placed in class V on the ground that he is in the military service of the United States.

In accordance with the authority given by this modification the following regulations are promulgated governing the enlistment by engineer students in the Engineer Enlisted Reserve Corps.

In order to be eligible for enlistment in the Engineer branch of the Enlisted Reserve Corps, under the above-quoted amendment to Selective Service Regulations, a candidate must fulfill the following conditions:

(*a*) He must be a citizen of the United States.

(*b*) He must be a student in one of the schools, the names of which are borne upon the list of technical schools approved by the Secretary of War for the purpose of carrying out section 5 of the river and harbor act approved February 27, 1911, relating to appointments from civil life to the grade of second lieutenant in the Corps of Engineers.

(*c*) He must be regularly enrolled and must be pursuing a course required for the degree of chemical engineer, civil engineer, electrical engineer, mechanical engineer, mining engineer, or some other equivalent engineering or technical degree.

(*d*) He must have made since his entry upon this course at the school a record of standing which will indicate clearly that he may be regarded fairly as deserving a place among the first third, based primarily on the scholastic records, of the young men who have graduated from that institution during the past ten years.

There follow forms of affidavits which are to be signed by the student and the president or dean of the school at which he is studying. The regulations continue:

In order to receive prompt consideration, applications from candidates now at college, and who are over twenty-one years of age, should be submitted so as to reach the office of the Chief of Engineers in Washington not later than January 15. The application from a person who has not reached this age at the present time must be submitted within three months before or one month after he reaches the age of twenty-one.

As rapidly as possible after the receipt of the applications in the Office of the Chief Engineers, they will be carefully examined, and the candidates whose applications are approved will promptly be sent cards of authorization, authorizing them to be enlisted in the Engineer Enlisted Reserve Corps by an office authorized to make enlistments in the Army, provided, of course, that they pass the necessary physical examination which will be made under the direction of the enlisting officer immediately prior to enlistment.

When thus enlisted the student's name will be placed on the "inactive list" of the Engineer Enlisted Reserve Corps, and he will be allowed to remain on this inactive list in order to enable him to complete his course at the institution.

Immediately after the completion of this course, or upon his discontinuance of the course for other reasons, the student will be given the option of being called into active service under his enlistment and being assigned to some one of the engineering branches of the Army, or of being immediately discharged and taking his place again among those subject to service under the draft.

SCIENTIFIC NOTES AND NEWS

THE War Department has established a Chemical Service Section and two lieutenant-colonels have been commissioned, Dr. Raymond F. Bacon, director of the Mellon Institute, Pittsburgh, to have charge of the chemical work in France, and Professor William H. Walker, of the Massachusetts Institute of Technology, to have charge of the work in the United States.

THE Perkin Medal Committee, consisting of members of the various chemical societies, has awarded the Perkin Medal for 1918 to Auguste J. Rossi of Niagara Falls, New York, in recognition of his work on titanium. The Perkin Medal was founded in 1906 by the New York Section of the Society of Chemical Industry to commemorate Sir William Perkin.

PROFESSOR A. RIGHI, professor of physics at Bologne, has been elected an honorary member of the British Institution of Electrical Engineers.

PROFESSOR T. B. WOOD, Drapers professor of agriculture in the University of Cambridge, has been appointed a member of the British Development Commission in succession to Mr. A. D. Hall, now secretary to the Board of Agriculture.

DR. ARTHUR KEITH, F.R.S., conservator of the Museum of the Royal College of Surgeons, has been appointed Fullerian professor of physiology in the Royal Institution.

Professor S. C. Prescott, of the department of biology and public health of the Massachusetts Institute of Technology, has been appointed to a commission as major in the food division of the Army Sanitary Corps.

Professor Charles P. Berkey, of Columbia University, as chairman of the committee on highways for the state of New York, has transmitted to the National Research Council a report on road materials and conditions controlling the construction of highways and other roads in New York.

Victor Yngve has been engaged as research chemist by the Oldbury Electro Chemical Company of Niagara Falls, N. Y., and will have charge of their research laboratory.

For the New Mexico Association for Science, officers for 1918 have been chosen as follows: *President,* Dr. John D. Clark, of the University of New Mexico; *vice-president,* J. E. Brownlee of the Normal School; *secretary,* Professor Higley of the Agricultural College; *treasurer,* Professor Goddard of the Agricultural College; members of the Educational Council, Paul A. F. Walter, for three years, Professor Rodgers of the Normal University for two years and Professor Barnes of the Agricultural College for one year.

Professor J. F. Adams, of Pennsylvania State College, is on leave of absence for a year and is spending the time at Columbia University and at the New York Botanical Garden. He is making a detailed study of a group of microscopic fungi, many of which occur as parasites on living plants.

Vilhjalmur Stefanssen, the Arctic explorer, last heard from in a letter received in March, 1916, has arrived with his party at Fort Yukon, according to word received by the naval department. Stefanssen, head of the Canadian Arctic Expedition has been in the far North since 1913 and lately there was some anxiety as to his safety.

Professor Wilder D. Bancroft, of Cornell University, lectured before the District of Columbia Chapter of the Sigma Xi on December 20, on Colloid Chemistry.

Professor R. D. Salisbury of the University of Chicago spoke on "Geography and geology work about Camp Grant," the National Army cantonment at Rockford in northern Illinois, at the Post-Vacation Luncheon of the Geographic Society at Chicago, on November 17.

At the request of the Medical Research Committee of Great Britain, Professor W. M. Bayliss last August visited various centers in France, to discuss with workers there special problems in the field and the application to them of methods devised in the laboratory. Acting upon suggestions made to it from France the committee appointed a special investigation committee for the purposes of further combined study of shock and the better correlation of laboratory and clinical observations. This committee consists of Professor F. A. Bainbridge, Professor W. M. Bayliss, F.R.S., Professor W. B. Cannon, Dr. H. H. Dale, F.R.S. (secretary), Lieutenant-Colonel T. R. Elliott, F.R.S., Captain John Fraser, Professor C. S. Sherrington, F.R.S., Professor E. H. Starling, F.R.S. (chairman), and Colonel Cuthbert Wallace, C.B. Professor W. B. Cannon, of Harvard University, whose work in this connection is of great value, is making arrangements for coordinating the work of this committee with that of a similar committee of American physiologists, and a further memorandum on the subject will probably be issued.

The Romanes lectures at the University of Oxford, which were not given in 1917, will next year be given by Mr. Asquith, lately premier, who is honorary fellow of Balliol College.

Portraits of the late Professor Raphael Meldola, painted by Mr. S. J. Solomon, were in December 18 presented to the Royal Society and to the Institute of Chemistry of Great Britain and Ireland.

Dr. Theodore Caldwell Janeway, since 1914 professor of medicine at the Johns Hopkins University and previously Bard professor of medicine at Columbia University, died on December 26 at his home in Baltimore

of pneumonia. Since the United States entered the war Dr. Janeway had been engaged in special research work for the government, being major in the Medical Officers' Reserve, on duty in Washington.

DR. HUGO SCHWEITZER, the industrial chemist, head of the Synthetic Patents Co., died on December 23 at his home in New York after a short illness from pneumonia. He was born in Germany in 1861 and came to this country in 1889.

PROFESSOR CLEMENT HENRY MCLEOD, professor of astronomy, surveying and geodesy, McGill University, in charge of the observatory, died on December 26, aged sixty-six years.

CHARLES HAWKSLEY, past president of the British Institution of Civil Engineers, died on November 27, aged eighty-seven years.

DR. A. M. W. DOWNING, formerly superintendent of the *Nautical Almanac,* died suddenly on December 8, at sixty-seven years of age.

DR. FRITZ DANIEL FRECH, professor of geology and paleontology in the University of Breslau, has died at the age of fifty-six years.

M. JOYEUX LAFFNIE, professor of zoology in the University of Caen, has died at the age of sixty-five years.

SURGEON GENERAL RUPERT BLUE, of the United States Public Health Service, has asked Congress to appropriate $300,000 for the purpose of establishing a Sanitary Reserve Corps, to combat outbreaks of disease in both times of war and times of peace. He also asked for appropriations to purchase quarantine stations at New York and Baltimore.

MR. HARRY PIERS, curator of the Provincial Museum at Halifax, has replied to an inquiry from Mr. Harlan I. Smith, regarding the relation of the explosion to the museum. The specimens and labels apparently came through fairly well, better than was expected, considering the unbelievably terrific and astonishingly loud explosion which demolished the Richmond section of Halifax, although windows were blown in, glass of cases smashed, a water pipe burst and snow stormed into one end of the building. Mr. Piers calls attention to the good results of always using water-proof ink for labels. The cases were boarded over soon after the explosion in order to use them as tables for Red Cross and other relief supplies, so that a careful examination of the damage has not been made. The publications probably have not suffered greatly. At the time of writing Mr. Piers had been too busy on relief work to examine into details of the museum.

MR. T. F. CLAXTON, director of the Royal Observatory, Hong-Kong, informs *Nature* that, in view of the world situation, it has been decided to discontinue sending the publications of the observatory to the United Kingdom, Europe and India during the war.

WE learn from *Nature* that a Linnean Society has been established recently in Sweden as "Svenska Linné-Sällskapet," intended as a means for spreading information about Sweden's greatest naturalist, Carl von Linné (1707–78). The society purposes to do this by publication of works by Linné and his pupils; to throw new light from modern viewpoints on Linné's personality; to draw up a catalogue of all known memorials, and to found a complete Linnean library. The president is Dr. Tycho Tullberg, a lineal descendant of Linné.

ACCORDING to the annual report of the chief of the Weather Bureau to the United States Secretary of Agriculture, a manual or handbook entitled "Meteorology and Aeronautics" will appear as Report No. 13 of the National Advisory Committee for Aeronautics. The handbook discusses the properties and general phenomena of the atmosphere which aeronauts and aviators should understand. It is divided into three parts: Part one, which deals with physical properties and dynamics of the atmosphere; part two, with topographic and climatic factors in relation to aeronautics, and part three, with current meteorology and its use. Part three also contains a summary of the free air conditions most likely to be experienced under different types of pressure distribution at the earth's surface. Frequent conferences have been held with officials of the

aeronautical branches of the Army and Navy, and plans are being perfected at several of the training camps for free-air observations in aid of aeronautics and the firing of projectiles. Copies may be obtained on application to the National Advisory Committee for Aeronautics, Washington, D. C.

Practically inexhaustible deposits of manganese dioxide, which is extremely valuable as an iron-toughening material and in great demand for war munition purposes, have been found in the Cypress Hill in South-East Albert, Canada. Eight hundred thousand tons, worth approximately £11,000,000, have been blocked out by ordinary post-hole augers in the last few months. The announcement is also made that the staff of the department of mining of the University of Toronto have discovered a process by which low-grade concentrates of molybdenite can be made at little cost. Molybdenite is used for hardening and toughening steel, and it is most useful in the manufacture of high-speed tools. Quebec is a larger producer, but the need for molybdenite is great, and the new process will, it is stated, render available the deposits of low-grade molybdenum ore which have been discovered in Manitoba and British Columbia.

It is stated in *Nature* that a report presented at the Newcastle meeting of the British Association last year directed attention to the lack of organization and general neglect of higher geodesy in the United Kingdom. The discussion upon this report led to the extension of the terms of reference of the committee so as to include, in addition to geodesy, other departments of geophysics, such as terrestrial magnetism, tides, atmospheric electricity and seismology. It was felt that steps should be taken to constitute a committee or association to promote the advance of the various branches of science which deal with the physical, metrical and dynamical properties of the earth, on both their theoretical and observational sides. Such a committee has now been appointed by the British Association and has arranged meetings for the discussion of geophysical subjects. The first meeting was held in the apartments of the Royal Astronomical Society on Wednesday, November 7, and will be presided over by the chairman of the committee, Sir Frank W. Dyson, the Astronomer Royal, who made a brief statement concerning the objects and future program of the meetings. The subject of magnetic surveys was introduced by Dr. S. Chapman, who made a report on magnetic surveys and charts by land and sea throughout the world. Dr. G. W. Walker gave an account of the recent magnetic survey of the United Kingdom made under the auspices of the Royal Society and the British Association. Major Lyons exhibited and described two of Gauss's heliotropes, on loan to the Science Museum. Among the subjects which the committee has under consideration for report and discussion at later meetings may be mentioned seiches and tides; atmospheric electricity; British earthquakes, observatories; methods and instruments in connection with the various branches of geophysics; geodetic and gravity surveys, and the constitution, temperature and other physical conditions, motions and secular changes of the interior of the earth.

According to the London *Times* the *Neue Zürcher Zeitung* recently published a review of German activities in technical matters in the field of war economics, in which it is stated that systematic investigations into the properties of pit coal have been carried on by the "Kaiser Wilhelm Institut für Kohlenforschung," and have yielded important industrial results. The treatment of coal with liquid sulphurous acid at ordinary temperatures has produced viscous, golden-yellow mineral oils, the amount produced being 5 kilogs, per metric ton. A process has also been elaborated by which through heating naphthalene under pressure, in the presence of aluminium chloride, an oil is produced which can be used for illuminating purposes in the same manner as petroleum. The utilization of lignite has been greatly extended. In the first place it is being used extensively as a fuel in the industrial establishments which have recently sprung up in the central German lignite fields, especially in the neighborhood of Bitterfeld and Halle a/S, where the

German air-nitrate factories are situated. A process has been discovered by which nearly twice the usual amount of ozokerite can be obtained from lignite, and the gas is being more extensively used for heating and smelting purposes.

Nature reports that one of the great captains of industry of Scotland has specially organized and equipped an engineering factory for the employment exclusively of educated women of good social standing instead of the usual woman factory worker, and with the fixed determination to carry on operations permanently under those conditions, the work to be taken up being that associated with the manufacture of internal-combustion motors. There is a fully illustrated account of the new factory in *Engineering* for November 9, from which it appears that it has some of the salient feature of a technical college combined with practical work in the factory, which gives that stimulus to study not realizable in the laboratory of a college. The factory is situated in the south of Scotland amidst beautiful scenery, so that students of botany and of wild-life generally can have full opportunity of pursuing their hobby. All the accessories which are now placed under the wide term "welfare" have been adopted to the fullest extent. Highly trained lecturers conduct classes at the works; these are compulsory. Entrants receive 20*s.* per week during the probationary period of six weeks; they then decide whether or not they intend to pursue the engineering career. If such be the case, and they are considered suitable, an apprenticeship agreement is entered into, and the wages become 25*s.* per week. Examinations are held at six months' intervals, and each "pass" means an increase of 5*s.* per week. It is evident that the whole scheme provides for women the opportunity of prosecuting an engineering career under the most favorable and stimulating conditions, and that the conditions are those best calculated for women of good education and social standing to attain a broad experience of engineering science and practise.

WE learn from the *British Medical Journal* that the Army Council has issued an instruction providing that students who at the time of their enlistment (whether they enlisted voluntarily or were called up under the military service acts) were actively engaged in medical studies and had completed the second year of their professional course, are, if eligible, and they so desire, to be transferred to the reserve, or discharged if ineligible for transfer to the reserve, for the purpose of resuming their studies with a view to obtaining a medical qualification. For the purpose of this instruction a man who had on or before enlistment completed two years of medical study, and who can within thirty-six months complete his professional curriculum and obtain his medical degree or license, is to be regarded as a third-year medical student. Students who do not pass the professional examination in anatomy and physiology within six months of resuming study will be recalled to the colors, and a student transferred to the reserve, unless he resumes his medical studies and enrolls in an Officers' Training Corps, will be recalled. Any third-year medical student who is desirous of being released from the colors under this instruction must apply through the usual channels, stating the date on which he desires to be released, and that he undertakes to resume his studies with a view to obtaining a medical qualification. A similar difficulty is being met in a different way in France. Owing to the prolongation of the war the supply of newly qualified men is drying up; casualties among medical officers have been numerous, the medical service in this respect coming next after the infantry. The French mobilization scheme provided that a medical student in a certain stage of the curriculum, reached usually at the end of the second year, should, when called up, be appointed médecin auxiliaire, a grade unknown in the Britsh army, but corresponding with that of surgeon probationer in the Royal Navy, which itself is the revival of the old grade of surgeon's mate. The case of medical students who have not advanced so far has recently engaged the attention of the Ministers of War and of Education, and of the General Staff, with the result that arrangements have been made by which medical students from the ranks may attend special courses of lectures

and eventually obtain credit for them when they seek a civil degree in medicine. Three schools of military medicine have been established for their benefit in regions behind the front, and have been duly provided with professors, libraries and laboratories.

UNIVERSITY AND EDUCATIONAL NEWS

Reaching a total of $515,436.09, federal grants of money to seventeen states under the Vocational Education Act were allotted at the meeting of the Federal Board of Vocational Education on December 21. Each of these states has complied with the terms of the law and has agreed to match every federal dollar with money publicly raised by the state or local community. The states are as follows: Alabama, Colorado, Florida, Iowa, Kansas, Michigan, Minnesota, Mississippi, Montana, Nebraska, North Carolina, Ohio, Oregon, South Dakota, Texas, Washington, Wyoming.

Accusations of disloyalty against five members of the faculty of the University of Illinois were found on December 11 to be without grounds, by a subcommittee in a report to the board of trustees of the institution.

Professor G. H. Scott, for fifteen years professor of mathematics and astronomy in Yankton College, Yankton, South Dakota, has resigned to become principal of Benzonia Academy, Benzonia, Michigan.

Francis W. Kirkham, of the Brigham Young University, has been chosen director of vocational education for Utah, following the laying of plans to bring the state under provisions of the Smith-Hughes act.

Dr. Wright A. Gardner, formerly associate professor of botany and plant physiologist at the Idaho University and Station, has been appointed plant physiologist and head of the department of botany at the Alabama College and Station.

DISCUSSION AND CORRESPONDENCE

A SUGGESTION FOR STAINING TECHNIQUE

Where one has many slides of sections passing through the various stages of dehydration and staining, a systematic method of labelling must be followed. Suggestions have been made to do this by means of a diamond point pencil or waterproof ink. Neither of these methods have worked satisfactorily for me—the first being too difficult to perform rapidly even after a good point has been procured and the marking being very difficult to read when covered with a dark stain. The second has these disadvantages and in addition the marking is very liable to rub off.

Therefore I suggest the following method which has worked satisfactorily for me while staining hundreds of sections at a time. Small aluminum clips with a numeral stamped or stencilled on each were prepared. These clips fasten on the edge of the slide when in the staining jars and are not large enough to prevent placing a cover on the jar. The data may be written in whatever manner desired in a notebook with the number or character to correspond to that on the aluminum clip. These clips are cheap, may easily be made and very few reagents ever used in dehydrations or staining attack the aluminum. The same clip may be used repeatedly.

Paul Ashley West

Toledo, Ohio

A NOTE ON THE PREPARATION OF SKELETONS BY BACTERIAL DIGESTION

The method of preparing skeletons by bacterial digestion is of long standing and has given excellent results. The present modification of the method was devised to obviate two objections which are of considerable importance when skeletons are prepared by students as class work. First, the digestion mass produces a foul odor and is disagreeable to handle, and, second, the digestion process, unless carefully controlled by frequent examinations is likely to result in displacement and subsequent loss of the smaller parts of the skeleton.

These objections are to a large extent overcome by embedding the roughly cleaned skeleton in a solid medium supporting bacterial growth. Agar-agar is preferable to gelatin, since it is not liquefied by the common bacterial enzymes. The method is as follows: