the NIH Record

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

February 6, 1968
Vol. XX, No. 3

NATIONAL INSTITUTES OF HEALTH
PUBLIC HEALTH SERVICE

Secy. John W. Gardner Praises HEW Employees

John W. Gardner, Secretary of Health, Education and Welfare, whose resignation was accepted January 25 by President Johnson "with deep regret," paid tribute to departmental employees "in all agencies and all grades" in a report summarizing his term of service.

"It was my good fortune to come to this Department at an extraordinarily exciting time in its history," Secretary Gardner said in *HEW Progress Report*, a 51-page document addressed to all HEW employees.

Mr. Gardner gave credit for the achievements of the Department since he assumed the post of Secretary in August 1965 to President Johnson, to Congress, and "to the able employees of HEW who

(See SECY. GARDNER, Page 2)

Dr. DeCesare to Head DRFR's Gen. Clinical Research Centers Br.

Dr. William R. DeCesare has been named Chief of the General Clinical Research Centers Branch of the Division of Research Facilities and Resources.

Dr. DeCesare

Dr. DeCesare joined the Division in November 1966 as assistant chief of the branch, and had been serving as acting branch chief for several months.

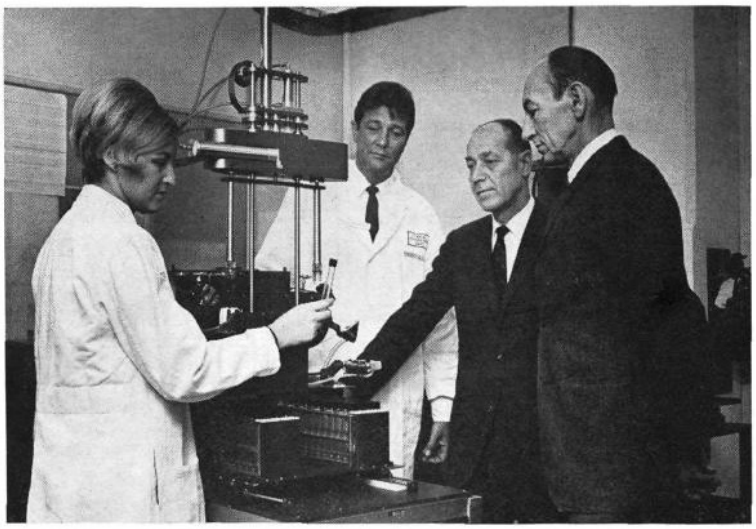
The General Clinical Research Centers Branch is responsible for the administration of grants for 91 clinical research centers with a total of 1,070 beds. Each center has its own beds, staff, and laboratories within a larger hospital, for precise clinical studies.

Dr. DeCesare received his A.B. from Dartmouth College, graduating cum laude, and his M.D. from Harvard Medical School.

He was a Fellow in Dartmouth Medical School while at the Veterans Administration Hospital, White River Junction, Vt., and

(See DR. DE CESARE, Page 5)

DRS Develops Labor-Saving Instruments For Use in CC's Virus Diagnostic Lab



Under the guidance of Dr. Andrew Vargosko (center), Sharon Gainsburg operates the automatic medium exchanger as its developers, George Lawrence (l) and Frank Anderson of DRS, look on. The exchanger is designed to mechanically change nutrient material to keep cell tissue growing at a controlled rate.—Photos by Ed Hubbard.

By Sandra Silk
NIH Information Intern

With the possibility of a severe influenza epidemic forecast here, strains of "Sore throat . . drippy nose . . nausea . . fever . . headaches . . I think I've got the 'flu'," are likely to become more prevalent.

What is commonly called "flu" is a catch-all term for infections due to respiratory viruses that send thousands of persons to bed each year. Research is being conducted at NIH to identify both old and new strains of viruses so that vaccines can be developed and improved to combat them.

Identifying and typing viruses is tedious and time-consuming. In the Division of Research Services, biomedical engineers and technicians work with researchers in the Clinical Center's Virus Diagnostic Laboratory, Clinical Pathology Department, to develop automated, labor-saving instruments that will aid in cell culture maintenance and serologic virus identification.

Viruses are so small they cannot be seen through a light microscope. However, if they are inoculated into and adhere to certain cell cultures, their effect upon the living cells can be observed.

Because viruses only grow in

(See DRS, Page 3)

Income Tax Help Available To Employees at 3 Centers

Assistance and advice in completing income tax returns are available to NIH employees at the following locations and times:

Bldg. 31, Rm. 5B-40, Monday through Friday, 9:30 a.m. to 4:30 p.m.; Mr. L. Ramelli, Ext. 64022.

Westwood Bldg., Rm. 332; Wednesday, 2 to 5 p.m.; Mr. J. Rowley, Ext. 67307.

Bldg. 10, Rm. 1B-35, Monday, Tuesday, Thursday, and Friday, 1 to 5 p.m.; Mr. J. Rowley, Ext. 63068.

A draft copy of the tax return should be completed as far as possible and brought to the tax assistant when requesting help.

Copies of income tax forms can also be obtained at the locations listed above.

Proposed 1969 Budget Asks $1,196.6 Million Appropriation for NIH

A request of $1,196.6 million for the National Institutes of Health is included in the Fiscal Year 1969 Federal budget President Johnson submitted to Congress January 29.

This is an increase of $21.5 million over the $1,175.1 million appropriated for FY 1968.

A summary of the President's budget showing separate appropriations will be found on page 4.

Specifically, the budget provides that in 1969, NIH will support approximately 12,000 research project grants, of which about 3,200 will be either new awards or renewals of grants whose prior period of support has expired.

Many of these projects will be new investigations in fields such as reproduction and population research, perinatal biology, adult development and aging, atherosclerosis, hypertension, and latent viruses as a cause of chronic neurological disease.

In addition to these increases, $12.7 million will be available for the continuation and expansion of associated resource support programs, such as clinical and specialized research centers, and for the training of research personnel.

In accordance with last summer's

(See BUDGET, Page 4)

Dr. Bartter Delivers First Eli Lilly Lecture

Dr. Frederic C. Bartter, chief, Clinical Endocrinology Branch, National Heart Institute, presented the first Eli Lilly lecture at the VII Annual Meeting of the Mexican Society for Nutrition and Endocrinology in Guadalajara, Mexico, recently.

His topic was "Studies on the Biochemical and Physiologic Abnormalities in Non-Salt-Losing Congenital Adrenal Hyperplasia."

Dr. Jorge Martinez Manautou, the president of the Society, awarded the lectureship to Dr. Bartter.

Dr. Bartter also presented the annual Alfonso Rivera prize to Dr. Federico Dies for outstanding work

(See DR. BARTTER, Page 7)

the NIH Record

Published bi-weekly at Bethesda, Md., by the Publications and Reports Branch, Office of Information, for the information of employees of the National Institutes of Health, principal research center of the Public Health Service, U.S. Department of Health, Education, and Welfare, and circulated by request to all news media and interested members of the medical- and science-related fields. The NIH Record content is reprintable without permission and its pictures are available on request.

NIH Record Office.....**Bldg. 16, Rm. 212. Phone: 49-62125**

Associate Editor ..... Margaret Suter
Assistant Editor ..... Frances W. Davis

Staff Correspondents

Tony Anastasi, DRS; Bari Attis, NINDB; George Bragaw, NHI; Dale Carter, DRMP; Mary Anne Gates, NIAMD; Sue Hannon, NIDR; Bowen Hosford, CC; Walter Jacob, OAM; Sheila Jacobs, NCI; Elizabeth Y. James, DEHS; Betty Kuster, DCRT; Hugh J. Lee, DRG; Art McIntire, NIMH; Martha Mader, NIAID; Faye Peterson, DBS; Dan Rogers, NICHD; Wanda Warddell, NIGMS; Beverly Warran, DRFR.

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NEWS from PERSONNEL

LIFE INSURANCE CHANGES

The Postal Revenue and Federal Salary Act of 1967 made important changes in the Federal Employees' Group Life Insurance program. An information sheet pointing out these changes and their effect on employees' pay checks was distributed recently.

As a result of the 4.5 percent retroactive pay raise, the salaries of many employees were raised to the next higher $1,000 salary bracket. This means that these employees' regular life insurance coverage and withholdings were increased on December 16, 1967, the date the pay bill was signed.

Beginning February 25, 1968, employees earning less than $8,000 a year will be insured for $10,000. Those whose annual salaries are more than $8,000 will be covered by an amount equal to their annual pay, rounded to the next higher thousand, plus an additional $2,000 up to a maximum of $32,000. Also, on February 25th, the biweekly withholdings rate will be increased from 25 cents to 27½ cents for each thousand dollars of regular insurance coverage.

OPTIONAL INSURANCE

A new amendment to the life insurance program provides an opportunity to obtain an additional $10,000 optional coverage. Premium payments for the extra insurance depend upon the employee's age and increase as he moves into a higher age bracket. The biweekly deductions are $3 for employees under age 35; $6 for those between 35 and 54; and $20 for those 55 and older.

It is important to note that employees wanting the optional insurance must take the full $10,000 coverage. Only employees who have regular insurance coverage are eligible for the optional insurance.

OPPORTUNITY TO FILE

Employees will soon receive a special form through their timekeepers. Each employee not excluded by law or regulation, including those who previously waived coverage, will be asked to indicate on this form one of the three following choices: he may elect the extra $10,000 insurance in addition to regular coverage; he may decline the optional insurance if he prefers to have regular coverage only; or he may waive all life insurance coverage.

February 25 Cut-off Date

Effective February 25, 1968, all life insurance waivers on file will be automatically cancelled. Therefore, employees wishing to continue to waive life insurance coverage must do so on the special form before that date, or withholdings from their paychecks for regular life insurance coverage will automatically be made.

Latest Participants in NIH Visiting Scientists Program Listed Here

1/2—Dr. Livio Mallucci, Italy, NIAID. Sponsor: Dr. Norman P. Salzman, Bldg. 2, Rm. B13.

1/4—Dr. Yngve O. Olsson, Sweden, NINDB. Sponsor: Dr. Keith Richardson, Bldg. 9, Rm. B9.

1/10—Dr. Eiichi Kano, Japan, NCI. Sponsor: Dr. Mortimer M. Elkind, Bldg. 10, Rm. B1B46.

1/18—Dr. Ken Hotta, Japan, NIAMD. Sponsor: Dr. William J. Bowen, Bldg. 4, Rm. B30.

'Operation Clean-Up' Underway at NIH; 'Walk-Thrus' of All Buildings Scheduled

James B. Davis, Chief, Supply Management Branch, asks all NIH employees to be on the lookout for the crew on the poster shown below. These critters symbolize the second annual war on clutter-up.

In keeping with President Johnson's efforts to continue achieving economies in procurement, supply,

and property management, NIH is conducting "Operation Cleanup."

According to Mr. Davis, SMB anticipates the same spirit of cooperation this year as in February 1967, when approximately 2,500 items valued at $827,000 were transferred to SMB's Property Utilization Warehouse for reissue to other NIH components or Government agencies.

Richard L. Seggel, Executive Officer, NIH, said the purpose of "Operation Cleanup" is to identify all items of equipment and supplies not in use or no longer necessary.

Locating these items will be accomplished by a "walk-thru" of every building occupied by NIH employees, both on and off the reservation.

Buildings off the reservation will be visited the week of February 19, and NIH reservation buildings the week of February 26, 1968.

"Walk-thru" teams are composed of representatives from each Institute and Division and SMB.

History of Medicine Soc. To Meet February 20

The first of a series of lectures reviewing recent developments in several fields of medical practice and research will be held by the Washington Society for the History of Medicine Tuesday, February 20 at 8 p.m. in the Billings auditorium of the National Library of Medicine.

The scheduled program will include a talk on recent advances in obstetrics and gynecology by Dr. Robert H. Barter, Professor of Obstetrics and Gynecology, George Washington University, and a review of recent developments in psychiatry by Dr. Robert A. Cohen, director of Clinical Investigation, National Institute of Mental Health.

Interested guests are welcome.

SECY. GARDNER

(Continued from Page 1)

launched the monumental programs and made them work."

Officials of HEW at all levels "have done their duty firmly," he said, "and served the public interest."

Mr. Gardner's resignation is effective March 1. He will return to the Carnegie Corporation, of which he formerly was president, as a consultant on urban problems.

Civil Defense Warning Siren Test Scheduled for Feb. 14

The warning siren mounted on the roof of the Clinical Center will be sounded Wednesday, February 14, at 11 a.m., according to Lloyd R. Stewart, Emergency Planning Officer, Plant Safety Branch.

Monthly Civil Defense siren tests in the Washington Metropolitan area are held the second Wednesday of each month at 11 a.m.

The "Attack Warning Signal," a rising and falling or warbling tone, will sound for 90 seconds.

In a real emergency, this signal would operate from 3 to 5 minutes. It would mean an attack is considered imminent, and that all persons should go to a shelter without delay, or take the best cover immediately available.

'King Solomon's Mines' Film at CC Feb. 17-18

"King Solomon's Mines," a film starring Stewart Granger, Deborah Kerr, and Richard Carlson, will be shown at the Clinical Center auditorium Saturday, February 17 at 8 p.m. and Sunday, February 18 at 7 p.m.

The movie, one of the R&W's 1967-68 Film Festival presentations, is open to CC patients and their guests and to R&W members and their families.

Based on the novel by H. Rider Haggard, the story is concerned with an African safari in search of a missing explorer who had gone looking for the legendary diamond mines of King Solomon.

DRS Biomedical Engineers Help Develop Instruments to Aid Virus Identification

(Continued from Page 1)

living tissue, tissue in which the viruses are tested must be kept alive for the duration of the testing period, usually 3 weeks. This is accomplished by feeding nutrients to the cell cultures.

Workload Heavy

Each week the Virus Diagnostic Lab receives hundreds of test tubes containing living cultures of human or animal cells. These mono-layered cell cultures, supplied by commercial firms and DRS, come immersed in a growth nutrient.

If allowed to remain in this medium, the cells would grow too fast to be manageable during the testing period. Therefore, in the Virology Lab, the growth medium is exchanged for a maintenance medium so the cell metabolism can be controlled.

Automatic Exchanger Developed

An automatic medium exchanger has been developed by Dr. Andrew Vargosko, CC Clinical Pathology Department, and a DRS biomedical engineering team consisting of George Simon, George Lawrence, and Frank Anderson, to relieve the laboratory technicians of changing the maintenance medium manually.

This device mechanically exchanges used medium for fresh medium in a controlled environment at the rate of two test tubes every 20 seconds.

A rack of test tubes is automatically fed into the exchanger. The device picks up two tubes, unscrews the caps, and tilts the tubes, emptying the liquid contents. The cell culture is not lost during this procedure because it grows on and adheres to the test tube walls.

Procedure Described

As the tubes are raised again to an upright position, the lips of the tubes pass between small bunsen burners to be dried and sterilized. The tubes are then injected with fresh, pre-measured medium, the caps screwed back on, and the tubes returned to the rack. The machine indexes them and moves to the next two tubes to repeat the process.

The automatic exchanger is truly a labor-saving device. Nearly all the fresh cell cultures inoculated with patients' specimens require medium changes twice a week to maintain cell viability. In the Clinical Center's Virus Diagnostic Lab, this means thousands of test tubes each week.

Culture Inoculated

During the identifying and typing process the prepared cell culture is inoculated with a specimen suspected of harboring a virus. The specimen might be a throat swab, sputum, or a urine sample. It is delivered to the lab in collection fluid of a balanced saline solution to maintain the virus in the state it was found. The collection fluid also contains antibiotics to kill any bacteria that might contaminate the virus culture to be tested.

After the virus is introduced to the cell culture, the test tubes are placed on a slant in a roller drum and turned. If a virus is present in the specimen, it will invade the cells and start to grow.

Unlike bacteria which reproduce by binary fission, viruses replicate. A virus invades the cell nucleus and redirects the signals produced by the DNA molecules. The virus tells the DNA to stop its normal functions and signals the cell to make viruses. The cell is altered by this action, and the new viruses break out and go into other cells.

Since the virus cannot be seen under a light microscope, the technician must look for the effect it produces in the cell culture, termed cytopathic effect, or CPE.

3-Week Growth Period Allowed

Sometimes CPE doesn't appear for 3 weeks, the amount of time the virus is allowed to grow and attach itself to the cell culture. Normally, if no CPE is evident at the end of this period, the specimen is said to be negative.

But some viruses, although they are growing in the cell culture, never show CPE and are only detected by other procedures, such as hemadsorption or the interference of growth of a known virus. Different types of CPE are identified by screening tests dependent on trained observers.

Once it has been established that a virus is present, an attempt at identification is made. The hemagglutination inhibition test and the complement fixation test are sometimes used to determine the type of virus present.

DRS biomedical engineers and technicians are cooperating with Dr. Vargosko in the Virology Lab to devise instruments to aid identification: an automatic diluting device, a measured aliquot dropping device, and an optical scanner that will aid in performing the hemagglutination inhibition and complement fixation tests.

The automatic dropping device will deposit reagents of a specific amount and type into wells of a micro-titer plate. The diluting device dilutes out the antigen or antibody used in these tests. It is important that during these processes the diluting loops do not touch the sides of the wells or the proportions will be upset.

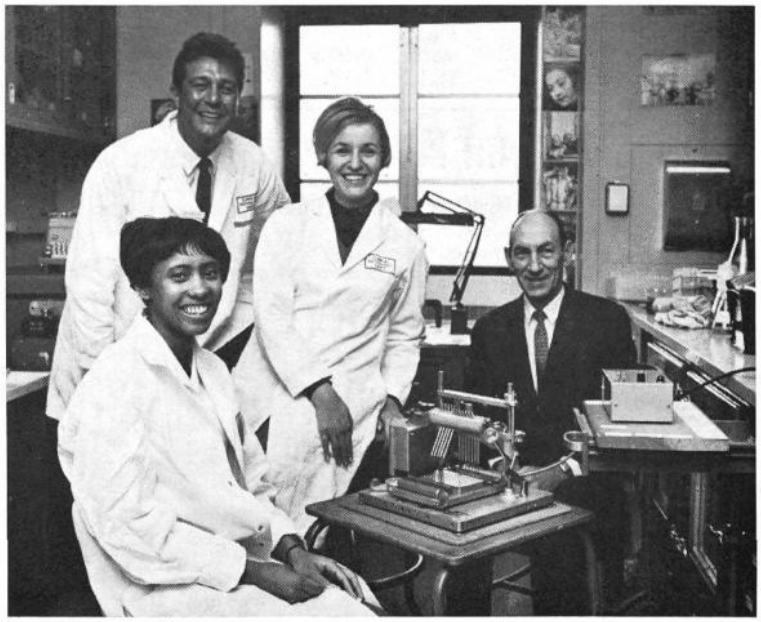
In the antigen-antibody reaction, the red blood cells will agglutinate, button, or hemolyze, or combine some of these reactions. If agglutination occurs, the red cells spread out, forming a thin film across the micro-titer plate well. If they button, the cells drop down to the bottom of the micro-titer plate well as a small dot. Hemolysis will result in suspended or floating particles in the micro-titer plate well.

Optical Scanner Being Developed

A new optical scanner, being developed by Courtney Mudd of DRS, will automatically pass over the micro-titer wells and, by measuring light transmittance, determine if the antigen-antibody reaction caused the red cells to agglutinate, button, or hemolyze.

It is expected the optical scanner will read the test results, record them on computer tape, and have them printed out and sent to the physician on the ward.

Courtney Mudd (seated) from BEIB collaborates with Dr. Andrew Vargosko in the design of an optical scanner, which, by means of measure light transmittance, helps determine the results of antigen-antibody reaction, a part of the virus testing. The device is seen here in its first stage of development.



Delighted with the successful performance of the automatic diluting device are (l to r) Patricia Henderson, Dr. Andrew Vargosko, and Sharon Gainsburg of the CC Virus Diagnostic Lab, and Frank Anderson of the DRS Biomedical Engineering and Instrumentation Branch. This machine will automatically dilute out antigens or antibodies used in virus identification.

2 New Films on Cancer Chemotherapy Research Telecast This Month

Two new motion pictures on cancer chemotherapy research, sponsored by the National Cancer Institute, will be telecast beginning this month by 133 stations of the National Educational Television network.

In Washington the first film of the "Drugs Against Cancer" series, subtitled "The Search," will be shown in color Monday, February 12 at 10:30 p.m., and repeated Sunday, February 18, at 4 p.m., on WETA-TV, Channel 26.

Research Methods Shown

The station will telecast the second film, subtitled "The Battle in the Cell," Monday, February 19, at 10:30 p.m., and again Sunday, February 25, at 4 p.m.

"The Search" details the NCI's methods of finding, screening, and evaluating cancer drugs and achieving optimum therapeutic effects in cancer patients.

"The Battle in the Cell" describes the scientific basis for achieving selective toxicity with cancer drugs, including details of the cell cycle and determinations of effective drug doses and schedules. Both are half-hour films.

BUDGET

(Continued from Page 1)

report to the President on NIH research programs, funding for specific goal-oriented research, conducted largely through contracts, will be expanded by more than $9 million. This includes new or increased investigations in the artificial heart program, in transplantation immunology, in the development of new contraceptive methods, in the psychological and social aspects of family planning, and in the early detection and treatment of cancer of the lung and breast.

An amount of $20.6 million will be available for grants to assist construction of health research facilities. This represents a combination of new funds requested and money brought forward from FY 1968.

Summary of NIH Budget by Appropriations

(amounts in thousands)

	1968		1969	
Institutes and Divisions	*Appropriations*	*Obligations*	*Appropriations*	*Obligations*
DBS	8,649	8,519	8,499	8,499
NCI	183,356	181,714	187,707	187,707
NHI	165,898	165,748	169,735	169,735
NIDR	30,288	39,921	30,414	30,414
NIAMD	143,954	142,344	146,489	146,489
NINDB	126,956	126,552	131,195	131,195
NIAID	94,422	93,502	98,562	98,562
NIGMS	160,250	159,046	165,777	165,777
NICHD	68,621	68,035	75,394	75,394
DRMP	58,814	53,786	68,922	99,822
DEHS	17,289	17,024	18,099	18,099
GR&S	81,141	79,335		87,500
Health Research Facilities Construction Grants	35,000	38,400	87,500 8,400	20,608
Fogarty Center	500	450	.....	50
Total, NIH	1,175,138	1,164,376	1,196,693	1,239,851

Dr. Vincent E. Price Reassigned at NIGMS

Dr. Vincent E. Price has been named special assistant to the director for special programs of the National Institute of General Medical Sciences.

Dr. Price was the former associate chief for scientific programs of the Research Training Grants Branch at NIGMS.

Dr. Price will investigate programs that contribute to the Nation's health through research in molecular and cellular biology, genetics, biochemistry, and other fundamental biomedical sciences, Dr. Frederick L. Stone, Institute Director, announced.

Dr. Price also will develop new programs that may effectively shorten the period required to train capable medical scientists needed in the basic health sciences.

Background Given

Dr. Price is a native of Battle Creek, Mich. He received his A.B. degree from Oberlin College, Ohio, in 1942 and his M.D. from the University of Michigan in 1945. He interned at University Hospital, Ann Arbor, and was commissioned in the PHS in 1946 when he joined the National Cancer Institute.

In 1950, on a PHS research assignment, Dr. Price worked at the Universitetets Institut for Cytofysiologi, Copenhagen, Denmark, under Professor Herman Kalckar.

Dr. David Korn, NIAMD, Honored by Maryland Academy of Sciences

Dr. David Korn named "Distinguished Young Scientist" for his research on the biochemistry of bacteriophages.

Dr. David Korn, Laboratory of Biochemical Pharmacology, National Institute of Arthritis and Metabolic Diseases, was recently named a "Distinguished Young Scientist" by the Maryland Academy of Sciences for his research on the biochemistry of bacteriophages.

The Academy presented three distinguished scientist awards and one outstanding scientist award to Maryland recipients under age 35.

Dr. Korn's Work Cited

Dr. Korn was honored for demonstrating a new mode of action for actinomycin D, a widely used antibiotic. He found the drug prevents assembly of bacteriophage components into new progeny within infected bacterial cells.

Bacteriophages are viruses which invade bacteria and take over the latter's biosynthetic machinery to reproduce more of their own kind. When new viruses, whose heads consist of DNA within a protein coat, have been formed, the bacterial cell is destroyed to release them.

Other Findings Given

In the presence of actinomycin, Dr. Korn discovered, structurally normal virus heads form, but do not have the vital DNA inside. This finding has resulted in revision of existing theories on the mechanism of formation of virus heads.

Normally, during the development of new viruses, there is an orderly sequence by which new DNA matures to form viral chromosomes. Dr. Korn found that actinomycin directly blocks the maturation, causing a large accumulation of immature forms of DNA within the bacterial cell.

A major problem in viral disease research is the identification of drugs which prevent the development of viruses in the body without damaging the host's cells. The selective inhibition of virus assembly processes may provide a target for such research efforts.

Dr. Korn received an M.D. from Harvard University in 1959 and completed his internship and residency in pathology at Massachusetts General Hospital. He then served for 2 years in NIAMD's Laboratory of Biochemistry and Metabolism as a research associate in the PHS Commissioned Corps. He joined the permanent staff of the Laboratory of Biochemical Pharmacology in 1964.

NHI Exhibit on Stroke Wins Merit Certificate

A scientific exhibit, "Epidemiology of Stroke," prepared by the National Heart Institute, has received a Certificate of Merit from the American Osteopathic Association.

The exhibit was displayed recently at the AOA's 72nd Annual Convention and Scientific Seminar.

Don Bradley and Bob Palmer of the Heart Information Center and Dr. William B. Kannel, Dr. Bart L. Troy, Patricia McNamara and Carleen Simoneau of the Framingham, Mass. epidemiology study staffed the exhibit.

Exhibit Described

The exhibit showed how certain physiological responses, including ECG abnormalities, elevated blood pressure, impaired heart function, and abnormal carbohydrate metabolism relate to the subsequent development of stroke. These findings are a part of NHI's epidemiology study, which was begun in 1951.

Visitors participated in the exhibit by having their vital capacity, ECG, and blood pressure recorded and interpreted by the Framingham staff. A pamphlet, "Epidemiology of Stroke" (PHS Publication 1607), accompanied the exhibit.

Blood Bank at CC Receives 253 Units of Blood in Dec.

The Clinical Center Blood Bank reports that 253 units of blood were received from NIH donors in December. During the same period CC patients received 1,825 units of blood.

Seven NIH staff members have joined the "Gallon Donor Club": Henry J. Cole, DRS; Wallace M. Embrey, NCI; Roy Frazier, DRS; Dr. Berge Hampar, NCI; Dr. Eric J. Hanson, NIMH; Edward J. Rubick, DCRT; and Helen K. Small, DRS.

Gladys Kauffmann, NCI, Retires With 30 Years Government Service

Gladys Kauffmann, 30-year employee of NIH, has retired from the Endocrine Evaluation Branch of the National Cancer Institute.

Miss Kauffmann joined the Federal Government on July 18, 1938 as an immunochemist in what is now the National Institute of Allergy and Infectious Diseases. During her 20 years service in this area she co-authored more than 30 scientific publications on the immunochemistry of infectious diseases.

Joined NCI in 1958

Miss Kauffmann joined the Cancer Chemotherapy National Service Center in 1958 as a member of the Endocrine Evaluation Activity. Her responsibilities included collecting, abstracting, filing, retrieving and publishing bibliographies and reference data on the properties of endocrine compounds.

She used her knowledge of French, German, and Italian to review foreign scientific literature and abstract information for endocrine research scientists. She also served as an assistant editor of *Biological Activities of Steroids in Relation to Cancer*, a book containing the proceedings of the Vergennes Conference sponsored by the Endocrinology Panel of CCNSC.

Miss Kauffmann was born in Medford, Mass., and earned an A.B. degree from Radcliffe College. She began her professional career as an immunochemist at Harvard Medical School in 1924.

Miss Kauffmann has a great interest in photography, music, and literature. She recently donated 200 books from her collection to the Chevy Chase Presbyterian Church library.

She is a member of the American Chemical Society, Society of American Bacteriologists, American Association for the Advancement of Science, Society for Experimental Biology and Medicine, and the American Academy of Political and Social Science.

Miss Kauffmann has returned to her home in Massachusetts.

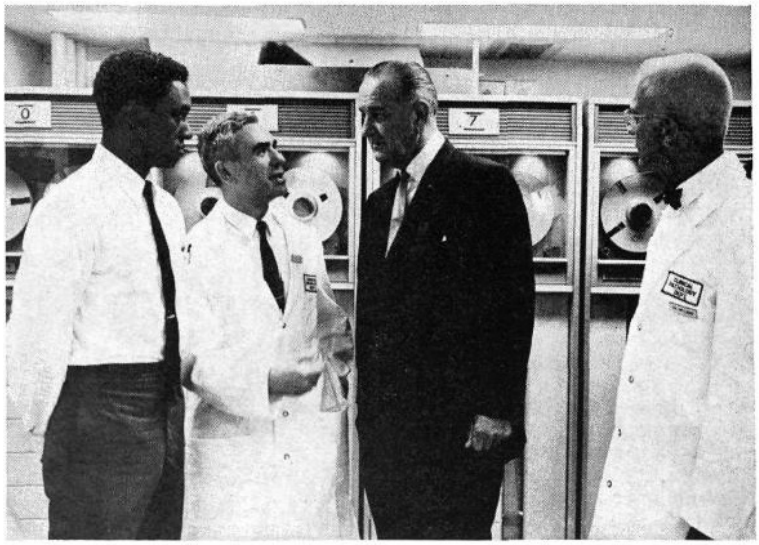
DR. DE CESARE

(Continued from Page 1)

then served as a trainee in hematology at Georgetown University Hospital. In 1964, he joined the Georgetown University as Instructor in Medicine, Assistant Director of Hematology, Assistant Director of Laboratories and Assistant Program Director of an NIH Hematology Training Grant.

Dr. DeCesare has authored and coauthored papers on mechanical hemolytic anemia and blood preservation.

Automated Laboratory Instruments Help Clinical Center Keep Up With Workload



Presidential visit last July highlighted significance of automation and computer research at Clinical Center. Left to right: Laboratory Computer Manager John D. Stimpson, Dr. Ernest Cotlove, President Johnson, and Dr. George Z. Williams.—White House Photo.

During the past 15 years, the clinical laboratory has played an increasingly important role in patient care. In the Clinical Center's Clinical Pathology Department, the workload doubles every 5 years, but the supply of skilled technical personnel is not keeping pace.

In order to meet the demand for more—and more accurate—laboratory tests, the Clinical Pathology Department, headed by Dr. George Z. Williams, has developed extensive automation and automatic data processing facilities.

Last Sunday night this system was described in part by television reporter Walter Cronkite on the "21st Century" program.

The story of automation and data processing at the Clinical Center began 10 years ago, when several automated instruments were developed. In 1962 an IBM card processing system was introduced. This reduced clerical drudgery from an average of 2½ hours to 30 minutes for each technologist.

Problems Recognized

However, Dr. Williams and his deputy chief, Dr. Ernest Cotlove, realized the card processing equipment would not be able to retrieve patient data efficiently, nor receive data directly from instruments. They knew that only a computer could process raw data from laboratory equipment, calculate and provide an immediate printout of results.

A CDC 3200 computer was installed in 1965. After more than 2 years of study and testing, the computer now can receive raw data directly—that is, "on-line"—from several types of instruments and calculate results for 18 of the most common tests. All steps, from analyzing specimens to printout of results, are automatic. This on-line system handles about 60 percent of the workload for the Clinical Chemistry and Hematology Services. Within several months additional tests in Clinical Chemistry will be added.

Example Cited

An example of an on-line system is one for enzyme assays, now in an advanced development stage. The basic instrument can measure four important enzymes in blood, such as SGOT (serum glutamic oxalacetic transaminase), an enzyme useful in the diagnosis of an acute heart attack.

The instrument automatically withdraws appropriate amounts of each sample, adds reagents, and controls the reaction environment. The enzyme activity is determined by 13 separate measurements of absorbance. The measurements are sent directly to the computer, where enzyme activity is calculated.

Compared to the previous manual methods of determining enzyme activity, the instrument increases accuracy of results threefold and speed of performance fivefold. Only one technologist is needed, while three are required without it.

The computer also proceses "off-line" results, from tests performed manually. Technologists convey the sample identification numbers and test results to the computer through consoles, keyboards similar to an adding machine.

In the Hematology Service, con-

(See INSTRUMENTS, Page 8)

Volunteers Help NIH Visiting Scientists And Their Families Get Settled in Area

Putting a roof over the heads of visiting scientists and their families from foreign countries has been the self-appointed project of Mrs. Ulrich Weiss and Mrs. Elliott Charney, wives of NIAMD researchers.

Since 1966, when they saw the need to make foreign scientists welcome and comfortable, these ladies have helped countless families find housing, obtain advice on where to purchase items, learn about community activities and get acquainted with the metropolitan area.

Presently visiting scientists can contact Mrs. Weiss at 530-1740 (in the evening) for advice and leads. Mrs. Charney maintains a "stock" of housewares and other conveniences collected from friends to pass on to visitors starting new homes.

Always in demand are more housewares, from pots and pans to baby cribs and play pens, and storage space such as a spare attic, basement, or garage, for larger items she has found.

Many Items Needed

Also needed are willing hands to continue this project, and additional housing for these visitors whose stays are usually for one year.

Mrs. Weiss says she soon must relinquish this activity as she is now employed full time. She will be happy to talk with anyone interested in joining this people-to-people project.

Mrs. Weiss is able to handle many requests of visiting scientists by phone.—Photo by Ed Hubbard.

RML's Dr. Carl Eklund, Authority on Chronic Viral Diseases, Retires

Dr. Carl M. Eklund, a leader in research on slow-growing viruses as possible causes of chronic disease, retired from the PHS December 31 after a 22-year career.

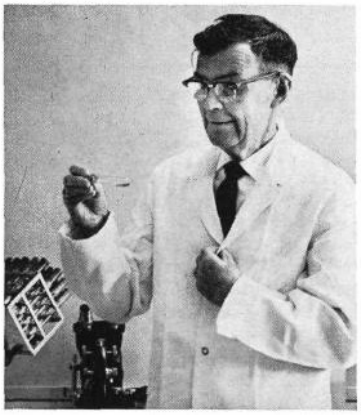
Except for the first year, all of Dr. Eklund's service was spent at the NIAID's Rocky Mountain Laboratory at Hamilton, Mont.

Studies Will Continue

Dr. Eklund has accepted a staff appointment at the University of Minnesota at Minneapolis, where he will continue study of chronic viral diseases.

During the first 15 years of his career, Dr. Eklund directed the RML's investigations on mosquito-transmitted viruses that cause encephalitis in man and animals and on viral diseases transmitted by ticks.

More recently, with Dr. William J. Hadlow, he has developed methods to study slow-virus animal diseases in relation to possible counterpart diseases of man, such as multiple sclerosis.



Dr. Carl M. Eklund retired Dec. 31 from NIAID's Rocky Mountain Lab at Hamilton, Mont.

Dr. Charles A. Miller Reassigned at NIGMS

Dr. Charles A. Miller has been appointed associate chief for scientific programs of the Research Training Grants Branch, National Institute of General Medical Sciences.

Dr. Frederick L. Stone, Institute Director, said that Dr. Miller will assist the branch chief in administering nationwide grant programs that support the training of thousands of young men and women in health sciences and the techniques of modern research.

Dr. Miller, a native of Winchester, Ind., was in the U.S. Army Air Force from 1943 to 1945. He received his B.A. degree from Wabash College (1949) and his Ph.D. degree from Indiana University (1957).

"Grow Up Smiling" Dental Week Theme

"Grow Up Smiling" is the theme of Children's Dental Health Week, February 4-10, sponsored by the American Dental Health Association. Barbara Sue Wentworth, who exemplifies the theme, is taking part in one of the National Institute of Dental Research's studies aimed at the reduction of tooth decay. She is the daughter of Lt. Commander Charles H. Wentworth, a PHS Officer attached to the base clinic, U.S. Coast Guard Station, Governor's Island, N.Y., where the cooperative study is under way.—Photo by Ed Hubbard.

Social Security Amendments of 1967 Increase Cash and Medicare Benefits

The Social Security Amendments of 1967, signed by President Johnson on January 2, 1968, provide the largest increase in total cash benefits in the history of social security.

As a result of the new law, every beneficiary will get an increase of at least 13 percent. Beginning with checks due in March, the average monthly benefits for a retired worker and his wife now on the rolls will be increased from $145 to $165. The minimum benefit for retired workers at age 65 will be increased from $44 to $55 a month.

Effective in 1968, Social Security taxes are being collected on wages up to $7,800 a year. The previous taxable wage base was $6,600. In addition, the law increases from $1,500 to $1,680 a year the amount a beneficiary may earn without loss or reduction of benefits.

The payroll tax rate paid by both the employer and worker will remain at 4.4 percent for 1968, but will go to 4.8 percent in 1969. These rates include both the basic social security tax and the added tax for medicare.

Other Changes Described

The 1967 amendments also include a decrease in the number of work credits required to qualify for disability benefits for persons disabled before reaching age 31. Effective March 1968, a person disabled between ages 24 and 31 will need credit for only half the time between age 21 and the date on which he becomes unable to work. Similarly, a person disabled before age 24 will need work credit for only half of the 3-year period ending when his disability begins.

The bill liberalizes requirements dependents and survivors of women workers must meet in order to receive benefits, permitting payments for some children whose mothers died, retired, or became disabled after working under social security. It also allows benefits for some widowers dependent on a wife at the time of her death and for some husbands dependent on a wife at the time of her retirement or disability.

New Medicare Benefits Listed

In addition, the bill provides the following new Medicare benefits:

1. A beneficiary will get a lifetime reserve of an additional 60 days of hospital care for use after exhausting the basic 90 days of coverage for each illness.
2. Pathology and radiology services to hospital patients will be paid in full.
3. Coverage of physical therapy has been broadened and certain medical services of podiatrists will be considered medical expenses.

Also included is a provision which makes it easier to claim medicare benefits for doctor bills and other medical services. Under the old law, payments for medical bills could be made only to a doctor or to a patient who presented a receipted bill. The new law permits direct payment on the basis of a doctor's itemized bill. This permits patients to pay medical bills without using savings or securing a loan.

To offset the cost of these benefits and compensate for rising costs, the new law increases the monthly premium for Medicare medical insurance from $3 to $4 effective April 1968. There will be no further change until June 30, 1969.

Further details about the 1967 amendments and help with social security problems may be obtained at social security offices.

Transplantation Conf. Proceedings Published

The proceedings of a 3-day conference on organ transplantation sponsored by NIH in Santa Barbara, Calif., in January 1967, are now available.

The 500-page volume includes the formal papers and discussions of 200 participants at the conference, sponsored and planned by the Surgery Study Sections of the Division of Research Grants and supported by a grant from the National Heart Institute to the University of California at Los Angeles in the name of Dr. William P. Longmire, Jr.

New Research Areas Discussed

Conferees discussed the status of transplantation research, including areas needing further investigation and new avenues for laboratory and clinical study.

Papers were presented on The Liver, The Kidney, The Heart, The Lung and Other Organs; Lymphocyte Response to Antigens; Determination of Histocompatibility; Heterologous Antilymphocyte Serum; Problems of Organ Preservation; Abrogation of the Immune Response by Irradiation Therapy and Lymphocyte Depletion, and by Drug Therapy.

In his report to the NHI following the conference, Dr. Longmire said clinical experience provides an opportunity to investigate aspects of transplantation that can only be carried on with human subjects, for example, typing of donor and recipient.

Future Needs Noted

Additional basic research on the immune response and the hypersensitivity reaction are needed, Dr. Longmire said, but clinical evaluation and experimentation must be continued in surgical techniques, specific organ pathology and physiology, immunology, bacteriology and other areas. Expert ancillary personnel and sufficient laboratory support are essential to sophisticated clinical care and investigation, he reported.

The proceedings may be obtained from the publishers, The Williams and Wilkins Company, Baltimore, Md. 21202, for $3.50 a copy.

NIAID Lab Asks Volunteers To Participate in Its Study

The number of common colds each year in the United States has been estimated as high as 500 million.

To combat the "common cold" NIAID's Laboratory of Infectious Diseases is conducting a long-range research project for which it continues to need volunteers.

Employees with colds are requested to contribute samplings of nasal secretions plus 2 blood samples. Participants receive $2 for each blood sample.

Appointments may be made by calling Sara Kelly or Harvey James, Ext. 65811, preferably within the first 3 days of infection.

If possible, employees are urged to schedule appointments in the morning to give investigators ample time for processing.

DR. BARTTER

(Continued from Page 1)

in endocrinology and nutrition. Dr. Alfonso Rivera, for whom the prize was named, was a former NHI fellow.

Dr. Bartter in his lecture noted that congenital adrenal hyperplasia victims have deficiencies of one or more enzymes required to produce adrenal cortisol from cholesterol. Because of the cortisol shortage, there is compensatory overproduction of the pituitary hormone ACTH that stimulates the adrenal cortex.

Since some of the normal pathways of steroid manufacture are blocked by the enzyme deficiencies, the adrenal gland overproduces chemically related but functionally unlike hormones, via alternative pathways that are not blocked.

Progesterone Converted

Specifically, as there is a block at the progesterone level, some accumulating progesterone is converted to an excess of steroids like the potent male sex hormone testosterone (which is normally secreted from the adrenal by adults of both sexes).

For this reason, a common referring complaint of patients is virilization. Thus, a female fetus, infant, or child tend to develop physically as a male. If she is not treated, she may acquire the voice and physique of a man, and suffer serious difficulties in adjustment.

Some progesterone is also converted to aldosterone, which may then also be produced in excess. Without compensation this may produce abnormalities of salt and water metabolism.

'Progress Against Cancer, 1967' Report Reviews Recent Research on Viruses

The National Advisory Cancer Council has released its second public report on cancer research.

"Progress Against Cancer, 1967" deals largely with research on viruses as cancer-causing agents in laboratory animals and the effort being made to identify viruses that may give rise to malignant diseases in man. Progress in other areas of cancer research is also described.

Council Established in '37

The Council, established by the National Cancer Institute Act of 1937, advises the Surgeon General of the PHS on general policies, programs and needs, and reviews research developments and their application to the cancer problem. Its first published report, "Progress Against Cancer, 1966," was issued under the Council's authority to collect information on cancer research and make it available to health agencies, physicians, research scientists, and the general public.

The new 65-page report emphasizes that no virus has been identified as the causative agent in any form of human cancer. However, since viruses cause several cancers in animals, many scientists believe they are also one of the causes of cancer in man. With this as a working hypothesis, investigators are pursuing many lines of research, including effort toward development of an immunizing technique or agent, such as a vaccine, that could prevent virus-caused malignant disease.

"Progress Against Cancer, 1967" is illustrated with diagrams and photographs and includes an extensive bibliography on virus-cancer research. Listed as Public Health Service Publication No. 1720, it can be purchased from the superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The price is 65 cents per copy.

The National Cancer Institute in cooperation with the U.S. Atomic Energy Commission's Oak Ridge National Laboratory has contributed to the development of zonal centrifuges such as the one shown here. It makes it possible to separate subcellular particles in sufficient quantities for analysis by biochemical techniques. In cancer research, zonal centrifugation thus opens up the possibility of detecting and isolating trace amounts of virus present in tumors.

Dr. Kahan Receives Joseph A. Capps Award

Dr. Barry D. Kahan, Laboratory of Immunology, National Institute of Allergy and Infectious Diseases, received the annual $750 Joseph A. Capps award from the Institute of Medicine of Chicago January 17th.

The Joseph A. Capps award is given for the best paper submitted by a recent (within the last 5 to 7 years) graduate of a Chicago institution. Dr. Kahan received an M.D. degree in 1965 from the University of Chicago.

Research Described

In his research Dr. Kahan noted significant differences in amino acid composition of transplantation antigens among different strains of guinea pigs, and postulated that the factors which determine transplantation success or failure may depend upon protein structure.

These discoveries could aid researchers in the development of techniques to protect against organ transplantation rejection.

Other Findings Cited

Dr. Kahan also found that water-soluble guinea pig transplantation antigens could induce graft rejection, cause direct reactions in the skin of sensitized individuals, and stimulate immune reactions in new hosts.

Applications of his methods in purifying and studying guinea pig transplantation antigens have yielded initial success in inducing tolerance to transplantation in guinea pigs by antigen pretreatment.

An abstract of Dr. Kahan's report, covering 14 articles on transplantation antigens and additional new work, will be published in the March issue of the Proceedings of the Institute of Medicine.

Dr. Kahan, a staff associate, is married and lives in Arlington, Va.

Assembly of Scientists Of NCI Elects Officers

The Assembly of Scientists of the National Cancer Institute has announced the election of officers for 1968: Dr. Edward S. Henderson, president; Dr. Sidney J. Cutler, president-elect; and Dr. William C. Hammond, secretary.

Newly elected to the Assembly's Council are Drs. Vincent T. DeVita, Jr., Mortimer M. Elkind, Robert W. Miller, and Thomas A. Waldmann.

Continuing members of the Council are: Drs. Michael A. Chirigos, Mortimer B. Lipsett, Timothy E. O'Connor, and Katherine K. Sanford.

Membership in the Assembly, founded in 1962, is open to all scientists working in NCI.

Costs of 1967 Health Benefit Plans Given

Costs to employees in 1967 for each of the three major health benefit plans are given below. These figures may be helpful for itiemizing deductions on income tax returns.

	Aetna (Indemnity Benefit Plan)	*Blue Cross-Blue Shield (Service Benefit Plan)*	*Group Health Association Plan*
High Option			
Self Only	$81.64	$86.32	$141.96
Self & Family	204.36	232.96	367.12
Low Option			
Self Only	$33.80	$43.68	$86.06
Self & Family	81.12	106.60	230.10

NCI and University in Uganda Cooperate In Study of Certain Types of Cancer

Certain types of cancer common in Africa and of theoretical and practical interest to U.S. cancer scientists will be studied intensively by the National Cancer Institute and Makerere University College in Kampala, Uganda. Under terms of a research contract signed recently by the PHS and African medical authorities, the cooperative venture is expected to take 4 years.

Selected patients with lymphomas (cancers of the lymphoid cells) will be hospitalized at a new treatment center being established with PHS assistance at Makerere University College.

Research Described

Particular study will be given to African children with a form of cancer called Burkitt's lymphoma, which occurs rarely in the United States and may bear a relationship to the most frequently occurring cancer of American children, acute leukemia. Patients with Hodgkin's disease (a common malignant lymphoma) and a type of skin cancer called Kaposi's sarcoma will also be studied.

The responses of African patients to drug treatment and stimulation of their immune systems will be measured and compared with responses of American patients being treated at the Clinical Center.

Fundamentals to Be Evaluated

Immune reactions and characteristics of blood and bone marrow will be evaluated in an effort to discover why many African patients seem to respond better to drug therapy than American patients.

Findings will be correlated with an ongoing NCI study of environmental and genetic factors that may affect an African's development of lymphoma and his response to treatment.

It is hoped that the study will lead to more effective treatment of U.S. patients with lymphoma and related types of cancer.

Project director in Africa is Professor Sir Ian McAdam, Professor of Surgery at Makerere University College, with Mr. Sebastian Kyalwazi, Senior Surgical Consultant to Mulago Hospital, Kampala as a principal investigator. Project officer for the NCI is Dr. Paul P. Carbone, Head of the Institute's Solid Tumor Service. Dr. John L. Ziegler, a clinical associate of the NCI, is now serving in Kampala as a consultant to the project.

Dr. Featherstone Named Consultant to NIGMS

Dr. Robert M. Featherstone, chairman of the Department of Pharmacology, School of Medicine, University of California, has been appointed consultant in pharmacology and toxicology to the National Institute of General Medical Sciences.

According to Dr. Frederick L. Stone, Institute Director, Dr. Featherstone will help develop a national program of support through research and training programs in pharmacology and toxicology.

Background Given

Dr. Featherstone is a native of Anderson, Ind., and received his B.A. degree from Ball State University in 1940, and his M.A. (1942) and Ph.D. (1943) from the University of Iowa.

One of the few molecular pharmacologists in the country, he was named to his present position in 1957.

Dr. Featherstone is president-elect of the American Society for Pharmacology and Experimental Therapeutics.

Automated Instruments in Use at CC

(Continued from Page 5)

soles are attached to cell counters and hemoglobin colorimeters. As a white blood cell count is determined, for example, the reading is automatically displayed on the console. When the technologist presses the "send" key, it is sent to the computer.

The computer accumulates both on-line and off-line results and prints chemistry reports and hematology reports for each patient. The computer is also being used to improve laboratory quality control.

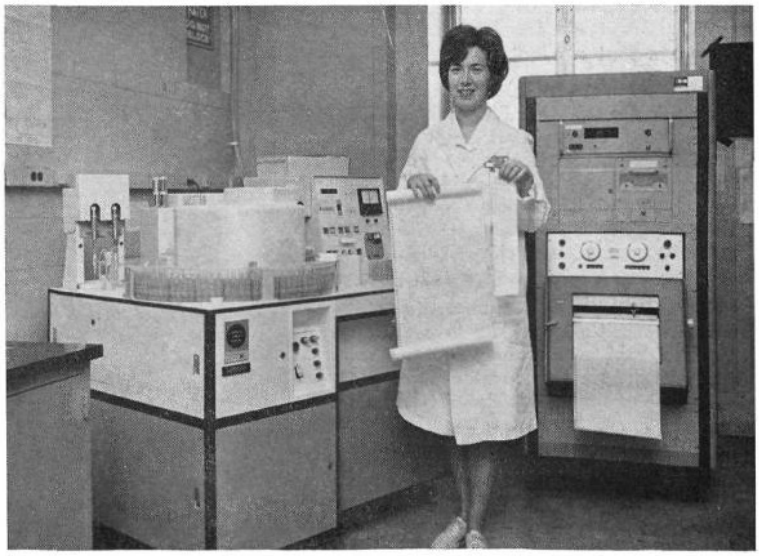
In the future, the computer will print each day's test results for a patient and compile them with those for the past week, or for his entire stay in the hospital. It will also compare daily and previous results for a specific patient and so alert his physician of any abnormal change.

The Infectious Laboratory Service (microbiology) is developing an off-line data processing system which is to be integrated with the computer processing system.

Dr. Williams and his associates believe the research and development in automation and data processing will provide a fourfold increase in productivity with no increase in personnel or space, and with marked improvement in speed, accuracy, and reliability.

The system will reduce unit costs and aid clinicians in coping with large quantities of laboratory data. It also will make it possible to store in easily retrievable form masses of medical information that can help future investigations.

Medical Technician Elizabeth Bartha performs a white blood cell count with the aid of a cell counter, which is connected to a console that feeds the data to the computer.—Photos by Ed Hubbard.



Automatic enzyme analyzer is only one of its kind in the world. Supervisory Medical Technologist Diane Mizelle displays paper tape and graph paper used in manual calculations for back-up. The raw data is sent directly to the computer for processing and printout.