



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE February 2, 1959, Vol. XI, No. 3

PUBLIC HEALTH SERVICE NATIONAL INSTITUTES OF HEALTH

NIAID REORGANIZES STRUCTURE OF LABS

Changes in the organizational structure of NIAID, contemplated for some time, took effect January 8. Designed to identify the programs more closely with current specialized research projects, the plan has created five new laboratories.

The Laboratory of Infectious Diseases, under Dr. Robert J. Huebner, retains its name and primary function. From it have been created the Laboratory of Biology of Viruses, with Dr. Karl Habel as chief, and the Laboratory of Cell Biology, under Dr. Harry Eagle.

The Laboratory of Tropical Diseases has been divided four ways. Dr. G. Robert Coatney, formerly acting chief of LTD, is now chief of the new Laboratory of Parasite Chemotherapy. Additional segments of the old LTD include the Laboratory of Parasitic Diseases, Dr. Leon Jacobs, chief; the Laboratory of Germ Free Animal Research, under Dr. Walter L. Newton; and the Laboratory of Tropical Virology, under Dr. Alexis Shelokov. Headquarters of the latter group is in the Panama Canal Zone; one section under Dr. William L. Pond is located on the Bethesda reservation.

Other laboratories and functions of NIAID remain the same.

DR. WITKOP AWARDED PRIZE IN CHEMISTRY



Dr. Bernhard Witkop

Dr. Bernhard Witkop, Chief of the Laboratory of Chemistry, NIAMD, has been named winner of the 1958 Hillebrand Prize by the Washington Section of the American Chemical Society.

The award is presented annually to a member of the society who has made a notable contribution in chemistry during the three preceding years. Dr. Witkop was cited for his work on natural products, oxidation mechanisms, and labile metabolic intermediates.

Former NIH winners of the Hillebrand Prize include Dr. Jesse P. Greenstein, NCI, 1957; Dr. Bernard L. Horecker, NIAMD, 1954; Dr. Lyndon F. Small, NIAMD, 1949; and Dr. Claude S. Hudson, NIAMD, 1948.

Nutrition Team Briefed

After receiving recent briefings here, the tenth nutrition survey team, under the direction of the Interdepartmental Committee on Nutrition for National Defense, will leave February 10 for a six-week study in Peru.

Previous teams have conducted surveys in Ethiopia, Spain, Alaska, Libya, Turkey, the Philippines, Korea, Pakistan, and Iran.

DR. FRANK RETURNS FROM USSR MISSION

Dr. Karl Frank, of the Laboratory of Neurophysiology, NINDB, returned in January from the USSR, where he was a member of a six-man team of American scientists surveying the status of neurology in that country.

In a recent press interview, the team reported that they found Russian support of neurological studies to be larger, in proportion to other health problems, than U. S. support in the same field. Russian neurologists have greater access to translations of our medical literature and have a comprehensive understanding of neurological research here.

The mission, sponsored by PHS and NINDB, was the first of its kind in the field of neurology. Under an agreement between the U. S. and Russia, a group of Soviet specialists will make a similar study of neurology in this country at a later date.

CREDIT UNION VOTES INCREASED DIVIDEND

A dividend of 4 1/4 percent was voted by members of NIH's Federal Credit Union at the annual meeting January 14. This is an increase of 1/4 percent over last year's dividend.

This figure, according to Credit Union President Dr. Roger M. Cole, reflects the continuing growth and stability of the organization. However, member increase is slowing down now that approximately three out of four NIH employees belong to the Credit Union.

Total assets for the year reached \$1,278,290, representing average savings of \$255 for each of the 4,690 members.

The following Credit Union officers were elected at the meeting:

(See Credit Union, Page 3)

Exam Scheduled By PHS For Officer Candidates

Competitive examinations for appointment to the PHS Commissioned Officer Corps will be held throughout the nation in March and April.

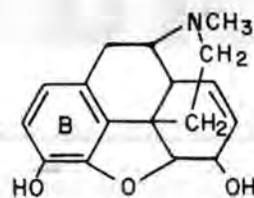
Persons interested must file applications for the examination with the Surgeon General no later than February 20. Forms and further information may be obtained by writing to the Surgeon General, USPHS, Washington 25, D. C.

NIH 7519 -- Better Than Morphine?

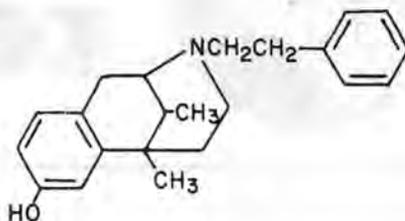
No. 223 in a Series

Publication Preview

The following manuscripts were received by the SRB Editorial Section between October 1 and October 16.



MORPHINE



NIH 7519

Molecular structures of morphine and NIH 7519.

Since 1806, when it was first separated from the juice of the opium poppy, morphine has been a blessing and curse to man. Its potent analgesic properties are offset, and sometimes outweighed, by harmful side effects, including its ability to make addicts of its users. The search for a synthetic drug which would retain morphine's pain-relieving properties and eliminate its addictive ones may have been brought closer to attainment a few months ago in the Laboratory of Chemistry, NIAMD, with the preparation of the compound 2-hydroxy-5 β -dimethyl-2-phenethyl-6,7-benzomorphan.

Known as NIH 7519, this compound is the result of carefully planned research, and is the cooperative effort of Drs. Nathan B. Eddy, chief of the Section on Analgesics, and Everette L. May, of the Laboratory of Chemistry. Dr. Eddy's work on morphine became a full-time operation in 1929 when he cooperated on a National Research Council drug addiction committee project attempting to separate addiction and analgesia by chemical means. In 1939 he came to NIH with the late Dr. Lyndon Small and Dr. Erich Mosettig to work on a similar program.

By accident, in the late 1930's, German chemists discovered Demerol, the first synthetic to have a fair degree of analgesic potency. A study of its molecular structure revealed that it and morphine had features in common. It was then a logical step for chemists to identify additional parts of the morphine molecule as starting points for the development of other synthetics.

Work done up to this time had led Dr. Eddy and others to summarize

the chemical features believed to be essential for a potent analgesic. Using this as a background, Dr. May, in 1952, took a fresh look at the morphine molecule. Mentally dissecting the structure, with the knowledge that not all of the molecule is necessary to impart strong analgesic activity, he saw in it simpler portions which he could duplicate. Fashioned by chemical synthesis from elementary coal tar products, the effect of one of these partial structures was equal to morphine in analgesic strength, but strong in addictive potency. Proceeding logically, he took another portion of the molecular structure and achieved its synthesis by standard chemical procedures.

Years of patient work and many trials and modifications of standard chemical reactions carried the process through to the final structure. From benzene and pyridine derivatives, catalytic reactions, hydrogenation, cyclization, distillation, purification, and final crystallization produce the new drug.

Proven safe and effective with animals, NIH 7519 is being used at several hospitals on human patients with various types of pain, and its addictiveness is being determined. Not only has it achieved pain-relieving potency approximately ten times that of morphine, but there is reason to believe that some decrease in addiction liability has been achieved. Respiratory depression and other side effects, common to patients given morphine, are less evident with the new drug. Tests and studies will continue for some time in order to prove the drug's true value and safety.

DBS

Eddy, B.; Stewart, S. E.; Stanton, M. F.; and Marcotte, J. M. The induction of tumors in rats by the S E polyoma virus mouse embryo tissue culture preparations.

NCI

Bryan, W. R. Quantitative biological experimentation in the virus and cancer fields.

Burger, J. W., and Loo, T. L. The bromination of phenol red by the dogfish, *Squalus acanthias*.

Del Vecchio, P. R.; DeWitt, S. H.; Borelli, J. I.; Ward, J. B.; Wood, T. A.; and Malmgren, R. A. Application of millipore filtration technique to cytologic material.

Fahey, J. L.; Potter, M.; and Nathans, D. Myeloma proteins and macroglobulins associated with plasma cell tumors in experimental animals.

Gatenby, J. B., and Dalton, A. J. The spermiogenesis of *Lumbricus herculeus*.

Lane, M., and Kelly, M. G. The anti-tumor activity of uracil mustard, a new alkylating agent.

Lane, M.; Petering, H. G.; and Brindley, C. O. Synthesis, pharmacology and clinical trial of the riboflavin analogue, sodium-6, 7-dimethyl-9-(2'-hemisuccinoyl)-isoalloxazine U-6538.

Lipsett, M. B., and Bergenstal, D. M. The metabolic and ACTH-suppressing activity of certain C₂₁-deoxysteroids.

Maver, M. E.; Peterson, E. A.; Sober, H. A.; and Greco, A. E. Purification and characterization of ribonucleases of calf spleen.

Nathan, D. G., and Berlin, N. I. Measurement of the production and life span of erythrocytes in myeloid metaplasia.

Stewart, S. E., and Eddy, B. E. Tumor induction by polyoma virus and the inhibition of tumors by specific neutralizing antibodies.

NHI

Anfinsen, C. B.; Aqvist, S. E. G.; Cooke, J. P.; and Jonsson, B. A comparative study of the structure of bovine and ovine pancreatic ribonucleases.

Aqvist, S. E. G., and Anfinsen, C. B. The isolation and characterization of some ribonucleases from sheep pancreas.

Bodenstein, D. Contributions to the problem of eye pigmentation in insects: Studied by means of intergeneric organ transplantation in diptera.

Brodie, B. B.; Maickel, R. P.; and Jondorf, W. R. Termination of drug action by enzymatic inactivation.

Chalfin, D.; Cooperstein, I. L.; and Hogben, C. A. M. Fluid and electrolyte movement across the intestinal wall of the bullfrog.

Levinson, N. G., and Berliner, R. W. The role of urea in the urine concentrating mechanism.

Levinson, N. G.; Davidson, D. G.; and Berliner, R. W. Effects of reduced glomerular filtration on urine concentration in the presence of anti-diuretic hormone.

Mitoma, C.; Smith, T. E.; Davidson, J. D.; Udenfriend, S.; DaCosta, F. M.; and Sjoerdsma, A. Improvements in methods for measuring hydroxyproline: Application to human urine.

Papadopoulos, N. M. Studies on the incorporation of glucuronolactone-6-C¹⁴ into connective tissue polysaccharides.

Rodbell, M., and Fredrickson, D. S. The nature of the proteins associated with dog and human chylomicrons.

Rodbell, M.; Fredrickson, D. S.; and Ono, K. Metabolism of chylomicron proteins in the dog.

Swarm, R. L.; Chatten, W. E.; Sanders, R. J.; and Bergental, D. M. The autoradiographic study of transplanted tissue.

NIAID

Levy, H. B., and Brodsky, I. The effect of a leukemia virus on phosphorus uptake by mouse spleen.

Lieberman, R.; Douglas, J. O. A.; and Humphrey, W., Jr. Ascites induced in mice by staphylococcus.

Salvin, S. B., and Smith, R. F. Delayed hypersensitivity in the development of circulating antibody. II. The effect of X-irradiation

Schultz, E. W., and Habel, K. SA virus -- a new member of the myxovirus group.

NIAMD

Buskirk, E. R. Exercise in the middle years. Chang, Y. T. The effects of kanamycin, streptomycin, paramomycin, novobiocin and ristocetin on murine leprosy.

Condliffe, P. G.; Bates, R. W.; and Fraps, R. M. Fractionation of bovine thyrotrophin and luteinizing hormone on cellulose ion exchange columns.

Diehl, H. W., and Fleicher, H. G., Jr. 2-deoxy-D-ribose (2-deoxy-D-erythro-pentose).

Lillie, R. D. Histochemistry and cellular pathology.

Markley, K.; Bocanegra, M.; Bazan, A.; Temple, R.; Chiappori, M.; Morales, G.; and Carion, A. Clinical evaluation of saline solution therapy in burn shock. Part II. Comparison of plasma therapy with saline solution therapy.

Pollard, C. J., and Bieri, J. G. Studies of the biological function of vitamin E. I. Tocopherol and reduced diphosphopyridine nucleotide-cytochrome C reductase.

Reid, M. E., and Martin, M. G. Nutritional studies with the guinea pig. V. Effects of deficiency of fat or unsaturated fatty acids.

Spicer, S. S., and Lillie, R. D. The differentiation of sulfate and carboxyl basophilia by methylation and demethylation.

Stohman, F., Jr., and Brecher, G. Humoral regulation of erythropoiesis V. Relationship of plasma erythropoietin level to bone marrow activity.

Warren, L. Sialic acid in human semen and in the male genital tract.

Yamada, E. W., and Jakoby, W. B. Enzymatic utilization of acetylenic compounds. II. Acetylenemonocarboxylic acid hydrazide.

NIDR

Burstone, M. S., and Fleming, T. A new technique for the histochemical study of smears.

Takuma, S. Electron microscopy of epiphyseal cartilage.

NIMH

Fox, J. H. Alcoholism: A point of view. McDonald, R. K.; Evans, F. T.; Weise, V. K.; and Patrick, R. W. Effect of morphine and nalorphine on plasma hydrocortisone levels in man.

Perlin, S., and Lee, A. R. Criteria for the selection of a small group of chronic schizophrenic subjects for biological studies.

Wynne, L. C. Discussion of papers by Drs. Spiegel, Grotjahn and Lidz. Academy of Psychoanalysis Annual Meeting, May 11, 1958.

NJH Spotlight



Dr. Kenneth Wolf

As a boy in Cleveland, privately educated Merrill Kenneth Wolf was reading deeply in both chemistry and counterpoint when other lads his age were just beginning to concentrate on the comic pages.

By the time he was 14, Ken Wolf had been graduated from Yale with an A.B. in Music, had completed his studies under Paul Hindemith, and was composing his own musical works.

Now, at 27, Kenneth Wolf, M.D., disdains the title of "Quiz Kid," and unobtrusively goes his way as a research associate in NINDB's Laboratory of Neuroanatomical Sciences, though he has composed two piano concertos, eight sonatas, a string quartet, and a number of smaller pieces.

Between graduation from Yale and enrollment seven years later in a medical school, Ken spent the time giving concerts throughout the country, practicing, and composing. After college, he had met and studied under the late Artur Schnabel, then made his New York debut in Town Hall in 1950. "There was no real changing over from music to medicine," he explains. "I grew up with music and I grew up with science. The two have always been part of my life."

M. K. Wolf became Dr. Wolf after earning his M.D. from Western Reserve University Medical School in 1956. He interned at Peter Bent Brigham Hospital in Boston before coming to NIH as a PHS commissioned officer last year.

This winter, Dr. Wolf has appeared in two performances in Washington, and presented a piano recital under R&W auspices in the CC Auditorium. In this last program, he included one of his own sonatas for his NIH audience.

NEWS BRIEFS

Dr. Theodor Von Brand, NIAID, returned last month from Europe, where he was guest lecturer at several German medical institutes. At the invitation of the Bavarian Minister for Education and Culture, Dr. Von Brand lectured on parasite physiology.

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Doctors Howard W. Bond, NCI, and Elmer G. Berry and Eugene C. Weinbach, NIAID, will leave this week to join a WHO panel of experts in Geneva for a session on bilharziasis.

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Dr. N. W. Shock, NHI, has been appointed a member of the Research Committee of the American Heart Association for the period 1959-64 as the representative of the Council on Circulation. He will also serve as chairman of the Research Study Committee of that council.

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Dr. Cornelius B. Philips, of NIAID's Rocky Mountain Laboratory, Hamilton, Mont., has been named a member of the International Committee on Bacterial Nomenclature, a branch of the International Association of Microbiological Societies.

CREDIT UNION Contd.

Board of Directors: John A. Beglin, DBO; Dr. Roger M. Cole, NIAID; Mrs. Clydis Jones, DBO; and Dr. John F. Sherman, NIAMD.

Supervisory Committee: Donald F. Brown and John B. Reed, both of DBO.

Credit Committee: Mrs. Zella N. Boteler, Credit Union Office, and Clair Lacey, NIAMD.

But medical research claims most of Ken Wolf's time and energy. As a research associate, he is involved in studies on tissue cultures of the nervous system, and in the staining of living cells with fluorescent dyes.

Last May, Dr. Wolf was married to the former Emily Vaughn, of Atlanta, whom he had met in Boston. Now living at Pooks' Hill in Bethesda, they will soon be packing for another move--in July, he will begin a residency in neurology at Massachusetts General Hospital in Boston, and she will resume her graduate studies in English at Radcliffe.

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NIMH SCHEDULES TALKS ON SCHIZOPHRENIA

A symposium, "Phenomenology of Schizophrenia," under the auspices of NIMH, will be held February 13, at 2 p.m., in the CC Auditorium.

Three speakers are listed for the meeting: Dr. Oskar Diethelm, Chairman of the Department of Psychiatry, Cornell University College of Medicine, whose topic will be "Schizophrenia in the Hospitalized Patient"; Dr. Paul Hoch, Commissioner of Mental Health for the State of New York, who will speak on "Schizophrenia in the Ambulatory Patient"; and Dr. Jack Nardini, Chief of Psychiatry at the National Naval Medical Center, Bethesda, who will address the group on "Schizophrenic Reactions Under Severe Stress."

Also included in the symposium is a panel discussion and a question-and-answer period.

Officers Installed At NFFE Meeting

Members of the NIH chapter of the National Federation of Federal Employees (NFFE) met January 15 for the first time officially as Local 1297. Dr. George M. Briggs, DGMS, president of the group, presided.

Officers were installed in a formal ceremony conducted by Henry G. Nolda, NFFE national officer.

The next meeting of Local 1297 will be held on March 19 at noon. The location will be announced later.

Obituaries

Two employees with long records of Government service died here late last month.

Pvt. James A. Glover, 37, a member of the guard force at NIH since 1954, died at his home in Washington. A former combat infantry sergeant, Mr. Glover came to NIH after service at the Smithsonian Institution. He was a native of South Carolina.

Roger Hallman, 65, duplicating equipment operator in NIMH, died January 25 at his home in Gaithersburg. Before promotion to his last position, Mr. Hallman was a special messenger for NIMH. Born in Poolesville, he had been at NIH since 1950. Previously, he was employed by the Department of the Interior.

HEALTH SERVICE OFFERS WIDE AID TO NIH



Nurse Harriet Brunscheen prepares an eye solution for Lee Ingram, CC cook.



Nurse Margaret Lamson takes a throat culture from Nancy Duley.

Before beginning work at NIH, the new employee makes a visit to the Clinical Center for a physical examination at Employee Health Service. When a worker here leaves his job, EHS is notified in order to close out his medical records.

Between his arrival and departure, EHS plays a continuous and often unknown part in the life of the average employee. Under the direction of Dr. John M. Lynch, EHS is responsible for all matters relating to the health of the employee. It not only assists in preventing and controlling occupational diseases and injuries, but also aids workers in maintaining their health at the highest possible level.

Though considered a model occupational health program by experts, and closely paralleling medical services available to workers in more progressive private industries, EHS must constantly deal with problems unusual in other organizations. Some of the major occupational hazards peculiar to NIH are infectious micro-organisms, toxic chemicals, and radiation. To combat these hazards, EHS uses immunizations, safety education, health advice and guidance, and other preventive measures.

In the past year, for example, EHS administered 9,931 injections and immunizations ranging from influenza and smallpox to yellow fever and cholera. The service also conducted more than 1,800 physical examinations of new employees. Health advice and guidance was given on almost half of all employee visits in the past year.

Occupational injuries receive their share of EHS attention, despite continuous preventive measures. Prompt treatment of accidental injuries as well as their prevention is a necessary function of the service, and calls for close coordi-

nation with other units here. EHS collaborates with Plant Safety Branch and Sanitary Engineering Branch as a member of NIH's Environmental Health Advisory Group.

An unusual feature of EHS is its policy of cooperating with NIH scientists on various research projects, in addition to providing assistance to the employee. Each worker who complains to EHS of a sore throat, for instance, will have a throat culture taken by a nurse. These cultures are incubated in the unit's own laboratory for streptococci and staphylococci, and then sent to the interested scientist for further study.

"Staph" cultures are studied in the CC Clinical Pathology Department as part of the program to evaluate staphylococcal infections in hospitals. Streptococci and virus cultures are sent to NIAID specialists who are studying causes of respiratory infections.

Recently, the unit collaborated with DBS in the testing of polio immunizing techniques, and, following administration of influenza vaccine in 1957 and 1958, was able to collect data on vaccine reactions, thus combining service to employees with clinical research.

With the recognition of mental illness as a problem of industry, EHS operates a program to assist employees in attaining better job adjustment and satisfaction. With the cooperation of NIMH, the unit offers wide counselling services to workers with emotional problems that influence job performance.

Recently, the staff of EHS has been able to rearrange its present facilities to make better use of its space; and although still operating in a limited area, the service is now, according to one of its nurses, "doing more business than ever before."