Agency Status, Quality of Research and Programs Mark Growth Under Shannon

Establishment of several new organizational components, elevation of the National Institutes of Health from bureau to agency status, and indicators of NIH expansion during 13 years of direction by Dr. James A. Shannon.

The NIH of August 1968 differs greatly in size, status and scope from the NIH of August 1, 1955, when Dr. Shannon was appointed Director.

Even before he became Director, Dr. Shannon had recognized the need for a scientific base on which to establish adequate tests and standards for new biologics.

It was this recognition that led to creation of the Division of Biologics Standards with both regulatory and research functions. This might be considered to have heralded the Shannon era of growth and development.

In 1955, NIH consisted of seven Institutes (Cancer, Mental Health, Heart, Dental Research, Arthritis and Metabolic Diseases, Neurological Diseases and Blindness, and Allergy and Infectious Diseases); the Clinical Center; and the following Divisions in addition to Biologics Standards: Research Grants; Research Services; Business Operations.

Today, the NIH consists of eight Institutes (Cancer, Heart, Dental Research, Arthritis and Metabolic Diseases, Neurological Diseases and Blindness, Allergy and Infectious Diseases, General Medical Sciences, Child Health and Human Development); the Clinical Center; the Divisions of Biologics Standards, Research Grants, Research Services, Research Facilities and Resources, Computer Research and Technology, and Environmental Health Sciences; and, since April 1, 1968, the Bureau of Health Manpower, and the National Library of Medicine.

These organizational changes and the growth of NIH appropriations merely hint at the vastly more important (See STATUS, Page 6) developments.

Shannon Recalls Years as NIH Director; Cites 'Greatest Personal Satisfactions'

Dr. Shannon Honored at State Dept. Reception

Dr. James A. Shannon was honored at a farewell reception in the John Quincy Adams Room at the State Department Building last Thursday evening, attended by Congressional and Executive Branch leaders, scientists and colleagues.

Dr. Robert Q. Marston, who will succeed Dr. Shannon, introduced DHEW Secretary Wilbur J. Cohen, who spoke briefly during a presentation ceremony.

Dr. Jack Masur, Director of the Clinical Center, presented Dr. Shannon with a Steuben crystal owl, the gift of members of the Director's staff, and an album of photographs depicting important events during his years as Director.

"We respect you because of your honesty, integrity, and integrity towards the scientific community that such excellence is indeed characteristic of you."

In revealing his plans, Dr. Shannon said he believes the greatest single accomplishment at NIH during the past 13 years has been "the establishment of general excellence of the NIH operation, and importantly the acceptance by the scientific community that such excellence is indeed characteristic of it."

Elsewhere in this issue, the Record prints summaries of the program changes, the growth in budget and physical plant, and important results of scientific research. (See Dr. SHANNON, Page 6)
NEWS from PERSONNEL

ROI TS AND CIVIL DISORDERS


One section deals with factors that disqualify individuals for Federal service if they are convicted of a felony committed in a riot or civil disorder after the effective date of the law.

Here, "felony" is defined as any offense for which imprisonment is authorized for a period exceeding one year.

Outsiders Listed

Further, the law states that a person convicted of certain offenses by a Federal, State, or local court, is ineligible for a position in Federal or D.C. government for 5 years following the date upon which his conviction becomes final. The offenses are:

- Inciting a riot, or civil disorder;
- Organizing, promoting, encouraging, or participating in a riot or civil disorder;
- Aiding or abetting a person in committing the above offenses, and
- An offense determined by the head of the agency employing the individual to have been committed in the furthering of, or participating in, a riot or civil disorder.

Any individual holding a Federal or D.C. government position on the date of his final conviction will be removed from his post.

OUTSIDE ACADEMIC ACTIVITIES

Staff members who wish to teach, lecture, or engage in other types of professional activity outside of regular working hours must obtain prior approval.

NIH encourages its professional staff to teach and lecture and participate in seminars and panel discussions when such activities do not interfere with official duties. However, conducting full semester daytime classes is not authorized.

Teaching evening, weekend, or summer classes may be approved if schedule adjustments are arranged. Staff members who had outside work approved during Sept. 1, 1967 through Aug. 31, 1968, will be required to submit a full report. Instructions and report forms will be issued by Bureau of Health Manpower, National Library of Medicine, and institutes and divisions.

HEW has published regulations on Standards of Conduct, in the Federal Register, Apr. 17. Reprints were distributed to employees in May.

Extra copies may be obtained from BHM, NLM, and I/D Personnel Offices.

U.S. Marine Band Concert

At CC Thursday, Aug. 22

A concert for Clinical Center patients will be presented Thursday, Aug. 22, at 7:30 p.m. by the U.S. Marine Band in the Clinical Center auditorium.

NIH employees, their families and friends, are invited to attend, but patients will have priority in seating.

Arrangements for this concert were made by the CC Patient Activities Section.

NL M Biomedical Communications Center Named for Lister Hill, Alabama Senator

President Johnson recently signed into law the legislation designating the planned National Center for Biomedical Communications, as the Lister Hill National Center for Biomedical Communications.

The Center was named for the Senator from Alabama "to perpetuate the name of the man who has done so much for the health of the nation, according to Senate Joint Resolution 193, introduced by another Alabama Senator, John Sparkman. It will be a part of the National Library of Medicine which Senator Hill and the late President Kennedy helped to create.

A Biomedical Communications Network with electronic equipment and the most up-to-date technology will be a focal point of the Center.

The system will more quickly transmit new information to doctors, scientists and educators in all of the health professions.

Staff planners at the NLM have been studying how the Center might apply television, satellite communications, films, lasers, and computers for resolution of those problems of health dependent upon communications.

Dr. Martin M. Cumings, Director of the NLM, on learning of the President's action, stated, "People who are interested in the improvement of medical communications are delighted that the Center will serve as a monument to the far-reaching vision of Senator Hill who in his legislative career has provided so many new and important horizons for American medicine, for research, education and for libraries."

Current planning by NLM for the design of the Center calls for a tower-type annex, to be erected a few yards southwest of the library.

Dr. Gordon Appointed NCI Program Director

Dr. Mordecai H. Gordon has been appointed program director for Epidemiology in the Awards, Review and Technical Administration Branch. He was formerly assistant director, Review and Referral Staff, Office of Extramural Programs in the Office of the Surgeon General.

Dr. Gordon will develop NCI's program of extramural grants in support of projects in cancer epidemiology. His appointment was announced by Dr. J. Palmer Sanderson, associate director for Extramural Activities, NCI.

Dr. Gordon received his B.S. in English from New York University, an M.A. in Education from the Mentally Handicapped from Columbia University, and his Ph.D. in Clinical Psychology from the University of Tennessee.

Before joining NHI in 1959, Dr. Gordon held several positions in clinical psychology, including chief of the Clinical Psychology Service at the V.A. Psychiatric Hospital in Knoxville, Iowa.
Former Medical Writer Assesses Impact Of Shannon Era on Biomedical Research

By "Mike" O'Neill, Managing Editor, N.Y. Daily News

In reviewing the revolutionary sweep of science since World War II, it is customary to ignore administrators. They are the anti-heroes, often abused, seldom honored, and eventually forgotten.

For if a great scientist is a rare research leader and medical institution—Dr. Shannon never yielded any of his celebrated personal and professional independence. Hill and Fogarty came to rely on him to protect the soundness of programs in which they and the Nation had a large stake.

All of this gave Dr. Shannon great power in a city where power is the name of the game. And he used it freely, often with considerable private relish, to drive through programs which he considered essential to the expanding research effort and to frustrate or modify ideas which he regarded as premature or ill-founded.

Almost single-handed, for example, he sold Congress on a whole series of devices, from training grants to research career awards and institutional grants to provide indirect aid to the medical schools, at a time when their own leaders were still resisting the direct assistance they needed to meet soaring research and educational responsibilities.

On the other hand, he recently cooled down a high-pressure effort to get the Government to finance a large-scale artificial heart development program. He simply argued, as he had once argued vainly against the original scattergun cancer chemotherapy program, that there still was not enough basic research and educational responsibility.

"As scientific base has broadened," Dr. Shannon observed, "many opportunities for organized research are developing. These are the areas in both the fundamental, applied and developmental aspects of science which, being beyond the capacity of individual scientists to undertake, are important and will benefit by formal organizational arrangements."

"Organized research" is not to be equated with targeted activities, he commented, "although such opportunities are becoming increasingly available. However neat and tidy such organized activities appear and however promising a termination because of internal scientific considerations."

"As the science base has broadened," Dr. Shannon has on an extensive electronics setup at home which he enjoys at every opportunity, and institutional grants to provide indirect aid to the medical schools, at a time when their own leaders were still resisting the direct assistance they needed to meet soaring research and educational responsibilities.

On the other hand, he recently cooled down a high-pressure effort to get the Government to finance a large-scale artificial heart development program. He simply argued, as he had once argued vainly against the original scattergun cancer chemotherapy program, that there still was not enough basic knowledge to justify a costly development effort.

This "facility in the art of the possible," as Dr. Philip H. Abelson once remarked in Science, has been a key factor in Dr. Shannon's effectiveness, for it is the vital bridge...
**Medical-Health Advances in Shannon Era**  
**Bear Imprint of NIH Research, Support**

Research accomplishments in the medical and health field since 1955 have been truly impressive in terms both of saving of lives and improvement of health and of increases in fundamental knowledge.

During these 13 years, the National Institutes of Health has touched in some way almost every one of these advances through the multiple sources of support it has been able to provide, thanks to the farseeing leadership given by both the Executive Branch and the Congress.

**Intramural Accomplishments**

At Bethesda alone, the accomplishments of NIH’s own scientists have been too many to enumerate here. They range from development of the first successful chemical treatment of a solid cancer to so-called cracking of the genetic code.

While each scientist in the laboratories and clinics, perhaps, each reader of the Record, will have his own list of important discoveries made at NIH, the following are significant in themselves and in their potential for leading the way to further progress in health improvement.

The cancer that can be successfully treated—in fact, cured—by a chemical, methotrexate, is choriocarcinoma, a cancer which attacks the uterus during pregnancy, and if untreated spreads rapidly to other organs and is always fatal.

This cancer is comparatively rare in the United States but much commoner in other parts of the world. The success achieved in treating it, some of the young mothers not only being saved to care for their offspring but enabled to bear other children, points to potential future developments in chemotherapy of cancer.

Methotrexate (amethopterin) is one of the elements in the new and highly successful VAMP treatment of childhood leukemia. The word VAMP is made from the initial letters of four chemicals, vincristine, amethopterin, 6-mercaptopurine, and prednisone.

Giving these four in suitable combination (rather than separately or in sequence) with antibiotics and blood element replacements is bringing such swift and long-lasting remissions that five-year cures are being achieved in a growing number of cases of this tragic malignant disease which as recently as the late 1950s was uniformly fatal in a few months.

Discovery of the polyoma virus which can produce many different kinds of cancers and can cross species lines, producing tumors in more than one species of animal, opened up the field of cancer virology and has led to hope that at least some forms of cancer can be controlled through either immunologic or chemotherapeutic means.

Some of the latest accomplishments in the field of virology relate not to cancer but to neurologic disorders, specifically to kuru, a mysterious and fatal disease of primitive cannibalistic tribes in New Guinea and Guam, and Creutzfeldt-Jakob disease, also known as subacute spongiform encephalopathy.

**Brain Substance Noted**

In each condition, material from brains of human victims of the disease has caused symptoms much like those of the human diseases when injected into chimpanzees.

The findings are considered strong evidence that the causes of the two diseases are viruses which have been transmitted from man to chimpanzee. They add support to the theory that a number of human neurologic diseases, from kuru to multiple sclerosis, may be caused by slow-growing viruses.

In the area of more familiar virus diseases, a major accomplishment has been the development of a vaccine against rubella, or German measles, the seemingly unimportant childhood disease which causes such dire consequences to unborn babies when it strikes a pregnant woman.

Besides the protective vaccine, now showing great promise in extensive trials in this country and abroad, a rapid test for immunity to rubella infection was developed.

A successful vaccine against adenovirus 4, called vaccine fever, and discovery that the Eaton agent, cause of one kind of pneumonia, is not a virus but a mycoplasma are other accomplishments in this field.

**Caries Factor Found**

One of the most significant accomplishments of the last 13 years was the discovery that a specific strain of streptococci isolated from human mouths can cause rampant caries in laboratory animals.

Together with the subsequent discoveries of the plaque mechanism by which the microorganism adheres to teeth and of an enzyme which prevents formation of the plaque, this is believed to make possible complete prevention of caries, or tooth decay, within the next 10 years.

The nearly 50 percent decline in mortality from hypertension achieved during the past decade resulted primarily from knowledge of enzyme inhibition on which was based the success of the newer drugs developed by the pharmaceutical industry.

The first chemical definition of the molecular structure of a new thyroid hormone, thyroxolcalcitonin, has recently been accomplished, leading to synthesis of the hormone which affects blood calcium levels and may have wide usefulness in...
During the Shannon Era, NIH became a virtual mecca for scientists the world over. Reflecting this international flavor are these photos of Dr. Shannon with scientists from Russia, the Philippines, and Pakistan.

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The Shannon Era—Leadership

An Appraisal by Colin G. Burroughs Mider

Great intellectual enterprises have not generally flourished in the dry air of the Federal bureaucracy. When they do, we may be sure that someone has worked hard to create the appropriate conditions. To do so requires a special wisdom, toughness and skill, and James Shannon has those qualities.

He understands the complexities of Congressional functioning. He understands administrative channels—when to use them and when to circumvent them. But most of all he understands research and those who conduct research. He is a great American.

Dr. John W. Gardner, former Secretary of Department of Health, Education, and Welfare

The most significant element of the Shannon Era has been the emphasis upon quality as the *sine qua non* of the NIH operation. While no one would claim that either he or the operation did not make mistakes, that consideration was paramount, whether it involved the recruitment and retention of staff or the nature of our programs and their implementation.

Shannon has been able to bring about an exponential expansion in the total budget of NIH, from $82 million in 1955 to $1.2 billion in 1966. A key factor in achieving this has been his facility in the art of the possible.

Shannon has done more than increase quantity. He has built quality... Shannon has been able to build good research teams and programs because he understands research, has judgment as to what is significant, and can quickly perceive where new opportunities lie. He has these abilities because early in his career he devoted nearly two decades to distinguished personal research activities.

Dr. Philip H. Abelson, Editor, Science Magazine, 28 April 1967

Few informed observers would dispute the change in the medical educational environment from the growing dependence of our society on program support... And now we fall back to the support and, indeed, are necessary for the survival...

As we look to the future we may reflect on the sensitive leadership which Jim Shannon represented.

Dr. G. N. Y. N. Y.

During Shannon's tenure, NIH has had the power of its potential. More than many, he has brought to the planner, the organizer, the educator, sometimes in turn, sometimes all of them the vitality of its potential. More than many, he has striven to bring the two to hard to create a broad public awareness of the intimate relationship between the planner, the organizer, the educator, and the planner, the organizer, the educator, sometimes in turn, sometimes all of them all.

His enthusiasm for biomedical research has been admiringly respected and studied. His talents have been of many, the intimate relationship between the planner, the organizer, the educator, and the planner, the organizer, the educator, sometimes in turn, sometimes all of them all.

Dr. G. N. Y. N. Y.

DURING SHANNON'S tenure, NIH has had the power of its potential. Never before in fostering basic and applied medical research has the intimate relationship between the planner, the organizer, the educator, sometimes in turn, sometimes all of them all.

Dr. Philip H. Abelson, Editor, Science Magazine, 28 April 1967

I had many occasions to watch and appreciate that he played many parts, the planner, the organizer, the educator, sometimes in turn, sometimes all of them all.

His enthusiasm for biomedical research has been admiringly respected and studied. His talents have been of many, the intimate relationship between the planner, the organizer, the educator, and the planner, the organizer, the educator, sometimes in turn, sometimes all of them all.
The medical profession's changing view toward basic research, as differentiated from its traditional dependence on empirical methods, is due in large part to Dr. Shannon through the NIH. His influence as a scientist and as a leader of scientists is strong both here and abroad.

**Citation**

*Rockefeller Public Service Award, 1964*

Speaking for myself and I am sure for this subcommittee, and I believe for the Congress and the country, we are acutely distressed to realize that this may be your last appearance before us in your capacity as Director of the National Institutes of Health. This grieves us deeply.

For the last 13 years or more at NIH, during the development of these Institutes, you have performed something in the nature of minor miracles in Government administration. Your outstanding service and leadership has attracted these extraordinary and brilliant people who have made the NIH an institution without peer.


The most significant element of the Shannon Era has been Shannon. Somehow he has found the time and energy to involve himself directly and personally in almost innumerable decisions, both large and small, so that almost everything that has happened bears his imprint in one way or another.

At the same time he has fostered scientific freedom and encouraged individual initiative to an extent almost unique in the governmental organization.

*Dr. Kenneth M. Endicott, Director, National Cancer Institute*

Jim Shannon, the Director of the National Institutes of Health, is a medical and scientific phenomenon, one vitally important to all of us. . . . To him we owe some of the most important overall policy changes in medical education and research. . . . I have said enough to indicate that Jim Shannon is a pretty special sort of man! I have been on the lookout for many years for paragons and have found few, but he is as close as any I have seen.

*Irvine H. Page, Editor, Modern Medicine, Dec. 19, 1966*

**PRAISE FROM THE CHIEF.** The President called Dr. Shannon and 1/D Directors "my Chiefs of Staff" in the war on disease, citing advances at "the world's greatest research enterprise" during his 1967 visit.
Physical Growth of NIH During '55-68 Mirrors
Vigor of Shannon Era

When Dr. James A. Shannon was appointed NIH Director in 1955, a nine-hole golf course still covered part of the Bethesda reservation grounds.

The golf greens are gone now. Today, the only golf balls visible are hit by players occasionally practicing near the National Library of Medicine.

The physical growth of NIH has been one of the features of the recent past. In Dr. Shannon's early days NIH buildings numbered 27, with a gross square footage of approximately 2,662,834. Now there are 38 buildings on the reservation, plus the Animal Center at Poolesville, with a gross square footage of 6,133,044.

NIH personnel have increased from the 8,412 employed in 1955 to the 13,445 now employed, of whom 11,000 are located on the reservation. These include 1,939 with doctoral degrees, compared with 665 in 1955.

Clinical Center Annexes

More recently, three new annexes were added to the south side of the Clinical Center—a cafeteria seating 600 people, a modern Library, twice the size of the old one and an addition to the D Wing, mainly providing more space for patient services.

The NCI Virus Isolation Facility, Building 41, is being completed, to be followed by Building 34, a refrigeration plant. The Virus building is a special facility built to enable scientists to extend studies of viruses as possible causes of cancer.

September should also see the completion and beginning occupancy of the largest single project now underway: the NCI-NIH/NIH complex of a cafeteria building and two laboratory buildings.

The last of the projects now under construction, the General Office Building Extension, 31C, is expected to be finished in December.

All of the foregoing means that over 900,000 square feet of new space will become available on the reservation during 1968.

Elsewhere, the Division of Environmental Health Sciences, at Research Triangle Park, N.C., was established in 1967, and a laboratory building for the NICHD Gerontology Research Center was completed in Baltimore in 1968.

Rental Space Occupied

The Bureau of Health Manpower, added this year, occupies rented space in Arlington, Va., and Bethesda. Since 1955, NIH also has begun occupying rented space in nine other buildings in Bethesda, and Rockville, Md.

NIH maintained international offices for some years during Dr. Shannon's tenure in Paris, Rio de Janeiro, and New Delhi, and began operating field units in Panama, Puerto Rico, and Guam.

Seven domestic field units of NIH were established during his years in office, and others were expanded or enlarged.

STATUS

(Continued from Page 1)

important changes in scope and depth of the research approach to solution of the Nation's health problems.

Increasingly, this approach sought to meet needs as they developed, to take advantage of newly perceived opportunities, while at the same time never slighting pursuit of the fundamental knowledge on which all advance in medicine.

To meet the need for modern laboratories and equipment for the expanding and increasingly sophisticated science that developed after World War II, the Health Research Facilities Construction program was developed.

Developed Regional Resources

When it became apparent that some kinds of investigations required resources suitable for utilization by scientists from more than one institution, the concept of regional centers was developed and put to use in, for example, the regional primate centers program.

The center concept for clinical research, originally developed in the NIH Clinical Center, was further developed by the national program of support for general clinical research centers.

Other measures developed or expanded to meet changing needs were the research training programs established in addition to already existing fellowship grants, and the effort through research career awards to provide more stable support for unusually gifted individual investigators.

The emerging need for greater flexibility for grantee institutions in administration of their research was met by general research support grants and health science advancement awards.

The importance of taking advantage of research opportunities wherever they arose, if they promised benefit to the health of the American people, and of increasing the research manpower pool whereby foreign nations would be able to meet their own research and teaching needs, led to a modest program of international research grants and a somewhat expanded foreign fellowship program.

Some of these programs required establishment of new organizational entities within the NIH.

Others required changes in and expansion of programs in the exis-

HAPPY OCCASION. Dr. Shannon chats with Sen. Lister Hill (center) and DHEW Secretary Abraham Ribicoff at dedication for Building 30 in 1961.
targeted opportunity may seem, these activities should be superimposed upon a continuation of fundamental inquiry.

"Let me make two points," Dr. Shannon continued. "First, targeted research, essential as it is, is the most hazardous of all research. Nonetheless, and however important the problem is that is to be solved, social importance cannot be substituted for an adequate science base in determining the nature and scope of a targeted program.

"Second, a broad and vigorous science base is essential. Committees and organizations, though they are useful for many purposes and essential for others, do not generate novel ideas. They are useful to promote and regulate, but generally not to innovate.

"The revolutionary advances in the next decade will without doubt be made as the result of individuals' work and individual ideas, broad support so as to extend greatly the capacity of the individual. This will no doubt be the only base for productive activity of a more formally organized program."

"Flexibility, notable in his own career, will continue to be important to science," Dr. Shannon said. Asked what advice he would give a young scientist starting out today, he said:

Science Background Specified

"For the biomedical sciences today, and certainly tomorrow, he must secure a broad background in the physical sciences and mathematics."

"He must select an environment that to him is stimulating and exciting, but which also gives him personal options as to what he can do.

"Most important, however, the place may sound, he must press hard and work hard, but be willing to shift fields radically in response to changing opportunity."

"A lifetime in a single field, unbe

SHANNON THE MAN

Clash of Wits, Basket Fires Often Marked Morning Staff

By Joseph S. Murtagh, former Director, Office of Program Planning

During 12 years that I spent at NIH it was my good fortune to be able to serve among a truly extraordinary group of men. My closest associates were with individuals who comprised the staff of the Office of the Director. The full dimensions of the exceptional attributes that characterize the leadership of NIH and its programs are centered in Jim Shannon, truly a titan amidst titans.

A more distant vantage point, keener perception, and greater eloquence than mine are needed to provide a proper portrayal of this man. The essential ingredients, however, are clear to all who have encountered Jim Shannon in his pursuit of the business of NIH.

Benefit to Nation

That a man with his qualities did come to the National Institutes of Health in 1955 is an event that has had great benefit to the sciences and to the Nation. But this is Dr. James A. Shannon, the Director of NIH and the public official, not Jim Shannon the boss and fellow worker. It is the latter that most of us have encountered and of which we have formed our view. The descriptions of this individual doubtless are as many as there are those who have worked with him.

My own images derive mostly from participation in the meetings of the senior staff three days a week, each of which was an instructive, sometimes exasperating, frequently exciting, and always fascinating experience. The O. D. Morning Staff convenes around the conference table in the Director's office to consider, with practically no breadth, must be very dull. I've never encouraged the 'beating' of a dead horse.

Dr. Shannon will be succeeded as Director by Dr. Robert Q. Marston, former Associate Director of NIH for Regional Medical Programs, and more recently Administrator of the Health Services and Mental Health Administration."

YEARS OF DECISION. Dr. Shannon surveys policy and program advances on charts displayed by Joseph S. Murtagh about 1960. Line on each chart showing upturn of activity or support, began with "year of decision" during Shannon Era.

The burden of the agenda and the detailed conduct of business is borne by the Deputy Director. But of course, the real determinant of the sequence of events has always been Jim Shannon.

Jim, more often than not arriving after considerable business had been transacted, would be filled with new ideas and new directions, and would disperse to the winds the careful but more pedestrian efforts of the staff.

Frequently, major digressions would follow, with Jim at the blackboard in his favorite pedagogical stance. From such seemingly irrelevant excursions often emerged an imaginative new program concept or a strategic plan whereby the enemy might be thwarted and the forces of good prevail.

These staff meetings were enlivened in many ways. For the most part, the excitement came from the clash of wits as new ideas were forged and courses of action debated. Frequently, an extra element of excitement was added by the famous Shannon waste basket erupting in flames as a consequence of his discarding an unfulfilled cigarette into the trash can.

This became such a common experience that Jim or one of the others would pick up the basket, deposit the burning contents in the lavatory toilet, and return to the table without interrupting the exchange of argument.

Natty Bow Ties

Although Jim Shannon, with his well-combed, iron-gray hair and his ratty bow tie, typically is as well-groomed as anyone, he often has a remarkable indifference to the state of repair of his clothes. A bursting shirt seam or an incipient parting in the seat of his trousers may be worn with total unawareness.

Once, Dr. Shannon was being posed for a series of casual photographs by a professional medical news magazine. One of these pictures of Jim, leaning in characteristic thoughtful pose on his right hand, was considered by the magazine to be worthy of cover presentation. At the last moment, however, scrutiny revealed that the shirt cuff prominently displayed in the picture was held together by a straight pin!

It seems that all administrators have one device, an extra one, that they put the greatest store. In the case of Jim Shannon this device was the "staff document." It was an article of faith with him that the way into and out of any problem, big or little, was through a "staff document."

The preparation of a "staff document" was either demanded or promised by Jim in almost every important policy or program negotiation. The net consequence of this was the generation of staff papers on almost every conceivable subject.

Perhaps one of the most remark-

SEE THE MAN, Page 12
Dr. Watzman Appointed Grants Associate, DRG

Dr. Nathan Watzman, former associate research professor of Pharmacology at the University of Pittsburgh, has joined the NIH Grants Associates Program.

The program, administered by the Division of Research Grants, prepares selected scientists for administrative positions in extramural research activities. Dr. Watzman received his Ph.D. degree (neuromuscular pharmacology) in 1961, an M.S. (cardiovascular pharmacology) in 1957 and B.S. degrees (pharmacy and psychology) in 1955 and 1947, all from the University of Pittsburgh.

Experience Cited

From 1947 to 1949 he attended the University of Pittsburgh Law School, and from 1949 to 1951 studied accounting and taxes. Dr. Watzman held teaching positions from 1950 to 1962 at the Northeast Louisiana State College School of Pharmacy. He was also chairman of its Department of Pharmacology until he joined the University of Pittsburgh in 1963.

Dr. Watzman's research interests have focused on psychopharmacology and the central nervous system, including the effects of psychotropic agents on instinctive and learned behavior, and the evaluation of potential psychoactive compounds.

Red Cross Volunteer "Teens" Lavish TLC on Patients in CC Nursing Units

Again, this summer, a group of Red Cross "Teens" are helping to take care of patients in the Clinical Center nursing units.

The program, which started last year, uses the services of teenagers who are members of the Junior Red Cross Hospital Volunteers. Most of them are high school students.

Other volunteers from the Junior Red Cross work in various departments of the CC.

Students Take Tour

Students who trained for the nursing department were given an orientation course and a conducted CC tour. They were welcomed by Louise C. Anderson, chief, CC Nursing Department. The training was under the direction of Irma Monlux, chief training officer of the Education and Training Section.

The volunteer students were taught such essential hospital procedures as making beds, the proper way of serving food and liquid to patients, and were instructed in the importance of accurate measurement of a patient's liquid intake.

The students were also instructed in methods of playing with child patients, and understanding them. Each student volunteer works 2 days a week for 6 hours a day. They wind up their duties on Labor Day. Mrs. Genevieve Rush of Mrs. Genevieve Rush of the CC Blood Bank, reached the gallon mark.

CARE to Send Milk for Hungry Children, Victims Of Nigeria-Biafra War

Five thousand cases of high-protein fortified canned milk, purchased with CARE funds, are being sent to children who are victims of the Nigeria-Biafra war.

The children are suffering from Kwashiorkor, a protein deficiency disease. The milk is being sent from CARE stockpiles in Liberia.

CARE has also designated additional funds, for other nutritional needs, to aid war victims. The International Committee of the Red Cross will distribute supplies to the population in the affected areas. It was estimated that about 1,500,000 persons in government-held territory and Biafra require help. A special CARE fund has been established for war victims. Contributions may be sent to: Nigeria-Biafra Emergency, CARE, 1028 Connecticut Ave., N.W., Washington, D.C. 20036.

Deaths from tuberculosis have been cut in half since anti-hypertensive drugs were introduced a little more than a decade ago, Asst. Secy. Philip R. Lee told a medical audience recently.

Deaths from tuberculosis have been reduced 30 percent.
NHI Develops Artificial Heart Valve With Jeweled Bearings and an Airfoil

Jeweled bearings and an airfoil are two unique features of a new artificial heart valve now undergoing development and experimental trials in animals at the National Heart Institute.

These tests indicate that the valve, constructed entirely of rigid components, is more durable and less prone to generate blood clots than are other flap valves. Moreover, it offers only half the resistance to forward bloodflow posed by the bulky caged-ball valves in current clinical use.

As in many artificial valves, the new valve has a rigid plastic ring-like valve body that is sewn into place by means of an attached skirt of synthetic fabric.

Prevents Backward Flow

The valve body contains a central plastic disc as the valve's mobile component. This disc seats against an inner rim in the valve body to prevent backward flow of blood, but swings open in response to forward flow.

Unlike most valves, however, the mobile disc is neither enclosed in a cage nor restrained by inwardly curving struts or "claws." Nor, as in some flap valves, does it flex open by means of a hinge or leaflets of flexible material that can become fatigued and fracture with prolonged use.

Instead, the disc is attached to an eccentrically-mounted metal (Vitallium) axle whose conical ends project beyond each edge of the disc. These axle ends pivot in a pair of extremely hard, low-friction bearings consisting of sapphire screw-jewels mounted inside the valve body.

Pivot Points Important

To eliminate areas of relatively "stagnant" flow, and the consequent likelihood of blood clot formation, the pivot points are located precisely in the space between the valve body and the disc where they are exposed to the constant washing action of blood even when the valve is closed.

The eccentrically-mounted axle further reduces the hazard of blood clots because, as the disc swings open, it provides two blood-flow orifices (a major and a minor orifice) that allow each side of the disc to be swept clean.

Earlier models of this valve were equipped with discs of uniform thickness and opened to an angle of only 45 degrees. This was increased 75 degrees in later models by incorporating an airfoil cross-sectional into the disc to provide lift in the bloodstream and thereby maximize flow through the valve.

Tests of the valve in a mock circulation system containing a clear glycerin and water mixture of the same viscosity as blood, showed that the disc opened promptly in response to forward flow, and then except for its outer sewing ring or Teflon cloth "skirt," of the artificial heart valve, the hinged flap valve is constructed of rigid components: the ring-like valve body and its mobile flap are of highly polished Kel-F plastic; the flap pivots on a Vitallium metal hinge pin set in sapphire Vee-jewel bearings. The valve's flap, the disc shown above in the open position, features an airfoil cross-sectional design that provides lift in the bloodstream to minimize blood-flow through opened valve.—Photos by Lee Bragg.

Closed just as promptly without "chattering."

Compared to the largest ball valve that could be inserted into the test system, the new valve prevented only half the resistance to forward flow at various flow rates up to 20 liters per minute.

Films Show Patterns

High-speed motion picture studies of flow patterns, made visible by adding a suspension of bentonite (a clay) to the system and viewing it under polarized light, showed that flow occurred through both the major and minor valve orifices. The flow about the disc was reasonably laminar. This is a desirable feature because excessive turbulence is known to damage blood cells.

Various models of the valve were used to replace the tricuspid valve in nine calves. This is a very rigorous test of the valve function even for clinically proven designs.

Although tissue growth encroaching on disc mobility was a major problem in the first four valves tested, this, and other problems were greatly reduced in later implantations by changing the hinge assembly, sewing skirt, and the use of anticoagulant drugs.

Following these changes, the new hinged valve functioned as well as or better than clinically available disc- and ball-valves used in the calf tricuspid position.

The preliminary tests suggest that the new valve will overcome certain disadvantages while improving the performance characteristics of previous valve designs.

The findings on the laboratory and animal tests of the valve were made by Drs. William S. Pierce, Douglas M. Behrendt, and Andrew G. Morrow, of NIH's Surgery Branch.
NIAID Adds New Unit—Infectious Diseases Lab.

Expanding research on viruses and viral diseases at the National Institute of Allergy and Infectious Diseases has led to the establishment of a new unit—The Laboratory of Infectious Diseases.

Dr. Robert M. Chanock was named chief of the laboratory. He has been a PHS Commissioned Officer and a member of the NIAID virology research staff since 1957.

His appointment was announced by Dr. Dorland J. Davis, NIAID Director.

Lesch-Nyhan Syndrome Exhibit Shown at AMA Meeting by NIAMD

A National Institute of Arthritis and Metabolic Diseases exhibit on Lesch-Nyhan syndrome was among the scientific features at the recent American Medical Association meeting in San Francisco.

Dr. Frank Wray McKee, Dr. Albert J. Dorland, Jr., head of the Bureau of Medicine and Excess Purine Synthesis, and Dr. Robert M. Chanock, head of the NIAID Infectious Diseases Lab.

Prior to joining NIH in 1966, Dr. Melville held important clinical and research posts with the Veterans Administration and private hospitals.

**THE MAN**

(Continued from Page 12)

able experiences in working with Jim Shannon is the process of writing his speeches. Jim is always at his best speaking extemporaneously and responding to the immediate situation. He has little taste for reading a prepared speech, particularly one involving a subject in which he is not really interested, or which does not provide an opportunity to advance NIH.

**Sought-After Speaker**

Jim's stature and position have brought him many invitations to speak, but he has the tendency to accept more obligations than his calendar and responsibilities will permit.

While preparation of a speech always starts with a discussion between him and the writer concerning the subject and the point of view to be expressed, Jim tends to avoid coming to grips with the specific content until the last moment, despite preparation of outlines and drafts by staff well in advance of the delivery date.

If Jim considers the occasion sufficiently important to worry about what he says there often is a frantic last-minute re-writing, frequently in a manner and in a direction which bears no resemblance to the carefully labored draft he has put off reviewing.

**Likes to Ad Lib**

More unsettling, however, is an inclination to accept as drafted a speech to be delivered on an occasion he considers perfunctory or ceremonial, without his having given serious thought to the matter contained therein.

Sometimes he reads such a speech as though he has never seen it before, and may even take ad lib turns with the prepared text, as though he had had no part in the original formulation of the ideas.

These performances, however, are almost always redeemed by a brilliant improvisation generated by the immediate circumstances in which the speech is delivered.

This rare ability to make penetrating observations, spin wondrous ideas, and generate visions of new opportunities, all on the spur of the moment, is among the qualities that make Jim Shannon a much sought-after speaker and a respected and admired boss, an extraordinary person building an extraordinary institution.

**Lesch-Nyhan Syndrome**

Lesch-Nyhan syndrome is a recently discovered familial neurological disease that, in the past, was frequently classed as "cerebral palsy." Children appear normal at birth, but do not develop normally. They soon begin showing mental retardation, choreoathetosis, and eventually aggressive behavior and self mutilation in which they bite away their lips and fingers.

This curious neurological and behavioral disorder with a biochemical abnormality, was first found in two brothers by Dr. William L. Nyhan and Dr. Michael Lesch at Johns Hopkins Hospital in 1954.

They reported that these children produced six times more uric acid than normal for their body weight—and much more than any other human beings.

Since gout (characterized by excessive production or accumulation of uric acid) has been under intensive study by NIAMD, Institute scientists investigated the newly discovered Lesch-Nyhan syndrome.

They thought that finding the basis for the excessive uric acid in these children might lead to the biochemical derangements responsible for excessive uric acid formation in some gouty patients.

**Enzyme Defect Found**

Within 9 months, NIAMD scientists had identified the enzyme defect in these children. An enzyme of purine metabolism, hypoxanthine-guanine phosphoribosyltransferase (HGPRTase) was absent from their cells.

These findings also provided new insight into the biochemical derangement in some gouty patients.

**Additional Evidence**

Additional evidence shows that gouty arthritis is the end result of a variety of basic biochemical and physiological abnormalities that have in common the production of hyperuricemia.

residency training in the Emergency Hospital (now a component of the Washington Hospital Center).