Association of Museums will meet at Newport, R. I., on October 16, 17 and 18.

THE first of a series of meetings sponsored during the 1941–42 academic year by the New York branch of the American Association of Scientific Workers will be devoted to the subject of "Science and Civil Liberties." The speakers will be Dr. William M. Malisoff, professor of biochemistry of the Brooklyn Polytechnic Institute, and Dr. Lewis Balamuth, instructor in physics at the College of the City of New York. The meeting will be held on October 15, at 8:15 P.M., in John Jay Hall, Columbia University.

THE School of Mathematics of the Institute for Advanced Study each year allocates a small number of stipends to gifted young mathematicians and mathematical physicists to enable them to study and to do research work at Princeton. Candidates must have given evidence of ability in research comparable at least with that expected for the degree of doctor of philosophy. Blanks for application may be obtained from the School of Mathematics of the Institute, Fuld Hall, Princeton, N. J., and are returnable by February 1, 1942.

APPLICATIONS for Benjamin Peirce instructorships at Harvard University for the academic year, 1942–43, should be sent to the chairman of the department of mathematics. Candidates should have received the Ph.D. degree or have had equivalent training.

IN accordance with a Basic Science Law passed by the Legislature of the State of New Mexico in April, 1941, the State Board of Examiners in the Basic Sciences has been established, with the following personnel: *President of the Board,* Dr. John D. Clark, professor of chemistry, University of New Mexico; *Vice-president,* Dr. Fred W. Allen, New Mexico Industrial School, Springer; *Members Secretary,* Pia Marie Joerger, Office of the Secretary of State, Santa Fe; L. M. Pearsall, an osteopathic practitioner, Albuquerque; Dr. P. L. Travers, a physician and surgeon, Santa Fe; Wm. K. Wootton, a chiropractic practitioner, Albuquerque. The newly established board is to give examinations in the basic sciences on October 12, 1941, at the University of New Mexico, and thereafter each second Monday in June and each first Monday in February.

ACCORDING to *The Experiment Station Record,* the Legislature has appropriated $2,412,900 for the support of Kansas College and the four branch stations during the current biennium. In addition to lump sum appropriations for salaries and maintenance of instruction and research, $120,000 is appropriated for the branch stations, $53,000 for outlying experiment fields, $10,000 for bindweed experimental work, $30,000 for research work on diseases of livestock, $15,000 for milling and baking research, $30,000 for laboratory equipment, $15,000 for the purchase and improvement of horticultural land, $10,000 for repairs and improvements to the physical plant of the department of animal husbandry, $50,000 for the construction of a small animal research laboratory, $8,000 for the purchase of land at the Colby Substation and $200,000 for extension work. Other new items include $30,000 for three home management houses, $19,500 as indemnity for the fire losses of March 15 and $30,000 for a WPA project for a military science building to cost $125,000. Other legislation affecting the institution included a quarter-mill tax levy which is expected to raise $600,000 per year for a building program at the five state schools, specific allocations from this fund to be made by future legislatures; an act authorizing the state schools to construct student union buildings and dormitories under a plan for ultimate repayment from fees and operating revenues, and a civil-service law covering certain non-teaching, non-research and non-administrative positions in the state schools.

THE new ligature plant of the Johnson and Johnson Company in North Brunswick, N. J., was dedicated on September 25. The new building is air-conditioned. The exterior is of Vermont marble and stainless steel, relieved by a narrow strip of plate glass skirting the sides without the usual framing. Two thirds of the space is for the processing of ligatures and there is a second building within the main building to be used for the sterilization and hermetical sealing of the processed materials.

DISCUSSION

THE VERTICAL DISTRIBUTION OF HEAVY MINERALS IN VIRGIN AND CULTIVATED SOILS

THE primary soil minerals may be divided into two broad groups. The first includes the so-called light minerals (specific gravity < 2.680), chief among which are quartz, orthoclase, albite and oligoclase. The second group includes the so-called heavy minerals (specific gravity > 2.680) of which labradorite, anorthite, augite, hornblende, muscovite, biotite and apatite may be mentioned. Minerals in the first group usually weather more slowly than those in the second group.

It has been observed frequently that the content of heavy mineral in podzol and gray-brown podzolic forest soils increases with increasing depth below the

surface. The relatively low content of heavy minerals in the A horizon of soils belonging to the above zonal groups reflects the intensity of weathering to which they have been exposed.

Previous work by the writer[1] demonstrated that the content of heavy minerals in the upper part of forest soil bodies disturbed by the uprooting of trees was significantly higher than in adjacent undisturbed soil. This difference resulted from the translocation of material from the B or C horizons to the surface. The possibility that cultivation might similarly influence the vertical distribution of heavy minerals in soil profiles was considered.

During the summer of 1940 samples from unquestionably virgin soils and immediately adjacent cultivated soils were collected in Michigan and New Hampshire for laboratory examination. In all instances the sets of paired samples were collected from soils which seemingly differed only with respect to the cultivation factor. Miami, Colton and Hermon soil series were represented.

It has been found that the cultivated soils contain a consistently higher percentage of heavy minerals in the A horizon than do the comparable virgin soils. The results indicate that the vertical distribution of heavy minerals in the upper horizons of soil profiles may serve as an index of past agricultural use of land. This criterion may prove useful in studies concerned with the past history of land utilization. Work on the vertical distribution of heavy minerals in soil profiles is being continued and more detailed results will be published in the near future.

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REPORTING DATA ON ELECTRIC MOBILITY

RECENT interest in the electrophoresis of proteins has led to the publication of a large number of papers giving data on the speed with which proteins migrate in an electric field. Because the serum proteins near their isoelectric points move rather slowly, certain investigators expressed the electric mobilities in units of 1×10^{-5} cm/sec/volt/cm. However, other investigators studying ionic mobilities and the electric mobilities of microscopically visible particles have for many years expressed the electric mobilities in units of 1×10^{-4} cm/sec/volt/cm or its equivalent in μ/sec/volt/cm. There does not seem to be any justification for the use of the exceptionally low mobilities of proteins near their isoelectric points as convenient reference mobilities. In view of confusion which has arisen, it would be well for the conventional unit of 1×10^{-4} cm or μ/sec to be generally adopted by those in the field of electrophoresis. This will serve to eliminate a good deal of future error of the type which has already arisen.

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ANTIDOTING TOXIN OF PHYTOPHTHORA CACTORUM AS A MEANS OF PLANT DISEASE CONTROL[1]

OVER forty years ago phytopathologists realized that certain fungi formed toxins which were lethal to plant protoplasm and which paved the way for the advance of the pathogenic organism through the plant tissues. *Phytophthora cactorum,* which causes a wilt disease of many plants and the bleeding canker of hardwood trees, produces such a toxin when grown on various media. Foliated, succulent excised maple and tomato shoots wilt when placed in filtrates of liquid media upon which the fungus has grown.

This toxic effect can be antidoted, that is, made inactive by the addition to the filtrate of 0.5 per cent. aqueous solution of the di-hydro-chloride salt of di-amino-azo-benzene plus a solvent and penetrant ("Helione orange"). Healthy maple trees injected with the toxic filtrate have been killed, while the same toxic filtrate to which 0.5 per cent. of the di-amino-azo-benzene salt was added failed to injure the trees.

In excess of 350 confirmed trees, naturally infected by the bleeding canker fungus, have been injected with the antidoting chemical, and have subsequently exhibited stoppage of "bleeding" and marked improvement in vegetative growth. Whether the trees have been "cured" in any absolute sense remains to be seen, but the results indicate some possibilities to be explored in the practical control of plant disease.

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THE FIRST MATHEMATICS SECTION OF THE NATIONAL ACADEMY OF SCIENCES

MATHEMATICAL research in the United States was started at about the time that the National Academy of Sciences was incorporated (1863) and the first important mathematical research paper published in our country was written by Benjamin Peirce who was one of the earliest members of this academy and took an active part in its early meetings. It is therefore of interest to consider briefly the qualifications of the members of the first mathematics section of this academy. Their names are J. G. Barnard, William Chauvenet, H. A. Newton, Benjamin Peirce, Theo-

[1] Harold J. Lutz, *Yale University: School of Forestry, Bulletin 45.* 1940.

[1] Contribution No. 599 of the Rhode Island Agricultural Experiment Station.