

of the Columbia Broadcasting Company. His subject was "What America Owes to British Naturalists."

DR. ALEXANDER SILVERMAN, head of the department of chemistry of the University of Pittsburgh, lectured at the Franklin Institute, Philadelphia, on December 18. The title of his lecture was "Glass: To-day and To-morrow."

THE Philadelphia College of Pharmacy and Science is making available to graduates in pharmacy a brief but thorough review of the latest developments in that profession and in chemistry, bacteriology, biology and other sciences related to public health. A three-day seminar will be held at the Philadelphia College of Pharmacy on January 27, 28 and 29, at which time the mid-year recess of regular classes will allow the members of the faculty to devote their entire time to these lectures and laboratory demonstrations.

THE civil-service examinations for physicists announced on November 14, 1940, have not produced enough applicants. The announcements have been amended by the United States Civil Service Commission to extend the closing dates for receipt of applications for nearly a year until December 12, 1941. Only one application need now be filed at the Washington office by those wishing to apply for two or more positions. The positions to be filled include the following grades: Physicist (any specialized branch), \$3,800 a year; also principal, \$5,600; senior, \$4,600; associate, \$3,200, and assistant, \$2,600 a year. These salaries are subject to a $3\frac{1}{2}$ per cent. retirement deduction. The same conditions hold for the examinations which closed in September for the positions of metallurgist and metallurgical engineer, various grades, with salaries ranging from \$5,600 to \$3,200 a year. Difficulty also is being encountered in filling positions in the Bureau of Mines in connection with the National Defense Program for the development of strategic metals. Applications will be accepted until December 31, 1941. Applications for the various grades of explosives chemist with salaries ranging from \$2,600 to \$5,600 a year will be open until November 30, 1941. For none of these examinations is a written test required. Further information and the proper application forms may be obtained from the Secretary, Board of U. S. Civil Service Examiners, at any first-

or second-class post office, or from the U. S. Civil Service Commission, Washington, D. C.

MR. AND MRS. ROBERT WOODS BLISS have given sixteen acres of their estate of Dumbarton Oaks with the Bliss mansion, the gallery, library buildings and the Bliss collection to Harvard University. They have also transferred to the Federal Government for a public park twenty-seven acres of the estate adjoining Montrose Park.

WE have received the following communication dated in August from Professor Ding U Doo, director of the library of the Sun Yat-Sen University: "This is to inform you that the National Sun Yat-Sen University Library after a long journey, through thick and thin, has finally removed from Canton to Chengkiang, Yunnan and back to Nan-Ssun, Kwangtung. As we departed from Canton at the eleventh hour, a large part of our books were left behind to an unknown destiny. We have suffered an incalculable loss, unprecedented in the history of libraries. However, we are by no means down-hearted. We are standing firm and working hard for our recovery, looking forward to the final victory of the war, which is bound to be ours. We sincerely anticipate your sympathy over our hard luck and shall appreciate your continuous help and generous gifts as you have shown us in the past. You will please correct our address in your mailing list and favor us with your publications, new and old, which will be much needed and most useful to our faculty and students."

WE are also informed by a correspondent that "The Shanghai Medical College is now in Chungking working in close cooperation with the Central Hospital and Central Field Health Station of Weishengshu. National Chungshan Medical College is moving to Nanshiung in Kwangtung, Tungchi to Yiping in Szechwan, and Chungcheng to Chen-ning, Kweichow, not far from Kweiyang, leaving only the Yunnan University Medical College in the vicinity of Kunming. On the other hand, Chungking is becoming a quite important medical center with the presence of the National Medical College of Shanghai, in addition to National Kiangsu Medical College, National College of Pharmacy, National Midwifery School and the Central School of Nursing previously established in this city."

DISCUSSION

A NEW RADIOACTIVE SERIES

DURING the investigation by mass-spectrographic methods of some in a geological sense old minerals of the tantalum-niobate group, which also contain some uranium, thorium, and rare-earth metals, a mass-line 237 has been found on several different plates. From

no other material has a mass-line 237 ever been obtained, although a great number of minerals have been investigated with the same apparatus and under similar conditions. This mass-line 237 does not belong to any so far known chemical element or isotope.

It is significant that the mass-line 237 does not occur

either on mass-spectra of a pure uraninite from Varuträsk, northern Sweden, which is probably of slightly older age than the minerals investigated, or on the mass-spectra published by Nier of the uranium isotopes from uraninite from Wilberforce, Canada. Neither is it visible on mass-spectra taken of two monazites of about the same age. It is, therefore, not probable that this mass-line 237 belongs to any isotope of 90 thorium or 92 uranium, and since it has so far been found only in the tantaloniobates it is most probable that it belongs to an isotope of the chemical element of the odd number 91 "Eca-Tantalum."

The mass-line 237 must belong to an element which is radioactive, since all known elements and isotopes in this part of the system of elements are radioactive. On account of its odd mass-number it can not, however, belong to the uranium- or the thorium-series, the members of which all have even mass-numbers. The members of the actino-uranium series have all odd numbers, but these numbers are all $4n$ smaller than 235, where n is from 1 to 7, and the ultimate decay product is lead 207. Were not actino-uranium itself but an element of larger mass, the mother element of the actino-uranium series, such element ought to have the mass 239, but a transition product of mass 237 can not occur in the actino-uranium series. *The mass-line 237 must thus belong to an element, which is a member of a so far unknown radioactive series.* This element 237 may be either the parent element of such a new series, or originate from a uranium isotope, so far unknown, which had already decayed at a time before the uranium minerals investigated had been formed.

As an ultimate stable product of such a fourth radioactive series we should by analogy with the three other radioactive series expect to find lead of mass 205 or 209. Now Aston had in earlier papers ascribed two such isotopes to common lead (0,03 per cent. of 205 and 0,85 per cent. of 209), but seeing that these were not obtained by Bainbridge and Jordan, also Aston has later been of the opinion that they do not exist in ordinary lead. The very exact measurements by Nier show that the limit to which they could be present in the ordinary lead investigated by him does not exceed 0,01 per cent. for 205 and 0,0009 per cent. for 209. The limiting value for 205 is, as will be seen, fairly high, compared, for instance, with the percentage of radioactive potassium 40 in ordinary potassium (0,012 per cent.) and of uranium II in uranium (0,006 per cent.). Neither has the present author ever observed any lines 205 and 209 on the mass-spectra he has taken of ordinary lead from old Fennoscandian galenas. Some of the spectra containing the mass-line 237, however, show also a weak line at 205 besides Pb 206, 207 and 208, but from some of these spectra

photometric results can not be obtained on account of the strength of the neighboring Hg-line 204. The occurrence of a mass-line 205 or the spectra containing mass-line 237 would indicate the presence in the two old tantaloniobates investigated of an early member of this new, fourth radioactive series together with the stable endproduct of this series lead 205.

Further investigations in order to separate and enrich the uranium-, eca-tantalum-, thorium- and lead-groups from these minerals are being undertaken in order to obtain further information, but the uncertain conditions during the European war, which now as earlier at any moment may lead to conditions in which research work is interrupted, makes it necessary to communicate already at this stage the observations made.

WALTER WAHL

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The communication by Professor Wahl was read as part of a discussion of papers by Professor Nier at the Conference on Nuclear Physics on October 30. It is worth noting that the work by Professor Nier upon the isotopes of lead which has been so interesting to geologists has, with one exception, not been upon lead derived from the minerals of the tantaloniobate group. It is, therefore, important that more work be done along this line, and in another letter Professor Wahl expresses his keen desire to have duplicate material to check his work with Professor Nier. This is of course a problem for the Committee on the Measurement of Geologic Time, which met at the same time as the conference, and if there are any who have leads derived from this group of minerals or who have material which would be available, I should be very glad to hear from them.

ALFRED C. LANE,

Chairman, National Research Committee on
Measurement of Geologic Time

PLANS FOR THE FUTURE OF THE VIRGINIA ACADEMY OF SCIENCE

THE responsibility of organized science to society, and its failure to fully accept this responsibility, is a matter that has given us concern for many years. Obviously, organizations in the specialized sciences, such as the American Chemical Society, American Association of Zoologists, etc., can contribute only in their respective fields of activity. More inclusive organizations, however, some of them embracing the best talent in practically all the branches of science represented in their community, city or even state, have frequently ideal opportunity for helping in the solution of pressing problems. Further, we believe the