5,000 Russian Science Papers Translated in PHS Program

Since establishment of the PHS Russian Scientific Translation Program more than two years ago, approximately 5,000 Russian scientific papers and 13,200 abstracts have been translated and made available to American scientists. The program is conducted at NIH.

Translation of Russian scientific material on this scale is in accordance with a directive of the U.S. Senate Committee on Appropriations, which states in part, "The scope of this effort should supplement other translation efforts to the degree required to provide adequate coverage."

The NIH program is concentrated on biomedical literature translation and is coordinated with similar programs of the National Science Foundation (basic physical and biological sciences), Department of Commerce (applied sciences and technologies), and Atomic Energy Commission (nuclear sciences).

The procedure consists of selection, translation, re-publication, and dissemination of Russian medical literature. Because of the great quantity and variety of material available, selection is a difficult and significant aspect, and an effort is made to choose those materials of particular interest and importance to American scientists.

The actual translation is carried out under contracts and grants. Originally administered as a special project by Dr. Adams, NIH Librarian, responsibility for the awarding of grants and contracts was transferred to NIH Librarian, March 1959, by the Scientific Reports Branch of DRS and DRG. Early this year administrative functions were wholly transferred to DRG, under Dr. M. G. Candau, WHO Director-General.

Health Day April 7

Dr. Wolfbein, Director-General, has announced that World Health Day, on April 7, will be devoted this year to concentrating attention on the worldwide campaign by the 90 member-nations of WHO for complete elimination of malaria, which he says remains "a constant threat to more than 1,000 million human beings.

This campaign, now under way in 92 countries and territories, is termed by Dr. Candau "the greatest co-ordinated public health program ever undertaken in the world's history."

NIH Meeting Transcript Sent to Key Personnel

Copies of the transcript of a symposium on the responsibility for public understanding of research and related programs of NIH were recently distributed by ORI to key personnel within DH.EW-PHS and their subdivisions.

The symposium, one of a series of monthly meetings on information subjects conducted by NIH Information Offices, was arranged by the NCI Office of Information & Publications, headed by Dr. James Kiley. Panel members were: Dr. Robert H. Felix, Director, NIMH, moderator; Dr. Howard B. Andervont, Chief, Laboratory of Biology, NCI; and Ruth E. Dudley, Information Officer, NINDB.

In distributing the transcript, ORI invited comment and stated that Mr. Kiley has a limited number of copies for additional distribution.

Leon Heppel Wins Hillebrand Award; Discoveries Cited

By Lillie Bailey

Dr. Leon A. Heppel, Chief of the Laboratory of Biochemistry and Metabolism, NIAMD, was awarded the 1959 Hillebrand Award of the Washington Section of the American Chemical Society, at the society's annual awards dinner, March 10, in Washington, D.C.

A recipient of the Guggenheim Fellowship in 1953, Dr. Heppel is the seventh NIH scientist to receive the Hillebrand Award.

He was cited in recognition of his discovery and isolation of several specific ribonucleases and phosphodiesterases, and for applying them in elucidation of the structure and metabolism of ribonucleic acid. He was also commended for his studies on the role of polynucleotide phosphorylase in the biosynthesis of nucleic acid.

Recognized internationally as an authority in enzymology, Dr. Heppel has conducted research in toxicology and enzyiology at NIH since 1942. He was appointed to his present position in March 1959, succeeding Dr. Bernard Horecker.

Dr. Heppel was born in Granger, Utah. He received his Ph.D. degree in chemistry at the University of California in 1937 and his M.D. at the University of Rochester in 1941. In connection with the Gug-

Advises Venezuelan Gov't

Dr. George W. Lutterman, Laboratory of Parasite Chemother-apy, NIAID, is in Venezuela at the request of the Pan American Health Organization. He is advising the Venezuelan government concerning their schistosomiasis control program, and is expected to return to Bethesda in late March.

Dr. Coatney Studies Malaria Control on African Tour

At the request of the World Health Organization, Dr. G. Robert Coatney, Chief, NIAID Laboratory of Parasite Chemotherapy, has embarked on a tour of three African nations to evaluate WHO projects and determine the degree of effort to eradicate malaria.

Dr. Coatney's tour of duty will take him to Monrovia, Liberia; Accra, Ghana; and Amman, Jordan. He left the U.S. March 7 and will return in mid-April, following a report of his findings to WHO headquarters in Geneva, Switzerland.

The WHO projects are being conducted in areas where it is possible to control the supply of cooking salt for experimental purposes. The salt, when combined with chloroquine or pyrimethamine, may give protection against malaria and prove effective in controlling the disease in areas where spraying for eradication of the malaria-bearing anopheline mosquito is impractical.
Dr. Ralph D. Lillie, after 35 years of research at NIH, retired on February 29 as a Medical Director of the PHS Commissioned Officers Corps. At the time of his retirement he had served for six years as Chief of the Laboratory of Pathology and Histochemistry, NIAMD.

Dr. Lillie conducted extensive studies on infectious diseases, including a pathological investigation of Q fever. He was the first investigator to describe pathological lesions in lymphocytic choriomeningitis.

Dr. Lillie is the author of a textbook on histologic technique and practical histology, and more than 200 scientific articles. His publications have served to establish histology as a recognized field among the major disciplines of medical science.

The histochromic approach, as developed by Dr. Lillie, or under his guidance, pursued three lines of investigation: 1) the successful application of chromogenic reactions to the identification of specific constituents at the histological level; 2) the chemical characterization or classification of normal and pathological tissue pigment constituents such as enterachromaffin, melamin, and iron-containing pigments and the lipofusins; and 3) the chemical mechanisms involved in the older empirical staining procedures.

In 1928 Dr. Lillie published the first of two articles on histologic methods entitled "The Gram Stain. A Quick Method for Staining Gram-positive Organisms in Tissue." For many years his work in this field dealt with the development of new methods or the improvement of established ones for the fixation, embedding and mounting of tissue, decalcification of bone, and selective and specific staining of tissue, cellular elements, bacteria, fungi, and blood parasites.

Dr. Lillie worked out the composition of an American Giesma (See DR. LILLIE, Page 7)

Navy Duty for Imus

Dr. Henry A. Imus, formerly Assistant to the Director, NINDB, has been appointed Assistant Director of Research at the U.S. Naval School of Aviation Medicine, in addition to his duties as Head of the Department of Psychology there.
Science Section

Electromagnetic Waves Used in Study of Brain Function

A new technique for the study of brain function has been indicated in recent research in the Surgical Neurology Branch, NINDB. Electromagnetic waves from a standard ground-to-air radio transmitter induced changes, ranging from drowsiness to death, in a group of young macaque monkeys.

Although previous studies have exposed the whole animal to frequencies above 300 megacycles with subsequent degenerative effects attributed to heating of tissues, in this study the head alone has been subjected to the 388 Mc range. It is believed by the authors that the phenomena observed are due to the use of this specific wave length. The studies were conducted by Dr. Maitland Baldwin, Dr. Sven A. Bach, and Shirley A. Lewis, of NINDB.

The investigators placed a monkey in a plastic primate cage, with his head protruding through a copper mesh screen insulated against possible burns. A copper mesh cylinder surrounded the animal's head, and a quarter-wave-length probe from the transmitter, entering the roof of the cylinder, directed the radiation through the intervening space into the brain. No direct contact with the head was present.

Within the copper mesh cylinder the monkey's head was placed in either a high position, where freedom of movement, or in a low position, with the chin and neck extended and movement restricted.

Measurements Taken

Photographs, electroencephalograms, and recording of respiration, blood pressure, pulse rate, and rectal temperature were made during the animal's exposure to the radio waves. Exposure lasted from two to ten minutes.

A monkey placed in the head-high or free position, had a tendency to look frequently at the antenna during exposure, but showed no effects other than drowsiness.

However, a monkey positioned with the chin elevated and the back of the head held low showed a rapid series of changes. Shortly after the transmitter was turned on, the animal became agitated, then drowsy and weak. His eyes moved involuntarily and were incoordinate and his pupils dilated. A sharp noise could arouse him from drowsiness briefly. Then periods of seeming normal activity alternated with the drowsing. The rate and depth of respiration increased and saliva appeared as frothy bubbles. In some animals a convulsion followed. It was possible to kill an animal in two minutes, 55 seconds. However, when radiation was stopped short of death, monkeys recovered within 48 hours and showed almost no clinical changes.

The causes of the phenomenon are as yet undetermined. There is a definite relationship between the changes observed and the position of the monkey's head. When the direction of the radio wave coincided with the direction of the aqueduct of Sylvius, a three-quarter-inch canal deep within the midbrain, the effects were heightened. When the position of the head was shifted so that the aqueduct lay perpendicularly to the axis of the wave, the effects were minimal. No changes took place when the animal's entire body was exposed.

Another speculation points to the possibility that the 388 Mc frequency may produce a series of electronic resonances with systems in the brain influencing consciousness, eye movements, tone, posture, and autonomic function.

Although no pathological cause of death was observed on examining the brain tissue, there was some evidence of disturbance within the nerve cells. The resultant "washing out" of the Nissl substance, granules scattered throughout the cell body which may represent a story of energy may result in a molecular change caused by the particular frequency used.

Other factors believed important are the duration of exposure and the volume of tissue exposed to radiation.

Possibilities of exploiting the relationship of sleep and arousal are opened by the ability of the 388 Mc radio wave to waken an animal or kill an animal in two minutes without loss of Nissl substance, granules scattered throughout the cell body which may represent a story of energy.

Other Studies Indicated

The biologic half-life of these drugs was not significantly different in the cirrhotics and controls, indicating that the activity of the enzyme systems involved was not appreciably affected by the liver-damaging disease. Speculations reach into the future to the day when this basic method may prove a useful tool to neurosurgery.

Drug Metabolism Rate Unaltered by Cirrhosis

New Findings Indicate

Preliminary studies at National Heart Institute and New York University suggest that normal rates of drug metabolism are not altered by cirrhosis, despite severe loss of functioning liver, wherein are located the special enzyme systems that inactivate drugs. Thus, the presumed sensitivity to certain drugs of patients with liver disease may require some other explanation, if these indications are borne out by more extended studies.

Conversion of certain fat soluble drugs as dyes or dyes as drugs, into inactive derivatives is an important function of the liver, without which the action of many drugs would persist for a dangerously long time as liver residues of such compounds by converting them to derivatives which are less fat soluble, thus barring them from reabsorption into the body through the fat-like membrane lining the kidney tubules.

Recently Dr. Bernard B. Brodie and Dr. John Burns of National Heart Institute, and Dr. Murray Weiner of New York University Research Service compared the inactivation of various drugs in patients with severe Laennec's cirrhosis and in normal subjects. The drugs studied (phenylbutazone, aminoptyrine, antipyrine, salicylic acid, and dicumarol) had previously been shown to be metabolized in the body through the action of liver enzymes.

Other Studies Indicated

The biologic half-life of these drugs was not significantly different in the cirrhotics and controls, indicating that the activity of the enzyme systems involved was not appreciably affected by the liver-damaging disease. Speculations reach into the future to the day when this basic method may prove a useful tool to neurosurgery.

This study has been published in the February 1960 issue of Neurology.-B.D.M.
Taste Test Provides Genetic Clue In Geographical Disease Studies

A taste test is being used by Dr. Baruch S. Blumberg of the Arthritis and Rheumatism Branch, National Institute of Arthritis and Metabolic Diseases, to study one of the many inherited biochemical variations — polymorphisms — that exist among humans. The test employs the compound phenylthiocarbamide (PTC) which certain individuals can taste and identify and others cannot. Since the tasting trait is believed to be genetically determined, the test provides a way to determine the presence or absence of a single gene in the population.

Many such polymorphisms exist in both animal and man, such as unusual types of human hemoglobin, certain synthesized metabolites in the body, and variations that are found among serum hemoglobin binding proteins taken from different individuals. Dr. Blumberg's interest in these biochemical variations stem from the fact that although they are apparently harmless in themselves, they may be affecting an individual's susceptibility to various diseases.

The PTC polymorphism was first reported in 1932, shortly after the compound was synthesized by a Dupont chemist, when family studies of the phenomenon indicated that the trait was a genetically determined one, tasters being dominant for the gene and non-tasters being recessive for it. Since then the ratio of tasters to non-tasters has been determined in many populations by various investigators. The most recent study was made by Dr. Blumberg in an Alaskan Eskimo population and helps to clarify the worldwide distribution of the tasting trait. The study was made in collaboration with Dr. A. C. Allison of the National Institute of Medical Research, London, and was reported by Drs. Allison and Blumberg in the journal Human Biology.

For many years after its discovery the PTC polymorphism was thought to be only a biochemical oddity until it was discovered that certain other compounds could also be tasted by PTC tasters but not by non-tasters. The interesting observation was made that in the chemical structure of all of these compounds there was a characteristic thiourea grouping of nitrogen, carbon and sulfur atoms, a grouping which is common to many of the diseases and known goitrogens, and large series of anti-thyroid substances and known goitrogens. The same thiourea grouping is present in a large series of anti-thyroid substances and known goitrogens, and several studies by other investigators indicate that non-tasters may be more susceptible to certain kinds of goitrous than are the tasters. The possibility exists that there is some relationship between the PTC tasting polymorphism and the occurrence of thyroid disease and is being further explored.

In the Eskimo study, Dr. Blumberg found that the frequency of non-tasters was relatively high, 26 percent. This frequency is the same as that found in Western Europeans and comparable to the one existing in the white American population. It is in sharp contrast, however, to the very low frequencies found in American Indians and Eskimos which make it improbable that the two populations are related racially.

Further studies of these polymorphisms by the NIAMD scientists may provide important information about the genetic variations that exist among people and populations, and how these variations may influence health and disease.

LYMPH NODE CELLS TRANSFER
ALLERGIC ENCEPHALOMYELITIS

A successful transfer of allergic encephalomyelitis has been brought about by the injection of lymph node cells taken from donor rats sensitized to spinal cord into recipient rats pretreated neonatally with normal rat spleen cells. The study was undertaken at the New York University College of Medicine by Dr. Philip Y. Paterson of the National Institute of Allergy and Infectious Diseases' Laboratory of Immunology. Findings were published in the Journal of Experimental Medicine in a recent issue.

Dr. Paterson pretreated newborn rats with pooled, normal spleen cells from splenectomized adult donor rats. Five to 6 weeks later the donor rats were injected with guinea pig spinal cord in adjuvant. These were pooled, washed and injected intravenously into the pretreated and new adult, recipient rats. The recipients were observed for 6 to 8 hours after lymph node cell transfusion, then sacrificed, and their brains and spinal cords examined microscopically for neurological lesions. Comparable lymph node cell transfers were performed using control donors injected with guinea pig kidney-adjuvant and control recipients which were not pretreated with spleen cells.

As a result of the transfer of lymph node cells to recipient rats pretreated with spleen cells from the same donors, 14 to 22 recipients were found to have allergic encephalomyelitis lesions after injection of 10 to 150 million viable donor lymph node cells. The number of lesions demonstrable in each of these 14 positive recipients varied from a minimum of 2 to a maximum of 15 and both their number and intensity appeared to be directly related to the number of donor lymph node cells transferred.

Dr. Paterson performed additional lymph node cell transfers using recipients pretreated neonatally with spleen cells from rats other than those providing the transferred lymph cells. Of these a total of 6 of 20 recipients acquired allergic encephalomyelitis lesions. The investigator attributes the transfer of the use of recipients which have acquired immunological tolerance to donor lymph node cells, as a result of the spleen cell pretreatment, and in which, therefore, the donor cells can survive and function longer after transfer.

The successful transfer of allergic encephalomyelitis from diseased to healthy animals by means of lymph node cells alone establishes the cells in the development of this disease and the importance of delayed sensitivity in its pathogenesis. These experimental results may furnish the means for uncovering several important questions about the true nature of allergic reactions to tissue antigens.

Radiation Sensitivity
Enhanced by Drug

Dr. Robert E. Bases, of the National Cancer Institute's Radiation Branch, has reported that the antibiotic, actinomycin D, enhanced the killing effect of X-rays on single HeLa cells exposed to the drug just before or after irradiation and during clone formation. This laboratory investigation was prompted by an interest on the part of scientists in modification of the response of mammalian cells to ionizing radiation and by the observation that actinomycin D apparently produces an enhanced response to radiation therapy in cancer patients.

In the present study, actinomycin D was not unique in producing this response, as cells in culture medium containing a large percentage of heavy water were also more sensitive to radiation. In fact, prolonged exposure to D,0 (14 hours) enhanced the radiation sensitivity of the cells even after D,0 was removed.

This report appears in a recent issue of Cancer Research.
Demosntrations of Cellular Circuits Shown by NINDB Brain Charts

A study charting brain connections between cerebellum and cerebrum has been carried on in the National Institute of Neurological Diseases and Blindness. Little known connections between the cerebellar hemispheres and the cerebrum have been demonstrated by electrically evoked potentials. The studies have confirmed the presence of nerve pathways by which the cerebellum exerts a controlling influence over the motor functions of the cerebrum. Single shock stimulation of the hemispheres of the cerebellar cortex has resulted in consistent responses in the sensory and motor areas of the contralateral cerebrum, thus demonstrating a “circuit” between these parts of the brain.

Although cerebellar-cerebral connections have been inferred from anatomical evidence, responses between these particular cerebellar areas and the cerebral cortex have not been demonstrated consistently. The results of the study of the connections by the evoked potential method is reported by Dr. C. Murphy Combs and Sue V. Saxton of the Laboratory of Neuroanatomical Sciences, NINDB, in Experimental Neurology.

Cats Provide Data

Data were obtained from 40 adult cats anesthetized with Nembutal or curare preparations. Silver ball electrodes were applied to the exposed cerebellar surface and a stimulus of from 7 to 11 volts was given. Responses from similar electrodes on the surface of the cerebrum were then recorded on a cathode-ray oscillograph.

Responses Obtained

From these tracings, the investigators found that the largest cortical responses could be obtained from the midsection of the anterior sigmoid gyrus—an S-shaped convolution of the motor cortex. Smaller potentials were consistently obtained from the lateral part of the posterior sigmoid gyrus. As expected, responses were much greater on the side of the cerebellar cortex opposite from the side stimulated. When responses from the same side were present, they were small, inconsistent, and occurred only in the anterior gyrus.

Stimulation Unequal

Early in the experiments it was observed that not all parts of the cerebellum were equally satisfactory for stimulating purposes. The most active parts of the sigmoid gyrus were then chosen as the recording point for the evoked potentials and various parts of the cerebellar surface were stimulated to determine the most efficacious stimulating points.

Results of this experiment, contrary to a previous study, showed that the largest and most consistent results with the cerebellar hemispheres were obtained with low-voltage stimulation of the cerebellar area designed as crus I. The most active cerebellar zone was found to be a longitudinal strip, bordered medially and laterally by unresponsive zones.

Control Mechanism of Genes Investigated in Basic Studies

One of the most fundamental problems in biology is the manner in which genes determine and control biochemical processes in cells. Basic studies of this control mechanism have been reported by scientists at the National Institute of Arthritis and Metabolic Diseases which suggest that genes are turned on and off and may explain this.

Within the past few years, support has been gathered for the hypothesis that genes determine the metabolic pattern in an organism by determining the structure of enzymes, that is, by ordering the sequence of the amino acid building blocks in enzymes. This hypothesis does not account for the fact that some cells of an organism produce enzymes whereas other cells do not, even though all the cells have the same chromosomes and presumably the same genes. One possible explanation of this is that a mechanism exists for turning genes "off" or "on" and allowing differentiation among the cells.

Enzymes Studied

Dr. Bruce Ames and Miss Barbara Garry of the Laboratory of Biochemistry and Metabolism of the National Institute of Arthritis and Metabolic Diseases have approached this problem of genetic control through a study of six of the thousands of enzymes in bacterial cells. These specific enzymes are involved in the biochemical pathway for producing histidine, an essential amino acid, and each enzyme catalyzes one step of a multi-step process, or metabolic pathway, the end product of which is histidine.

The NIMD studies have shown that in Salmonella bacteria a feedback mechanism regulates the synthesis of the series of enzymes of histidine biosynthesis; the rate of enzyme synthesis slows down as the histidine pool increases. The significant aspect of the finding is that the rates of synthesis of each of the enzymes in the pathway controlling histidine production operate at the gene level, and that in some way histidine can functionally "turn off" that length or section of the chromosome involved in the genes of the histidine enzymes.

The controlling factor may be histidine itself, or a histidine-nucleic acid repressor which has a specific affinity for the histidine section of the chromosome.

Hypothesis Made

In view of these two sets of observations, an attractive hypothesis, though one for which direct proof is lacking, is that perhaps genes are turned on and off by the presence or absence of regenerating histidine production operates at the gene level, and that in some way histidine can functionally "turn off" that length or section of the chromosome, which is shown by the finding of histidine enzymes.

Although Salmonella exhibits this orderly clustering of genes, it is not found in Neurospora or in yeast. The histidine genes in these organisms are scattered on the chromosome, and the investigators are studying them in more detail.

The basic NIMD research involved in these studies provides a fuller understanding of how genetic information controls biological activity, regulating normal biochemical processes in health, and, where the genetic disturbance occurs apparently contributing to or causing biochemical derangements in "molecular" or metabolic diseases.
**Dutch Neurologist Reports Method For Brain Damage Evaluation**

The results of an extensive clinical study of brain damage in newborn babies were discussed at NIH February 18 by an NINDB guest lecturer, Dr. Heinz F. R. Precht, Chief, Department of Experimental Neurology, University Hospital, Groningen, the Netherlands.

Research conducted by Dr. Precht and his colleagues during the past 12 years has led to the development of a method for diagnosing damage of the nervous system in newborns. The examination consists of comparisons of selected activities in "normal" babies with activities in babies with histories of complications before or during birth. A high rate of validity for the method was found in follow-up examinations given to the children a few years after birth.

In developing the examination, the investigators first quantitatively analyzed a number of behavior patterns, which occurred in a control group of 50 full term babies born without complications after normal pregnancies. Long term observation of the general behavior patterns of newborns was necessary to insure the reliability of standard methods and procedures used for testing.

**Use New Criteria**

Using the newly developed criteria, neurological examinations were given to 218 full term newborns with histories of complications such as prolonged labor, fetal distress, neonatal asphyxia, and stillbirth. Of these infants, 92 (42 percent) were classified as "not pathological." The remaining 126 cases, however, showed symptoms which had been marked as pathological, such as absence of certain reflexes, hyperirritability, or epileptic manifestations.

The highest percentage of abnormalities was found in children with histories of fetal distress and prolonged labor. Results appeared to show that a significantly higher proportion of pathological cases were boys. In addition, significant changes in growth were found in babies weighing less than six and one half pounds, although asphyxia was found more often in larger babies.

**Follow-up Made**

The prognostic value of the neonatal diagnoses was verified by follow-up examinations of the children after two to four years. Neurological and psychological examinations were given to 119 of the children who had histories of complications and to 18 from the normal control group. Here, it was seen that 68 percent of those classified as pathological showed neurological deficits, while only 8 percent of controls were found to have abnormalities. Again, children with histories of past anoxia had a higher percentage of abnormal symptoms.

The investigators concluded that neurological abnormalities in newborn babies appear to have a prognostic value concerning the emergence of behavior problems. In addition, a comparison between behavior patterns and unfavorable social surroundings did not show any significant correlation, suggesting that many behavior disturbances are due to organic damage.—P. MacP.

**Collagen Fiber Changes in Periodontal Tissues Studied at NIDR**

Periodontal disease is known to affect more than 50% of the U.S. adult population. Since degenerative changes of collagen fibers in the periodontal tissues constitute one of the most important consequences of this disease, National Institute of Dental Research investigators undertook explorations to determine whether these changes could be manifestations of the breakdown of collagen protein by oral microorganisms.

In experiments conducted by Drs. Stephen E. Mergenhagen and Henry W. Scherp, Laboratory of Microbiology, reconstituted collagen from rabbit skin was exposed to microorganisms under conditions identical to those obtaining in vivo. After seven days growth, the protein remaining was compared with that of an unexposed container of reconstituted collagen. Similar trials were also made with various single and combined strains of common oral microorganisms, as well as with *Clostridium histolyticum*, a known collagenolytic organism.

At the end of the test period, the mixed oral cultures had reduced 20 to 30 percent in the collagen hydroxyproline, thus indicating that oral microorganisms may contribute to the degeneration of collagen fibers seen in periodontitis. The lesser activity of these cultures in collagen, as compared to the essentially complete digestion by *C. histolyticum*, was regarded as consistent with the chronic nature of periodontal disease in contrast to the acute inflammation seen in clostridial myositis.

The single and combined strains of oral microorganisms failed to produce any evidence of collagen digestion, apparently in line with the belief that these organisms are mutually supporting and that those most active in collagen degradation have yet to be isolated.

Previous investigations on the breakdown of native collagen, conducted elsewhere, have supported the thesis that oral microorganisms were not involved, since studies with these organisms did not yield the appropriate products of collagen digestion. The experiments indicated, however, that the absence of these products was due to the fact that they had been catalyzed by the bacteria.

**Protein Chemistry Studies Show Molecule Structure**

Recent advances in protein chemistry at National Heart Institute and elsewhere have found that the myosin molecule is made up of identical chains, each wound in a tight helical coil, the three chains themselves being wound together in the form of a long rope.

The protein myosin is of interest in terms of cardiovascular functions because it is believed to be the predominant component of the contractile system of muscle. A program of research on myosin at NIH has the immediate objective of interpreting some of the properties of myosin on the basis of its molecular structure, and is ultimately aimed at understanding its role in muscle contraction.

Like other proteins, the myosin molecule is made of amino acid groups, bound together as links in the long chains which constitute its primary structure. Although myosin is known to be a comparatively large, slender molecule (1650 A x 22 Angstrom units), it has not been known how many polypeptide chains are held together by secondary bonds to form the molecule and, if more than one chain, whether they differ from one another.

Drs. W. Wayne Kielley and William F. Harrington, in the NIH Laboratory of Cellular Physiology, have approached this problem using guanidine hydrochloride to break the secondary bonds holding the chains together, while leaving intact the primary bonds holding together the polypeptide links of each chain.

Examining the products of this dissociating process by sedimentation in the ultracentrifuge, together with observations of their diffusion rates, viscosities, optical rotation properties, and other data, the investigators have concluded that the myosin molecule consists of three identical polypeptide chains, each wound into a tight helical coil, the three chains themselves being wound together in the form of a long rope.

These findings will appear in Biochimica et Biophysica Acta.
TV Medical Council Will Demonstrate Teaching Methods

The Council on Medical Television, of the Institute for Advancement of Medical Communication, will hold its second meeting April 20 and 21 in the CC auditorium.

The theme of the meeting will be "Pedagogic Techniques in Medical Television."

Instructors from medical schools and institutions using televised teaching methods will demonstrate and discuss ways in which TV is used in teaching the basic sciences and clinical subjects.

The afternoon program of April 20 will show and explain ways in which television is being used in teaching the laboratory and at the bedside or in the clinic.

The morning of April 21 will be reserved for a session on "Prepared Teaching Presentations," dealing with the more formal types of teaching.

DR. LILLIE (Continued from Page 2)

stain in 1939 to replace the stain imported from Germany, and devised improved methods for its manufacture and standardization. This American-made stain was a major contribution to the malaria diagnostic procedure used during World War II.

A member of the Biological Stain Commission since 1936, Dr. Lillie became president of the organization in 1959 and is presently an associate editor of the Stain Technology Journal. He served as president of the International Academy of Pathology from 1948 to 1949.

Dr. Lillie was a principal in the organization of the Histochemical Society, serving as secretary from 1950-55 and as president in 1957-58. He founded the official publication of the society, the Journal of Histochemistry and Cytochemistry, in 1952; and has been editor-in-chief since then.

His outstanding accomplishments in the field of histochemistry were lauded by the Association of Military Surgeons when they presented him with the first Sustaining Membership Award in November 1958.

Dr. Lillie will continue his research with the Department of Pathology at the Louisiana State University School of Medicine, New Orleans 12, La.

Evanston Ceremonies Mark Completion of Fluoridation Survey

Dr. Francis A. Arnold, Director, NIDR, was a featured speaker at recent ceremonies in Evanston, Ill., celebrating the city's 13th year of fluoridation benefits.

Evanston began fluoridating its water supply for prevention of tooth decay in February 1947, following a survey conducted by Dr. H. T. Dean, former NIDR Director; Dr. Arnold, and other NIH dental researchers.

In this survey Evanston served as a non-fluoridated "control" in the history-making studies that eventually led to nation-wide adoption of fluoridation.

Honored guests at the 13th anniversary celebration were a set of twins born in Evanston in the 50th Anniversary Year of the Boy Scout movement.

Mock Check Presented

Dr. J. Roy Blayney, director of a study of fluoridation effects in Evanston, presented a mock check for $154,202 to the city, representing estimated savings in dental bills for all children reared in the area.

The Blayney survey included chemical and bacteriological analyses of saliva, water analyses at the filtration plant, and at various points in the pipeline system, and tooth and bone studies. Its results added to the evidence of the beneficial effects of fluoridation reported in long-term studies by the Public Health Service in other areas.

The Evanston figures, based on statistics furnished by the Illinois State Department of Health, which cooperated in the survey, showed that children of all age groups in that city averaged 2.5 fewer decayed teeth than those of a neighboring non-fluoridated community.

Cohen Promoted in DRG

Sidney B. Cohen became Assistant Chief, Grants Management Branch, DRG, on March 6. He is working with Clarence Lowe, Branch Chief, in all phases of grant management, including the development and implementation of policies and procedures in connection with the grant field audit, liaison, and audit review.

Mr. Cohen was formerly supervisory constructive accountant and fiscal consultant in the Office of Vocational Rehabilitation, Office of the Assistant Director for State Administration, DHEW.
Aging Study Grants Increase by 44%

The number of research grants for aging studies increased 44 percent during the 12 months ending January 31, 1960, according to a recent DGMS report.

Total dollar value of the grants increased 62 percent in the same period.

The majority of the grants, which were awarded by the seven Institutes and DGMS, are in the basic biological sciences, with a considerable number also in the behavioral and clinical sciences, including the field of rehabilitation.

During the past year research in the basic sciences has emphasized changes in collagen and the embryological changes accompanying aging. In the clinical sciences the association between atherosclerosis and aging is being studied extensively.

Law Appointed to Panel

Dr. Lloyd W. Law, Head of the Leukemia Studies Section, Laboratory of Biology, NCI, has been chosen to serve for five years as a member of the WHO Expert Advisory Panel on Cancer.

As honorary appointee, panel members are asked to give the organization the benefit of their knowledge and to inform it of important developments in their own subjects, particularly in the countries in which they are working.

Geisser to Teach at Iowa

Dr. Seymour Geisser, mathematician in the Theoretical Statistics and Mathematics Section of the Biometrics Branch, NIMH, has been granted a leave of absence to become Visiting Associate Professor of Statistics at Iowa State University for the spring quarter of 1960.

Standing Committees Named For 1960 Medical Board

Following the January appointment of the NIH Medical Board for 1960 (reported in the NIH RECORD of February 16), Dr. Shannon has named the members of the standing committees of this Board. The list follows.

Steering Committee: Drs. Charles G. Zubrod (Chairman), Robert W. Berliner (Co-Chairman), Joseph J. Bonini, Jack Masur, George Z. Williams, Maitland Baldwin, Vernon Knight, and Nathaniel L. Berlin.

Clinical Research Committee: Drs. G. Milton Shy (Chairman), Charles G. Zubrod (Co-Chairman), Frederick C. Bartter, Vernon Knight, Mortimer Lipsett, and Jack Orloff.

Medical Record Committee: Drs. Ludwig von Hallmann (Chairman), Edward J. Driscoll (Co-Chairman), Andrew G. Morrow, David Hummert, Henry K. Beye, Emil Frei, and N. R. Shulman.

Education Committee: Drs. Murray Brown (Chairman), Robert S. Gordon (Co-Chairman), Charles G. Zubrod, Louis B. Thomas, Robert Stephan, Joseph J. Bonini, Frederick Stohlmann, and Edward J. Laszowski.

Credentiai Committee: Drs. John P. Ha (Chairman), William C. Jenkins (Co-Chairman), and Edward J. Driscoll.

Organization & By-Laws Committee: Drs. G. Donald Whedon (Chairman), Clifton K. Himmelsbach (Co-chairman), and William C. Jenkins.

Tissue Committee: Drs. Jarvis E. Seegmiller (Chairman), Robert R. Smith (Co-chairman), and Louis B. Thomas.

Normal Controls Committee: Drs. Clifton K. Himmelsbach (Chairman), Albert Sjoerdsma (Co-chairman), William C. Jenkins, G. Donald Whedon, John M. Van Buren, and Nathaniel L. Berlin.

Radiation Committee: Drs. George Z. Williams (Chairman), Theodore F. Lillibright (Co-chairman), Nathaniel L. Berlin, Joseph E. Hall, Donald S. Frederickson, Umer Liddle, David B. Scott, Seymour Kety, and H. L. Andrews.

The latter committee is an NIH committee, composed of five physicians nominated by the Medical Board, and four scientists nominated by the Scientific Director.


Sixteen Montgomery County women and two from Washington become Red Cross Gray Ladies at the Montgomery County Chapter graduation exercises, held in the 14th floor CC assembly hall February 26. Lt. Gen. Lewis B. Hershey, Chapter Chairman, extended greetings to the class. Also participating in the ceremonies were Dr. Jack Masur, CC Director; Dr. Robert M. Farrier, CC Assistant Director; Dr. Clifton K. Himmelsbach, CC Associate Director; Rev. William R. Andrew and Fr. Francis J. Veith, CC chaplains; Wiford Maginnis, Chief, CC Patient Activity Section; and Mrs. Eric Collins, Montgomery County Gray Lady Chairman. The new Gray Ladies will serve as volunteers in the CC and other medical centers in the county, providing personal services for hospitalized patients.

Dr. Cole Named to Biophysical Journal Editorial Board

Dr. Kenneth S. Cole, Chief of the Laboratory of Biophysics, NINDS, has been elected to the editorial board of the new Biophysical Journal, to be published bi-monthly by the Rockefeller Institute Press. The appointment was announced February 24 at the Fourth Annual Meeting of the Biophysical Society in Philadelphia.

Dr. Cole said the journal will attempt primarily to publish the diverse research studies conducted by members of the Biophysical Society. The first issue of the publication will probably appear in September 1969.

One of the founders of the Biophysical Society in 1958, Dr. Cole is now a member of its Council and Executive Board. The Society now includes some 800 members.

Translation

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the direction of Dr. Samuel S. Herman.

Another phase of the program is the periodic production of a bulletin listing the publications available.

The products of this program are distributed to some 400 libraries throughout the country, including academic and medical research institutions, and Army, Navy, Air Force, Veterans Administration, Atomic Energy Commission, and NASA research institutions.

The material provided by the NIH program now includes:

• Full translations of a number of important Russian monographs on biomedical subjects by Soviet scientists.

• Translations of abstracts appearing in the principal Soviet abstract journals. These constitute what the Russian scientific community regards as the most significant of its current literature.

• Reviews by American scientists of Russian scientific research accomplishments in health-significant fields.

• Periodic information on the availability of translated Russian scientific material.

• Supporting materials, such as a directory of medical and biophysical institutes in the Soviet Union, a selected list of references on medical research in the U.S.S.R., a description of the structure and functions of the Academy of Medical Sciences in the U.S.S.R., and a Russian-English medical dictionary.