Sechenov himself worked. It is under the direction of P. K. Anokhin, who, with 29 scientific associates, is studying "anticipatory reflexes" and "systemogenesis." Here there is also work on the role of the reticular formation of the brain stem in the transmission of unconditioned excitation to the cerebral cortex. The laboratories have excellent equipment and there is the usual evidence of good morale among the group.

The Academy of Sciences also supports a number of other independent physiology research laboratories in Moscow. Thus E. A. Asratyan has a special laboratory for studying the effects of extirpation of the cerebral cortex on vegetative and somatic functions. At the Institute of Biophysics, G. M. Frank, L. P. Kayushin, and R. G. Ludkovska are investigating the change in structure and mechanical properties of nerves during the spread of excitation. At the Institute of Higher Nervous Activity, V. S. Rusinov is conducting electrophysiological research on dominant areas of the higher nervous system. There is much work with elaborate electroencephalographic equipment. The conventional microscopic equipment that we saw was of high quality, and all of it was manufactured in the Soviet Union.

The Ukrainian Academy of Sciences maintains an extensive Biochemical Institute under A. V. Palladine. Here studies are in progress on the chemical and metabolic aspects of various functional portions of the brain, on brain metabolism during ontogenesis, and on brain metabolism during excitation, inhibition, and hypoxia. At the Institute of Animal Physiology of Kiev State University, P. G. Kostyuk is making intracellular recordings of end-plate potentials in repeated nerve stimulation. At the Physiology Laboratory of Rostov State University, A. B. Kogan is studying the interrelationships of conditioned reflexes, motor activity, brain potentials, and excitability of cortical neurons in chronic experiments on free behavior in normal animals. The Georgia Academy of Sciences maintains an Institute of Physiology at Tbilissi, under A. I. Roitbak, who is working on bioelectric phenomena in the cerebral cortex produced by various methods of stimulation.

Soviet physiologists are keen workers and thinkers, however closely they may be oriented toward the Pavlovian canon. They and their pupils have ready access to the world's major physiological publications. There is a comprehensive annual indexing program for biological literature, which is the basis for documentation in ordinary periodical publication. For a time during World War II many of the biological contributions from the U.S.S.R. appeared in English. The country's biological periodicals cover the conventional range. In general scientific literature, Soviet scientists seem partial to *Nature, Science,* and *Experientia.* Most of the physiology workers have small private libraries.

It is interesting that Soviet experimental work in the biological fields has little statistical control. In physical experimentation, on the other hand, it is as conventionally used as anywhere. However, animals are handled with extreme care and solicitude. Since most of the physiological work is repeated experimentation with the same animals, they tend to become pets of the workers. Thus with relative uniformity of experimental material there may not be the variation that necessitates statistical control. But philosophic factors may also be involved.

Soviet physiologists are capable and efficient in their technical work. They are generous in their personal relations, and they seem to be anxious to have their efforts known and appreciated. They would welcome the chance for correspondence and personal contact with American and other Western physiologists.

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Mathematics Teaching Essay Contest

Kappa Mu Epsilon, national honorary mathematics society, and the AAAS Science Teaching Improvement Program are cooperating in the sponsorship of an essay contest on "Opportunities in teaching mathematics in secondary schools." Satisfactory essays will be published in *The Pentagon,* official publication of Kappa Mu Epsilon. First prize in the contest will be $50. There will be second and third prizes of $25 and $15, respectively.

The Mathematics Teaching Essay Contest is planned to increase interest in the teaching of mathematics at the secondary-school level by encouraging undergraduate students in mathematics to consider the advantages of a career in secondary-school mathematics teaching. It is hoped that the preparation, as well as the reading, of the essays may attract good students with an interest in mathematics to enter the teaching profession. The importance of the ability to express oneself in writing, particularly on the part of teachers, should also be emphasized by such an essay contest.

Essays submitted in the contest should reach Prof. Carl V. Fronabarger, Southwest Missouri State College, Springfield, Mo., *no later than 1 Apr. 1957.* They must be not more than 1000 words in length and should be typed double-spaced on a good grade of paper. Four copies should be submitted by each contestant. Undergraduate and graduate students in mathematics are eligible to enter the contest.

The content of the essay should be as specific as possible and should point out the advantages of preparation for the teaching of mathematics at the secondary-school level. The essay may consider one or more of the special facets of the profession of mathematics teaching, or it may cover the general area as completely as the length of the essay will permit. The essays will be judged on accuracy and objectivity of the data presented, the degree to which the essay appears to be convincing in the case presented for mathematics teaching, and composition and neatness.

Bacteriophages in the American Type Culture Collection

Bacteriophages have become research materials of major importance in such fields as genetics, biophysics, and biochemistry as well as microbiology. It should be of considerable interest, therefore, that the American Type Culture Collection now maintains a collection of some 150 strains of bacteriophages and their host bacteria. Included among the hosts are the following genera of bacteria: *Azotobacter, Bacillus, Corynebacterium, Escherichia, Salmonella, Shigella, Serratia, Micrococcus, Staphylococcus, Streptococcus, Mycobacterium, Pasteurella, Pseudomonas, Rhizobium, Vibrio, Xanthomonas,* and *Streptomyces.* A complete catalog of the collection is available on request (2112 M St., NW, Washington 7, D.C.). Each phage strain and its host are sold separately for $4 plus shipping costs.

The collection has been built up by generous gifts from a relatively few donors, the greatest number of strains having come from I. N. Asheshov. The curator, W. A. Clark, is very anxious to obtain additional strains and will welcome gifts from any source. Donors should send both phage and host strain to the ATCC, together with literature references to the strain, history of isolation, host range, strain designations if it has been described under various names, and any useful information about preparation and preservation of phage stocks. In the case of temperate phages, the lysogenic bacterium and the indicator host should be sent as well as the phage stock.

Much of the earlier phage literature has little meaning today, because the phage strains concerned have been lost and, in most cases, cannot be related taxonomically with any strains now available. Until a usable phage taxonomy can be developed, it is essential that all phage strains that have been the subject of pub-

lished experiments be preserved. It is not the purpose of the ATCC to collect mutant strains of well-known phages, but it is interested in obtaining independently isolated strains that are taxonomically related to well-known strains. It is the hope of the ATCC that, whenever a phage strain is described for the first time, it and its host bacterium will be forwarded as type specimens to the collection.

If anyone happens to have in his possession examples of classical phage strains that are not already included in the collection (please consult the 1956 ATCC catalog of phages), they should be deposited with the ATCC. The curator is particularly anxious to obtain specimen's of Burnet's serological types of enteric phages. These strains are usually designated by numbers preceded by S, C, or D, as C16, S13, D44. Also phages for bacterial genera not at present represented in the collection are desired.

It is to be expected that as the number and variety of available phage strains increase, the value of the collection to research workers throughout the world will increase in proportion. The collection already contains a wealth of biological material that has not been examined by modern techniques.—M. H. A.

Small Animals in the Classroom

Dietrich C. Smith reports [*Bull. for Med. Research* **10**, 2 (May–June 1956)] that the use of small animals in the classroom has proved to be an unexpectedly helpful tool in teaching. The Maryland Society for Medical Research launched its "Small Animal Classroom Project" in the fall of 1954. This has since turned out to be the most popular feature in its educational program.

Projects are of two types. In the first, which is designed primarily for elementary grades, a rabbit, guinea pig, or white rat is supplied as a classroom pet; no controlled experimentation is attempted, the teaching being limited to demonstration of the proper principles of animal care combined with frequent weighings and the plotting of a growth curve. In the second and more ambitious project, designed for junior and senior high schools, a matched pair of animals, usually small male white rats, is used for a simple nutritional experiment that illustrates retardation of growth.

The program caught on rapidly, and at the time that Smith wrote his article more than 150 projects had been placed in all parts of the state. In addition to supplying animals and detailed instructions for their maintenance, including directions for building a cage, the society provides an adequate and a vitamin-deficient diet schedule and directions for carrying out the nutritional experiment.

The program has been very successful, and in many cases the educational use of the animals has been extended by the ingenuity of individual teachers. The projects have been especially helpful in bringing into sharp focus the role of animals in the advancement of knowledge. —W.L.S., Jr.

U.S.-Brazilian Uranium Agreements

Brazil has suspended the export to the United States of minerals used for nuclear energy. She has also denounced the Brazilian-United States agreement for joint uranium prospecting in her territory.

United States purchases of Brazilian thorium have been relatively small and for this year were to total 300 tons of thorium oxides. There is no official record of uranium sales by Brazil, which has no commercial production, and the country's reserves still are unknown.

Although the shift in Brazilian policy is unlikely to have any important effect on the United States research program, the action is a blow to U.S. prestige in Brazil. In denouncing the prospecting and export agreements, the Brazilian Government did not, however, abrogate another pact, that under which she joined the atoms-for-peace program. As a result of this agreement, the United States is providing $350,000 toward the cost of an experimental atomic reactor for São Paulo University, lending Brazil 13.2 pounds of uranium fuel for the reactor, and making technical information available. Assistance in erecting an industrial reactor also is being negotiated.

NSF Aids Dissemination of Federal Research Results

Federally supported basic scientific research of an unclassified nature will henceforth be made more widely available to scientists everywhere under terms of a new program that has been announced by the National Science Foundation. With support from the foundation's Office of Scientific Information, the Library of Congress and the Office of Technical Services of the Department of Commerce will jointly undertake wider dissemination of significant information in the some 20,000 unclassified technical reports on basic research issued annually by organizations engaged in Government-sponsored scientific research.

Specifically, the program, designated Government Research Information, is designed to assist any research scientist (i) to learn what unclassified scientific reports on Government research are being issued in his field of interest and how he can obtain them; (ii) to obtain, on a subscription basis, a report-announcement service that automatically will keep him informed regarding the bulk of such reports in fundamental research and through which he can purchase copies of listed reports; and (iii) to obtain access to a well-cataloged reference collection of unclassified scientific reports on federally supported basic research that he can consult much as he now consults books in a reference library.

The first of the three services is offered by the Government Research Information Clearinghouse in the NSF Office of Scientific Information. The staff of the clearinghouse is experienced in technical report reference work and will assist scientists with any problems related to the existence, whereabouts, and availability of unclassified reports on Government-sponsored basic scientific research. The clearinghouse will be able to tell scientists where and how to obtain scientific reports about Government research. Mail, telephone, or personal requests should be submitted to the Government Research Information Clearinghouse, National Science Foundation, Washington 25, D.C., attention of Dwight E. Gray.

The automatic announcement service covering reports on Government-supported scientific research is an expansion of an activity that the Office of Technical Services has been offering for several years. OTS publishes the subscription journal, *U.S. Government Research Reports,* an annotated, monthly listing of reports on federally supported research. Each entry in the journal includes information on how that document can be obtained. The NSF supplemental support will permit OTS to increase its acquisitions program appreciably, insuring comprehensive coverage of reports in basic scientific research. Complete information on this announcement service and allied OTS activities can be obtained from the Office of Technical Services, Department of Commerce, Washington 25, D.C., attention of John C. Green, Director, or from the NSF Clearinghouse.

The third service—access to an unclassified report reference collection and catalog—is being offered by the Library of Congress in its Science Division. With NSF supplemental support, the library has consolidated and augmented its scientific report holdings and has established open-card and book catalogs covering these substantial report collections. Readers are free to consult the report catalog, and reference assistants will bring them copies of any reports they wish to see. As in the case of the library's book collections, reports cannot be taken out. In general, however, any report in this open collection can be purchased, either from OTS or, in photoreproduced