and governmental services must be rigidly scrutinized in the light of necessity. The resultant deterioration which shows absence of planning and foresight must not be allowed to continue. The universities' own needs must be weighed against other demands. The efficient future control of the destiny of the universities themselves requires the replacement of scientific manpower. These replacements must be accelerated both in tempo and quantity while quality must be maintained. The colleges and universities can play their part only by keeping active staffs intact and maintaining the morale of their teachers by recognizing this as a dominant part of the war effort.

JOHN S. NICHOLAS,
*National Research Council Representative on the National Roster of Scientific and Specialized Personnel*

## RUSSIAN-ENGLISH TECHNICAL DICTIONARY

THERE is an urgent demand at the present time for an up-to-date Russian-English dictionary of scientific and technical terms. It is known that a number of Russian-English glossaries of specific terms have been compiled by various scientific institutions and individuals, and it is thought that it would be extremely helpful to scientists and technical translators if copies of these glossaries could be collected together and placed in the Science Library in London where one complete set could be consulted.

Will, therefore, any institution or individual who has compiled a glossary of Russian scientific or technical terms, whether printed or in MS, please send a copy to the Secretary, Anglo-Soviet Scientific Collaboration Sub-Committee, The British Council, 3 Hanover Street, W.1, London, England, who will collect these for the Science Library.

It is hoped at a later stage to compile a large dictionary, but the immediate aim is to collect the different glossaries in one place where they can be consulted. Each glossary will be known by the name of its compiler.

E. J. RUSSELL,
*Chairman, Anglo-Soviet Scientific Collaboration Sub-Committee*

# SCIENTIFIC BOOKS

## LEUKEMIA IN ANIMALS

*Spontaneous and Experimental Leukemia in Animals.* By JULIUS ENGELBRETH-HOLM. 245 pages, 44 figures. Edinburgh and London: Oliver and Boyd. 1942.

THIS book of Engelbreth-Holm, published under the auspices of the Lady Tata Memorial Trust, is an authoritative and timely monograph. Leukemia, a cancer-like disease of the blood cell-forming organs, was little known until recent developments, reviewed in this book, focused the attention of increasing numbers of scientists and laymen on this disease. Leukemia is not an uncommon disease, and its incidence is seemingly rising. It arouses concern because it affects persons, young and old, who are often healthy in appearance, and the disease often follows a course of many years free of all symptoms, though it is rapidly fatal in many instances. Research men are being attracted to its study by the many avenues of investigation opened recently, making it possible to explore diverse problems of interest and significance. More than the importance of this disease itself, the hope that leukemia research will contribute to the understanding of cancer has induced most of our cancer research foundations and the National Cancer Institute to place it on their program.

The first part of the book is devoted to a historical survey of this disease, first recognized about one hundred years ago, and to a description of its occurrence and of its varied manifestations in different species of animals which contributed much to our knowledge of this disease and laid the foundation for experimental work.

The modern period of experimental leukemia dates back to 1908, when a Danish investigator, Ellermann, discovered the causation of avian leukemia by a filterable agent (virus). The discovery of Peyton Rous that chicken tumors are produced by viruses followed shortly and opened a productive period of research, during which chicken tumors and chicken leukoses and their causative filterable agents have been extensively investigated. Some twenty years later the transplantability of different mammalian leukemias was discovered. Engelbreth-Holm is among the pioneers who investigated the many problems of avian leukosis offered by the discoveries of his countryman, Ellermann; later he also contributed to the knowledge of mammalian leukemia. With the skill of a good teacher he sketches in this book the history and present status of leukemia research in a manner easily understandable to those not familiar with this disease. With the authority of an investigator he introduces research workers into the intricacies of newer knowledge, giving precise and complete reference to original articles. The field is covered in a systematic manner, and the book closes with a discussion of the nature of human and mammalian leukemia.

It is still not generally conceded that leukemia is

a type of cancer, but the evidence detailed in this monograph in favor of this view is overwhelming. The fact that some leukemias may be caused by a virus no longer opposes this view, for both typical avian and mammalian tumors are now known to be caused by viruses, even though the infectiousness of these viruses is obscure and their relation to viruses producing infectious diseases is subject to controversy. Such problems are treated objectively by Engelbreth-Holm. Although he was the first to publish experiments suggesting that mammalian leukemia (that of the mouse) is produced by a virus, the contradictory publications and criticisms are so thoroughly discussed as to take the pen away from those who are about to attack his views.

The gap between sarcoma and leukemia has been solidly bridged by studies of the avian disease through the finding of viruses which are capable of producing both diseases. Each of these viruses has distinctive features of its own characterized by specific cell affinities which seldom if ever change. The publications of Duran-Reynals which have recently shaken our belief in the specificity of these viruses have apparently appeared in print after the completion of this monograph.

In a field as new as this there are many avenues of research merely sketched by observations, many of which are of preliminary character. By discussing these observations at length, the text becomes vivid but open to controversy. I shall comment upon a few of these.

The significance of the "milk influence" of breast cancer is fully grasped by the author, and his assumption that it is a virus is well supported by more recent data. Credit for this discovery of great promise should have been given more clearly to Bittner and Little. As regards the existence of a similar influence on leukemia, the negative foster-nursing experiments of MacDowell and Richter and of Engelbreth-Holm are cited, but these findings have since been contradicted by others, including MacDowell. The newer studies indicate that the incidence of leukemia is likewise influenced by foster-nursing, even though this influence has not been shown to pass to the second generation as does the breast carcinoma influence.

Concerning the heredity in spontaneous leukemia, the controversial findings of MacDowell and of Slye are fully stated and the findings of the former are accepted as the rule. Again, more recent data and a reconsideration of all published studies in this field indicate that there is no single law of inheritance of leukemia. This varies with different stocks but is constant for each.

Immunity phenomena in transmissible leukemia are reviewed in great detail. The pattern of this research is similar to that developed years ago with common transmissible tumors, and in the opinion of the reviewer many of these studies have not been found to apply to the natural disease. There are exceptions, such as the possibility of influencing the incidence of spontaneous leukemia by immunization. The transfer of immunity to leukemia by grafts or injections of splenic or liver tissue from immunized animals should be of great interest also to immunologists. The suggestive finding that the growth of highly virulent cells is retarded by immunization with embryonal tisues while the growth of slightly virulent cells is accelerated may serve to explain some anatomical manifestations of leukemia. Lymphosarcoma, long classified as a tumor, is considered as leukemia held in check by immune bodies. It is highly desirable to lay a more solid foundation to these suggestions. If confirmed, the question should be answered whether these findings with transmitted leukemia are applicable to the spontaneous disease. Certainly malignant tumors proliferate until the host is destroyed; whether they engender the formation of antibodies at all and, if so, how these antibodies modify the course of a neoplastic disease remain to be elucidated.

The experimental production of leukemia, an accomplishment of the past few years, is thoroughly surveyed. Certain agents, such as carcinogenic hydrocarbons, estrogens and x-rays, are powerful "leukemogens," even though their action is influenced by hereditary factors; the leukemogenic action of cell-free extracts of leukemic tissues or of embryonal tissues is still shrouded in mystery. But knowledge is accumulating on both hereditary and environmental factors, and this may ultimately lead to an understanding of the genesis of spontaneous leukemia.

The scope of leukemia research is beyond that of a neoplastic disease. A perusal of this book shows how the metabolism studies of leukemic nodes disclosed novel phenomena of special interest to those concerned with tissue metabolism in general, such as the influence of host factors upon the metabolism of malignant cells, certain preleukemic metabolic changes and the possible existence of an inhibitor of anaerobic glycolysis circulating in blood of leukemic animals. Although there are many obscure points concerning these studies, they are highly stimulating. The investigations with x-rays and radio-active substances should be of special concern to those interested in radiobiology of malignant tissues, and the heredity studies to those concerned with mammalian genetics. The latter show, under carefully controlled conditions, how known and unknown extrinsic factors modify hereditary tendencies, obscuring the recognition of the precise laws of inheritance of a neoplastic disease. Certain immunity studies, even if referred to by some scholars of cancer as mere "intellectual gymnastics," should be of great interest to those concerned with

the laws of survival of tissue grafts or with individual differentials, and certainly to all immunologists.

The high standard of production of this book is complimentary to the publisher and editors, and much of its contents to research men in this country. Among the latter E. C. MacDowell and associates of the Carnegie Institute deserve special mention for their large share in recent contributions.

JACOB FURTH
CORNELL UNIVERSITY MEDICAL COLLEGE

# SOCIETIES AND MEETINGS

## THE AMERICAN DIABETES ASSOCIATION

THE American Diabetes Association, a new organization founded in 1940, held its first annual meeting in Cleveland on June 1, 1941, the official family including Honorary President Elliott P. Joslin, President Cecil Striker, First Vice-President Herman O. Mosenthal and others prominent in the field of diabetes. Active members are physicians, but all interested in the aims of the association are eligible for election as associate members. It is dedicated to the problems of the diabetic, medical, social and economic, and aims to elevate standards of medical treatment by dissemination of the knowledge of diabetes, coordination of activities of associated groups, collection and publication of statistical data and encouragement of research in all phases of the subject. A volume has been issued containing the proceedings of the meeting.

This volume includes a secretarial report by Samuel S. Altshuler, Detroit; a presidential address by Cecil Striker, Cincinnati; "Sir Frederick Banting," by C. H. Best, Toronto (reprinted from SCIENCE, 93: 243, 1941); an address by Elliott P. Joslin, Boston, "Diabetes Yesterday, Today and Tomorrow"; and papers on "The Prevention of Diabetes," by R. E. Haist and C. H. Best, Toronto; "The Etiology of Diabetic Acidosis," by Arthur Mirsky, Cincinnati; "Comments on Nutritional Requirements," by Russell M. Wilder, Rochester, Minnesota; "Standards of Diabetic Therapy," by Herman O. Mosenthal, New York City, and "Avoidance of Degenerative Lesions in Diabetes Mellitus," by Julian D. Boyd, Robert L. Jackson and James H. Allen, Iowa City.

Haist and Best report that degenerative lesions of the pancreatic islets and the resultant diabetes which occur in dogs during administrations of sufficient doses of pituitary extract (Houssay-Young) can be prevented by diets low in carbohydrate and high in fat with supplementary insulin administration and suggest trial of the method in incipient human diabetes. Wilder draws attention to conclusions of the Committee on Food and Nutrition of the National Research Council as to vitamin requirements of normal diets and suggests that they be considered in prescribing diets for diabetics. Mirsky reviews the history of the conception that ketosis in diabetes depends on a limitation of glucose oxidation, contending that it depends rather on a limitation of storage as glycogen in the liver. Mosenthal asks for a revision of the doctrine that any elevation of the blood sugar concentration above the norm is necessarily to be combatted in all types and degrees of diabetes, and brings evidence to show that it is better ignored in some situations. Boyd, Jackson and Allen support the proposition that degenerative sequelae of diabetes (cataracts, arteriosclerosis, etc.) are late results of inadequate control of the diabetes, a view not shared by many writers. The discussion of all papers which are exceptionally full and illuminating lead to a harmonization of a number of erstwhile variant views.

R. T. WOODYATT
CHICAGO

# REPORTS

## PROJECT GRANTS OF THE GEOLOGICAL SOCIETY OF AMERICA

THE Council of the Geological Society of America has authorized the following project grants:

*General Structure, Geomorphology and Stratigraphy—$2,950.*

F. J. Pettijohn, University of Chicago, will spend six weeks in a detailed study of the Huronian-Archean contact in the Menominee and Calumet districts of Michigan. Preliminary study of basal conglomerates has proven the pre-Huronian age of the granite northeast of the Menominee. It is proposed to extend this work into the Calumet district, where post-Huronian granites are reported, in order to differentiate the two granites. $200.

Lowell R. Laudon, University of Kansas, will complete a five-year study of the stratigraphy of the Mississippian of New Mexico. The contribution to the stratigraphy and geologic history of New Mexico will also make possible a comparison with the Mississippian of the upper Mississippi Valley and the Rocky Mountain province. $250.

Paul A. Siple, United States Antarctic Service, Miami University, Ohio, will construct several large-scale maps of the Bay of Whales region of Ross Shelf Ice, Antarctica, from oblique photographs taken by the Byrd Antarctic Expeditions of 1929 and 1934 and the United States Antarctic Service in 1940. The maps will serve as a basis for determining quantitative deformation of the ice, and model theory suggests that further detailed studies will