided green, otherwise it appeared a faint greenish blue.

The point of greatest brightness during this display was a small patch of sky situated in one of the streaks slightly to the eastward of the vertical line passing through Polaris. This patch was probably 2 degrees wide and very much less in vertical thickness. Its distance from the horizon was probably between 5 and 10 degrees.

This gave an exact semblance of a searchlight beam piercing a cloud. The brightness of this patch was many times the brightness of the streak in which it was situated, and was of a very striking green color. We had hoped to photograph this, but during the few moments while the camera was being prepared it disappeared together with most of the streaks. The streaks reappeared quite distinctly but this bright patch did not.

Other data which we chance to have on record for other work are:

Temperature 11:45 P.M. 16° C.

Temperature recorded nearest the time of appearance of Aurora (2:50 A.M.) 15°.

Winds—practically none.

Sky—generally clear.

Enoch Karrer,
E. P. T. Tyndall

Bureau of Standards,
Washington, D. C.,
May 9, 1919

To the Editor of Science: I have just come in from viewing what to me was a remarkable auroral display. Earlier in the evening, about ten o'clock, while walking from a friend's house, I saw the ordinary display of an arch of light across the north with streamers extending to a considerable height. This lasted for about half an hour. Perhaps a quarter of an hour after its disappearance I noticed a long band or cloud of dim light across the sky which I at first took to be an after-image on the retina. But the image did not move with the eye, and soon it became quite bright. This display extended from a point on the western horizon, about 25° or 30° north of west, high up across the sky over to a point on the eastern horizon about 20° south of east. The band of light widened as it left the horizon, at the highest point being about 15° wide, extending from declination 55° to about 70° declination.

Near the horizon the light was quite bright, growing gradually dimmer as it slowly widened out towards the highest point. At the westerly end the south side of the band was cut off sharply by a nearly vertical line. Elsewhere the boundary was not very sharply drawn. In about fifteen minutes the light began to fade, but before entirely disappearing it brightened up again nearly as bright as before. Soon after, it faded again, entirely disappearing in the upper portion. For fifteen minutes or so the two ends remained, extending to a height of about 45° from the horizon. The eastern end broke into two parts as if cut in two. The lower part shot up from the horizon like a streamer, inclining a little to the south, the sharp demarcation of the south side of the western end persisted. The two ends remained stationary during the entire time. At the second maximum of brightness the upper part moved farther north extending nearly to Polaris. During the display none of the ordinary auroral display across the northern horizon was to be seen. If there was any it was too faint to be seen in the vicinity of street lights.

I have seen a number of remarkable auroras but have never before seen or heard of anything like this one. The bright band of light extend-

ing from north of west clear across the sky, almost to the zenith, down to south of east, made a very beautiful and impressive sight. It was very much admired by those I called out to see it.

I should like to know if this display was noticed in other parts of the country and if others have observed similar phenomena at other times.

G. IRVING GAVETT
UNIVERSITY OF WASHINGTON,
SEATTLE, WASH.,
May 2, 1919, at 11:30 P.M.

THE HISTORY OF SCIENCE

TO THE EDITOR OF SCIENCE: I have read with much interest Dr. Felix Neumann's article published in your number of April 4 and I heartily agree with him that the creation of a new section of the American Association for the Advancement of Science, to be devoted to the history of science, would be most desirable.

I think it is hardly necessary to demonstrate the necessity of such historical studies, but I beg to submit the following arguments in support of Dr. Neumann's proposition.

1. The history of science has a real and full signification only for scientifically trained people, and it appeals equally to scientists of all kinds, hence it is natural that its study be promoted by such an association as the American Association for the Advancement of Science.

2. Such historical studies, however, are very different from scientific studies proper; they require a special turn of mind, a special equipment and special methods without the use of which no high standard of accuracy can be obtained, hence it is necessary that they be promoted by an independent section.

3. Such independent sections have been organized many years ago by the Versammlung deutscher Naturforscher und Aerzte and by the Società italiana per il Progresso delle Scienze, notwithstanding the fact that societies exclusively devoted to the history of science exist both in Germany and in Italy.

GEORGE SARTON
CARNEGIE INSTITUTION OF WASHINGTON

QUOTATIONS

THE OBSTRUCTION OF MEDICAL RESEARCH IN GREAT BRITAIN

THE passage through a standing committee of the House of Commons, without amendment, of the so-called "Dogs' Protection Bill" has rudely awakened to a danger too lightly regarded, every one who in any way realizes the importance of the issues involved. In the *Times* of April 8, Sir Philip Magnus tells how the past master of parliamentary tactics who introduced the bill was able to bring it up for second reading unexpectedly, at the close of a sitting and to secure, almost without discussion, its reference to a standing committee. The committee was aparently composed in the usual way, mainly of members selected with reference to their political affiliations, without any regard to their competence to deal with an essentially scientific question; three or four medical members were added and a contingent of nominees of the members in charge of the bill, who could be trusted to know his own supporters. In two short sessions, and with the help of the closure, the bill passed through this committee without amendment. The next stage will be that it will come before the House for third reading at the next opportunity, which may occur any week.

The effect of the bill, if it should pass into law, is plain enough. It would render any one who made an experiment of any kind upon a dog liable to prosecution. Its enactment would cripple progress, so far as this country is concerned, in some of the most important fields of medical investigation. The whole weight of informal opinion must be brought to bear to prevent such a calamity. Letters of protest and warning have appeared in the *Times* of April 5, 7, 8 and 9, from Sir Edward Sharpey Schafer, Dr. Thomas Lewis, Dr. Leonard Hill, Professor Langley and Professor Starling. The *Morning Post* of April 7 published under the heading, "A Blow to Medical Science," an admirable statement of the case against the bill. The lay press is fulfilling a valuable function in thus enlightening general opinion.

So far as our own readers are concerned, we are preaching to those who need no conver-