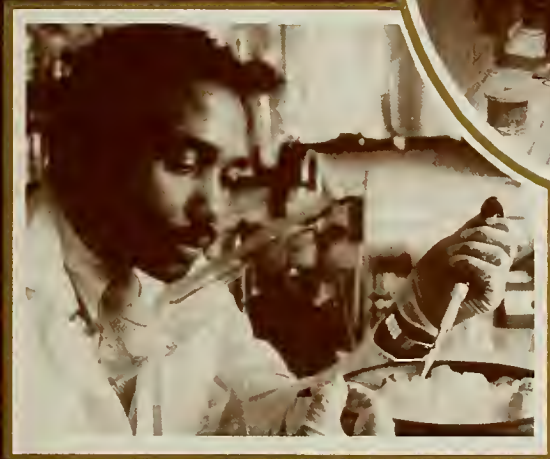


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Images from the
History of
The Public Health Service

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Images from the History of The Public Health Service

A Photographic Exhibit

Ramunas Kondratas, Ph.D.



U.S. Department of Health and Human Services • Public Health Service
Printed in 1994

Dedicated to the memory of Ronald J. Kostraba (1942 - 1991) of the OASH Administrative Services Center, whose dedication to design excellence, tireless research and planning produced the exhibit.

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Preface

The photographic exhibit, "Images from the History of the Public Health Service," consists of 165 photographs depicting people involved in the work of the Public Health Service (PHS) over much of its long history. For the most part they are fleeting images frozen in time by the lens of the camera, but they are symbolic of much more - the spirit of a Federal agency whose mission focuses on care and service.

The challenge of this exhibit was to capture through photographic images the rich texture of nearly 200 years of PHS history, the sense of excitement and discovery as well as dedication to service and duty in safeguarding the nation's health that inspired those who served and continue to serve in the PHS. We knew that our effort could not be comprehensive - only selective of some of the highlights of PHS history. We did not want an exhibit that was a mere chronology of events, famous people, and bureaucratic reorganizations. We wanted to capture some of the dynamism and excitement of the PHS which comes from its many missions and from the great variety of people who serve both in the Commissioned Corps and in the Civil Service. And so, we chose images which showed these people at work fulfilling their various missions.

To preserve the richness of the history of the Public Health Service, the specific names and functions of the organizations mentioned in the captions are those in use when the images were created, not necessarily those in use today.

Instead of an agency-by-agency approach, we chose six themes which describe in general the work of the PHS and the eight major agencies which make it up. The first theme of "Disease Control and Prevention" is one of the oldest functions of the PHS. Today it is primarily carried out by the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry. "Biomedical Research" is mainly the domain of the National Institutes of Health. "Pure Foods and Drugs" are assured by the Food and Drug Administration. "Mental Health and Drug Abuse" is primarily the concern of the Substance Abuse and Mental Health Services Administration. "Health Care Delivery" is the major function of the Health Resources and Services Administration, the Agency for Health Care Policy, and the Indian Health Service. The sixth theme of "International Health" combines the function of a number of PHS agencies, such as the Centers for Disease Control and Prevention and the National Institutes of Health.

Within each of these broad themes we have chosen images which would illustrate certain specific public health missions, functions or goals of the organizational units involved and how they change over time. Again, the primary focus is on people at work, people helping people.

People helping people is also how collaborative exhibits such as this one get done, and there are many people from many institutions to thank. Seeds for this exhibit were planted in the 1970s when Erna Landsiedel, of the PHS Parklawn Library (now retired), with the support and encouragement of Rupert Moure, then Director of the Administrative Services Center in the Office of the Assistant Secretary for Health (OASH), and with the help of PHS photographer Walter Monroe, began collecting photographs and objects for a PHS history exhibit that, unfortunately, never came to fruition. About a

dozen artifacts collected for that exhibit were transferred in 1980 by Surgeon General Julius Richmond to the Smithsonian Institution, where I as a new curator with a mandate to collect and document public health history assumed their care. Many of them are on display at the National Museum of American History in an exhibit celebrating the centennial of the National Institutes of Health. The photographs which were collected by Erna Landsiedel and Walter Monroe, supplemented by others from the National Library of Medicine and other PHS agencies, form the core of the "Images" exhibit. They have been reproduced in sepia tone, in various sizes and shapes, and are displayed in oak wood-framed panels along the corridor walls in the Parklawn Conference Center on the third floor of the Parklawn Building in Rockville, Maryland.

For their help in providing photographs and information we are especially thankful to: Thomas Reutershan of OASH; John Parascandola, Ph.D., PHS Historian; Jan Lazarus, Lucinda Keister, and Frances Beckwith of the National Library of Medicine; Suzanne White, Wallace Janssen, Richard S. Peres, Robert Barringer, and Nancy King of the Food and Drug Administration; Susan Gerhold, Susan Johnson, and Maggie Bartlett of the National Institutes of Health; Walter Clark and Edythe London, Ph.D., of the then Alcohol, Drug Abuse, and Mental Health Administration; Bernadine Moore of the Health Resources and Services Administration; Sandra Smith, Dennis McDowell, and Geanie Daves of the Centers for Disease Control and Prevention; Everett R. Rhodes, M.D., of the Indian Health Service; Suryabala Kanhouwa, M.D., and Wilhelmina Carey of St. Elizabeths Hospital; and Michael Harris of the Smithsonian Institution.

The designer, project manager, and guiding light of the exhibit was Ronald J. Kostraba from the Administrative Services Center of OASH. The human warmth and caring that Ron brought to the exhibit's subject matter is evident in its design. The amount of energy that he could muster to shepherd this project to its successful conclusion while his body was being drained by a terrible disease is truly amazing. His courage and dedication should be an inspiration to us all.

The exhibit was officially opened with a dedication ceremony at the Parklawn Conference Center on January 24, 1989. Wilford J. Forbush, Deputy Assistant Secretary for Health Operations and Director of the Office of Management, was the master of ceremonies. He introduced the distinguished guests in the audience and asked Assistant Secretary for Health Robert E. Windom, M.D., and Surgeon General C. Everett Koop, M.D., to make a few brief remarks. The guest speaker was the exhibit curator, Ramunas Kondratas, Ph.D., who is curator in the Division of Medical Sciences at the Smithsonian Institution's National Museum of America History. After the presentation of awards, the exhibit was dedicated and opened by Dr. Windom.

Ramunas Kondratas

Introduction: Two Centuries of Health Promotion

Protecting and advancing the health of our nation's people and contributing to the delivery of health care world-wide is very important work and the main task of the Public Health Service (PHS). The PHS is a principal part of the Department of Health and Human Services (HHS) and the major health agency of the Federal Government. The PHS has about 5,700 Commissioned Corps officers and 51,000 Civil Service employees. Its budget in 1993 was approximately 17 billion dollars.

In order to fulfill its very broad mission of promoting health in our nation and the world, the PHS has designed programs and created agencies which help control and prevent diseases; conduct and fund biomedical research that will eventually lead to better treatment and prevention of diseases; protect us against unsafe food, drugs, and medical devices; improve mental health and deal with drug and alcohol abuse; expand health resources; and, provide health care to people in medically underserved areas and to those with special needs.

The eight major agencies that make up the PHS and that do this work are the Centers for Disease Control and Prevention (CDC), the Agency for Toxic Substances and Disease Registry (ATSDR), the National Institutes of Health (NIH), the Food and Drug Administration (FDA), the Substance Abuse and Mental Health Services Administration (SAMHSA), the Health Resources and Services Administration (HRSA), the Agency for Health Care Policy and Research (AHCPR), and the Indian Health Service (IHS).

The Assistant Secretary for Health, with the assistance of the Surgeon General, heads the PHS, advises the HHS Secretary on health and health-related matters, and directs the activities of the major PHS agencies. Located in the Office of the Assistant Secretary for Health (OASH) are other important programs such as the National AIDS Program Office, the Office of International Health, and the President's Council on Physical Fitness and Sports.

As the PHS gets ready to celebrate its bicentennial in 1998 it has a lot to be proud of. Its history has been one of growth and expansion, of ever-increasing Federal responsibility for health care, and of change in response to the evolving health needs of our nation. This then is the history of the Marine Hospital Service (1798 - 1902), the Public Health and Marine Hospital Service (1902-1912), and the Public Health Service (1912-present).

The PHS grew out of a need for healthy seamen in our infant republic, which relied so much on the sea for trade and security. These seamen traveled widely, often became sick at sea, and then, away from their homes and families, could not find adequate health care in the port cities they visited or would overburden the meager public hospitals then in existence. Since they came from all the new states and former colonies, and could get sick anywhere, their health care became a national or Federal problem. A loose network of marine hospitals, mainly in port cities, was established by Congress in 1798 to care for these sick and disabled seamen, and was called the Marine Hospital Service (MHS).

The Federal Government had only three executive departments then to administer all Federal programs - State, Treasury, and War. The MHS was placed under the Revenue Marine Division of the Treasury Department. Funds to pay physicians and build marine hospitals were appropriated by taxing American seamen 20 cents a month. This was one of the first direct taxes enacted by the new republic and the first medical insurance program in the United States. The monies were collected from ship masters by the customs collectors in different U.S. ports.

The President was granted the authority to appoint the directors of these hospitals, but later allowed the customs collectors to do it. The appointments thus became influenced by local politics and practices. Often times hospitals were built to meet political rather than medical needs. Each hospital was managed independently and the Treasury Department had no supervisory mechanism to centralize or coordinate their activity. For example, the report of a Congressional commission formed to investigate the MHS stated in 1851 that the "hospital at Mobile is as distinct and different from that at Norfolk or New Orleans as if it were a hotel and the other a hospital..."

Lack of money, in addition to the lack of any supervisory authority, was another major problem for the MHS. The demand for medical services far exceeded the funds available. For that reason sailors with chronic or incurable conditions were excluded from the hospitals and a four-month limit was placed on hospital care for the rest. Additional funds had to be appropriated constantly from Congress in order to maintain the Service and to build the hospitals. Because of these problems Congress was forced to act and in 1870 reorganized the MHS from a loose network of locally-controlled hospitals to a centrally-controlled national agency with its own administrative staff, administrator, and headquarters in Washington, D.C.

Through this reorganization, the MHS became a separate bureau of the Treasury Department under the supervision of the Supervising Surgeon, who was appointed by the Secretary of the Treasury. The title of the central administrator was changed to Supervising Surgeon General in 1875 and to Surgeon General in 1902. Additional money to fund the reorganized Service was appropriated by raising the hospital tax on seamen from twenty to forty cents per month. The money collected was deposited in a separate MHS fund.

Taxing seamen to fund the MHS was abolished in 1884. From 1884 to 1906 the cost of maintaining the marine hospitals was paid from the proceeds of a tonnage tax on vessels entering the United States, and from 1906 to 1981, when the Public Health Service hospitals were closed, by direct appropriations from Congress.

The 1870 reorganization also changed the general character of the Service. It became national in scope and military in outlook and organization. Medical officers, called surgeons, were required to pass entrance examinations and wear uniforms. In 1889, when the Commissioned Corps was formally recognized by legislative action, the medical officers were given titles and pay corresponding to Army and Navy grades. Physicians who passed the examinations were appointed to the general service, rather

than to a particular hospital, and were assigned wherever needed. The goal was to create a professional, mobile, health corps, free as possible from political favoritism and patronage, and able to deal with the new health needs of a rapidly growing and industrializing nation.

Epidemics of contagious diseases, such as small pox, yellow fever, and cholera, had devastating effects throughout the 19th century. They killed many people, spread panic and fear, disrupted government, and caused Congress to enact laws to stop their importation and spread. As a result of these new laws, the functions of the MHS were expanded greatly beyond the medical relief of the sick seamen to include the supervision of national quarantine (ship inspection and disinfection), the medical inspection of immigrants, the prevention of interstate spread of disease, and general investigations in the field of public health, such as that of yellow fever epidemics.

To help diagnose infectious diseases among passengers of incoming ships, the MHS established in 1887 a small bacteriology laboratory, called the Hygienic Laboratory, at the marine hospital on Staten Island, New York. That laboratory later moved to Washington, D.C., and became the National Institutes of Health, the largest biomedical research organization in the world.

To better consolidate these increased functions of the MHS, including medical research, and give them legal powers, Congress passed an act in 1902 which expanded the scientific research work at the Hygienic Laboratory and gave it a definite budget. The bill also required the Surgeon General to organize annual conferences of local and national health officials in order to coordinate better state and national public health activities, and changed the name of the MHS to the Public Health and Marine Hospital Services (PHMHS) to reflect its broader scope.

The PHMHS was not the only government agency engaged in health-related work. The enforcement of the pure food and drugs law, passed in 1906, was placed in the hands of the Bureau of Chemistry of the Department of Agriculture. The Federal inspection of meats entering interstate commerce, also mandated by law in 1906, was done by the Bureau of Animal Industry of the Department of Agriculture. The Bureau of the Census was authorized in 1902 to collect vital statistics - data relating to health and disease - from around the country.

Efforts were made during the early decades of the 20th century by both political parties and by people inside and outside of government concerned with the nation's health to combine public health-related work being done by various Federal agencies, but they were unsuccessful in Congress. The act of August 14, 1912 changed the name of the PHMHS to the Public Health Service and further broadened its powers by authorizing investigations into human diseases (such as, tuberculosis, hookworm, malaria, and leprosy), sanitation, water supplies and sewage disposal, but went no further.

Real consolidation began in June 1939, when the PHS was transferred by President Franklin D. Roosevelt to the newly created Federal Security Agency (FSA), which combined a number of New Deal government agencies and services related to health,

education, and welfare. Over 140 years of association between the PHS and the Treasury Department came to an end. All of the laws affecting the functions of the services were also consolidated for the first time in the Public Health Services Act of 1944.

The FSA was a noncabinet-level agency whose programs grew to such size and scope that, in 1953, President Eisenhower submitted a reorganization plan to Congress which called for the dissolution of the FSA and the transfer of all its responsibilities to a newly created Department of Health, Education, and Welfare (HEW). A major objective of this reorganization was to ensure that the important areas of health, education, and social security be represented in the President's cabinet. In 1979, HEW's educational tasks were transferred to the new Department of Education and the remaining divisions of HEW were reorganized as the Department of Health and Human Services (HHS).

Throughout all of these reorganizations which have shaped, defined, and established the PHS in its present place in the Federal Government, and which have spanned nearly two centuries, the PHS has never lost sight of its primary goal - providing health care for those with special needs. From the care of sick and disabled sailors the PHS has extended its activities to other groups with special needs (such as, the American Indians, the Alaska Natives, migrant workers, Federal prisoners, and refugees), and to the nation as a whole.

The duties and functions of the PHS have expanded to include disease control and prevention, biomedical research, regulation of food and drugs, mental health and drug abuse, health care delivery, and international health. These six themes provide the organizational structure for the images of the PHS that follow.



Disease Control and Prevention

Health Care for Seamen

To show the new nation's concern that a healthy merchant marine was necessary for economic prosperity and a strong national defense, President John Adams signed into law in 1798 an act which furnished medical relief to merchant seamen.

A monthly deduction from the seamen's wage was used by the Federal Government to provide medical services for the seamen in existing hospitals or to build new hospitals.

The first marine hospitals were established in the port cities along the East Coast. As trade expanded along the inland waterways and the Great Lakes, the marine hospitals followed. One was erected even in Hawaii. The major function of the Marine Hospital Service until the 1870s remained the care of sick seamen. But after 1878 its functions were expanded greatly.

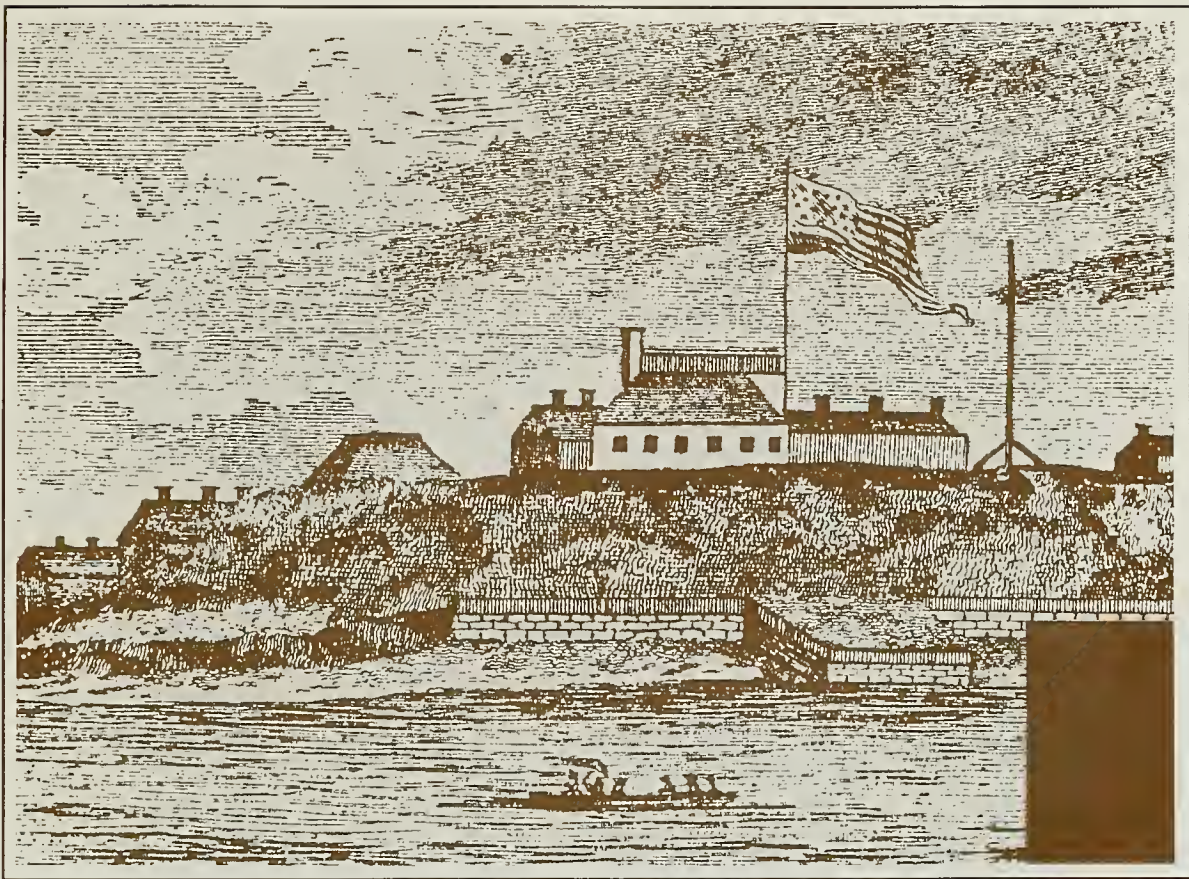


**Disease Control
and Prevention**

John Adams, second President of the United States, signed into law on July 16, 1798 the Act for the Relief of Sick and Disabled Seamen, which established what is now the Public Health Service. Twenty cents was deducted from the monthly wage of each merchant seaman to build or rent hospitals and pay for the medical care provided.

1794





Disease Control and Prevention

Castle Island in Boston Harbor was chosen as the temporary site for the first marine hospital. Dr. Thomas Welsh, a Harvard College graduate (1772) and participant in the Revolutionary War battles of both Lexington and Bunker Hill, was appointed as the physician in charge in 1799.

c. 1800





RULES AND ORDERS
OF THE
United States Marine Hospital,
ESTABLISHED AT CHARLESTOWN.

ARTICLE I.

THE OVERSEER or STEWARD is to go through all the wards in the morning, before the Physician visits them, to see that the men have washed their hands and faces, and that nothing offensive be left in the rooms; and he is to go again through the wards before bed time to see that all the patients be in the house; and that none remain in it that do not belong to it.

ARTICLE II.

Every patient is to retire to rest on or before nine o'clock in the winter months; and by ten in the summer; and no lights are to be allowed, or fire kept up, after that period, unless some special case should require it.

ARTICLE III.

Every patient in the house is enjoined to pay strict obedience to the orders of the Steward or Overseer; and should any patient think himself at any time aggrieved, he has the liberty of appealing to the Physician.

ARTICLE IV.

Every patient is to be shaved every Sunday and Wednesday; and shirred every Sunday, and oftener, if convenient; and he is to wash his face and hands and comb his head every day, if his case and circumstances will admit of it.

ARTICLE V.

Every patient is forbidden to spit on the floor or hearth, or write on the walls, or mark the wood work, or drive nails in cither.

ARTICLE VI.

If any man pertinaciously disobeys the orders of the Physicians or overseers, or gets drunk, or commits riot, or is found guilty of theft, he forfeits the privilege of the hospital, and shall be dismissed.

ARTICLE VII.

No patient is allowed to go to Boston, or to any distance from the hospital without permission from the Physician, or Overseer, or house-pupil.

ARTICLE VIII.

If any patient be found to throw away his medicine, or feign complaints; or who wilfully does any thing to impede his cure, he shall, upon conviction thereof be dismissed.

ARTICLE IX.

No person is allowed to play cards, or any other game of hazard for money, drink, or any other article. All games of amusement, accompanied with noise are forbidden, as they disturb the sick.

ARTICLE X.

Whatever patient be out of the house all night without permission from the Physician or Overseer, is from that time dismissed.

ARTICLE XI.

All the patients shall be in their own wards, and places when the Physician is ready to visit them, of which they will be notified by the ringing of the bell.

ARTICLE I.

NURSES—Are to see that the patients be neat and clean as the nature of their cases will admit. They are to see particularly as to the cleanliness of the bed and bedcloaths. They are to see that the wards be kept extremely clean; and that they be aired, by keeping the windows and doors open in fair weather, a longer or shorter time, as the weather may admit. And they are to see that no nastiness of any kind be thrown out of the windows or doors.

ARTICLE II.

The nurses, male or female, are, upon no pretence, to alter the diet ordered by the Physician; nor to suffer the patients to use any other diet, than what is allowed by the hospital; nor are they to permit spiritous liquors of any kind to be brought into the wards, except what is directed by the Physician. They are to attend to the particular disgusts and cravings of the sick, and report them to the Physician.

ARTICLE III.

The effects of men, who die in the hospital, are to be locked up, and reported as soon as may be to the Physician; and if any nurse, attendant, or any other person, should take away or conceal any article belonging to such as die in the hospital, their crime shall be reported to the Superintendent. — *John Jones was dismissed by me for the crime Herewithin*

ARTICLE IV.

The hours for admission of patients are between 10 and 12; but should any that are lame or weak present themselves before or after that time, the house-pupil, or the overseer, or the head-nurse, may receive them; and give them such articles of food only as are allowed in the *low diet*, until the Physician see them.—No person can be admitted into the hospital with the itch, or any other infectious disorder, the venereal excepted.

ARTICLE V.

No Seaman can be admitted into the hospital without a written certificate from the Custom-House, that he has paid hospital money.

APRIL, 1808.

Disease Control and Prevention

A more permanent home for the Boston Marine Hospital was found in 1804 in the Charlestown section of Boston. The rules and orders for this establishment were printed in April, 1808 and signed by Dr. Benjamin Waterhouse, who was the physician in charge from 1807-1809.

1808





Disease Control and Prevention

Dr. Benjamin Waterhouse (1754-1846) introduced into the United States in 1800 the technique of smallpox vaccination discovered in England by Dr. Edward Jenner. Smallpox was one of the most dreaded epidemic diseases in America during the 17th and 18th centuries.

c. 1775





Disease Control and Prevention

The first marine hospital owned by the Federal Government was purchased from the State of Virginia in 1801 and was located at Washington Point in Norfolk County. The hospital had been erected by the state of Virginia for use by merchant seamen. Following the Civil War, this facility was no longer used as a hospital. The building was demolished in 1933. Other early marine hospitals were established in the port cities of Boston, Massachusetts; Newport, Rhode Island; and Charleston, South Carolina.

c. 1860





Disease Control and Prevention

Ambulances and other vehicles parked by the San Francisco Public Health Service Hospital. The first marine hospital in San Francisco was completed in 1853 with special funds appropriated by Congress. The tax on seamen was not enough to finance all of the activities of the Marine Hospital Service and supplemental funds had to be appropriated constantly from Congress. The 1870 reorganization act that centralized the control of the Service increased the hospital tax on seamen from 20 cents to 40 cents per month. The tax on seamen was abolished in 1884 and from 1884 to 1906 the cost of maintaining the marine hospitals was paid out of a tonnage tax. After 1906 and until all of the Public Health Service hospitals were closed in 1981, medical care for merchant seamen and other beneficiaries was supported by direct appropriations from Congress.

c. 1920





Disease Control and Prevention

Ambulatory patients in a cafeteria food line at Galveston's Public Health Service Hospital. This hospital in Galveston, Texas, was completed in 1931 as part of a major Public Health Service hospital building program begun in the late 1920s and completed about 1940.

1932





Disease Control and Prevention

Dental clinic at the New Orleans Public Health Service Hospital. When the Marine Hospital Service became the Public Health Service in 1912 the names of the marine hospitals were changed to Public Health Service hospitals. The hospital housing this clinic was built in 1931. But the presence of a United States marine hospital in New Orleans, Louisiana, dates back to the early years of the 19th century. Congress authorized such a hospital in 1802 while the port was still under foreign rule. Starting in 1919 dental officers were added to Public Health Service hospitals and dispensaries filling a long recognized need.

c. 1935





Disease Control and Prevention

Fighting the Spread of Epidemic Diseases

By 1878 the Marine Hospital Service had begun to lose its identity as a relief organization solely for sick seamen. The prevalence of major epidemic diseases such as smallpox, yellow fever, and cholera spurred Congress to enact a national law in 1878 to prevent the introduction of contagious and infectious diseases into the United States, later extending it to prevent the spread of disease among the states. The task of controlling epidemic diseases through quarantine and disinfection measures as well as immunization programs fell to the Marine Hospital Service and hastened its evolution into the Public Health Service which served the whole nation.

As a result of new laws the functions of the Service expanded greatly to include the supervision of national quarantine, the medical inspection of immigrants, the prevention of interstate spread of disease, and general investigations in the field of public health, such as that of yellow fever epidemics. To help the Service meet these increased tasks the Congress in 1889 established the Commissioned Corps along military lines, with titles and pay corresponding to Army and Navy grades. In 1930 and 1944 the Corps was expanded to include, besides physicians, engineers, dentists, research scientists, nurses, and other health care specialists.

As epidemic diseases were brought under control the Public Health Service began to shift its attention to other areas such as cancer, heart disease, health in the workplace, and the impact of environmental problems, such as toxic waste disposal, on health. But the Public Health Service is still called upon to investigate outbreaks of disease such as Legionnaire's, toxic shock syndrome, and now the deadliest epidemic of our age - AIDS. Much of the work of the early plague fighters and sanitarians is now carried out by the scientists at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia.



Disease Control and Prevention

Public Health Service officers in uniform at the Montauk Point, New York, Quarantine Station. An Act of Congress in 1870 formally organized the Marine Hospital Service as a national agency with centralized administration under a medical officer, the Supervising Surgeon, who was later given the title of Surgeon General. The Service was reorganized along military lines, with uniforms, entrance examinations, and tenure and promotion on the basis of merit, free from politics. Gradually, local physicians were replaced with medical officers, who were admitted only after examination and were subject to assignment wherever required.

1898





Disease Control and Prevention

Public Health Service officers in front of the quarantine hospital in the Dry Tortugas, Florida. Ravaging epidemics, which were taking their toll on the United States population, and the continued failure of the Federal Government to exert its proper authority in quarantine matters stimulated John M. Woodworth, the first Surgeon General of the Marine Hospital Service, to press for action in developing an effective national quarantine system. Largely through his efforts the national quarantine act "to prevent the introduction of contagious or infectious diseases into the United States" was passed in 1878. This legislation also gave authority for the very important Public Health Service publication now known as *Public Health Reports*.

c. 1895





Disease Control and Prevention

North end of the disinfecting wharves at the quarantine station on Blackbeard Island, Georgia. This station for the detention and treatment of infected ship crews and cargoes, together with another quarantine station on Sapelo Sound in Georgia, were established in 1883 as part of a national quarantine system. They constituted part of the South Atlantic Quarantine region.

1895





Disease Control and Prevention

The Public Health Service quarantine boarding launch "Walter Wyman" in New York City harbor. Walter Wyman was Surgeon General of the Public Health Service from 1891 to 1911 and among his many accomplishments was the development of the national maritime quarantine system.

1939





Disease Control and Prevention

Fumigation of a ship in New York City harbor by spraying of hydrocyanic acid gas. The introduction of hydrocyanic acid gas by the Public Health Service in 1913 to replace sulphur dioxide, the chief fumigant relied upon for centuries, was a very important contribution to quarantine procedure.

c. 1914





Disease Control and Prevention

Camp E.A. Perry, yellow fever detention camp, on the south bank of St. Mary's River in Florida near the Georgia border, established by the Marine Hospital Service in 1888. During the spring and summer of that year there were numerous outbreaks of yellow fever in the gulf states. The Service assisted state and local health authorities in controlling its spread by setting up camps such as this. Persons traveling from yellow fever areas were required to remain in the camp for the incubation period (6-10 days) before proceeding elsewhere. This camp which was up for several weeks, was named in honor of Governor E.A. Perry of Florida, who cooperated in establishing and maintaining it. Camps near infected cities were not new, but an inland quarantine, where suspects were detained only long enough to demonstrate that they were not infected and then allowed to proceed, were new at the time.

1888





Disease Control and Prevention

United States troops in the Spanish-American War suffered from yellow fever. Fear of its spread to the mainland after the end of hostilities in 1899 invoked large-scale efforts by the Marine Hospital Service to ensure adequate quarantine inspection of troops being returned from Cuba and Puerto Rico. Here troops are undergoing inspection and disinfection of baggage at the quarantine detention camp on Daufuskie Island, South Carolina.

1899





**Disease Control
and Prevention**

A fumigating and disinfecting team getting ready to work in New Orleans.

1939





**Disease Control
and Prevention**

Quarantine inspection in Baltimore harbor. Unless specifically exempted by regulation, every ship, aircraft, or other carrier entering a United States port is examined for purposes of quarantine.

1939





Disease Control and Prevention

The immigration law of 1891 made it mandatory that all immigrants coming into the United States be given a health inspection by the Public Health Service physicians. The law stipulated the exclusion of "all idiots, insane persons, paupers or persons likely to become public charges, persons suffering from a loathsome or dangerous contagious disease," and criminals. The largest inspection center was on Ellis Island in New York Harbor. Here the physicians are looking at the eyes for signs of trachoma.

c. 1910





Disease Control and Prevention

Quarantine detention at Immigration Station on Ellis Island, New York. Those suspected of having a communicable disease were segregated at once and, after confirmation of the diagnosis, admitted to the communicable disease hospital for care and treatment.

c. 1930





**Disease Control
and Prevention**

Asian immigrants arriving at the Immigration Station on Angel Island near San Francisco, California. Angel Island was one of about 50 American ports designated as ports of entry for immigrants by the immigration law of 1891.

1931





**Disease Control
and Prevention**

Disinfecting clothing of immigrants at the Immigration Station on Angel
Island, San Francisco, California.

1931





**Disease Control
and Prevention**

Testing an Asian immigrant at the Immigration Station on Angel Island, San Francisco, California.

1931





Disease Control and Prevention

The foreman of a ratproofing crew in New Orleans, Louisiana, pointing out the progress of the work to Public Health Service officer Dr. Charles V. Aiken. Bubonic plague broke out in New Orleans in June 1914. Full plague control operations such as this continued until 1916 when the city was declared free of infection.

1914





**Disease Control
and Prevention**

Two sisters suffering from trachoma, a contagious viral disease of the eye which, if untreated, could lead to blindness. Because of its prevalence Congress and President Woodrow Wilson authorized the Public Health Service in 1913 to use money from its annual "epidemic" fund for the prevention and control of trachoma.

c. 1920





Disease Control and Prevention

Sanitary engineer Ralph E. Tarbett oversees malaria control work during World War I. A drip can containing oil and kerosene is used to eliminate a mosquito-breeding area. Starting in 1912 and 1913 malaria studies and malaria control efforts were led by Public Health Service officer Henry R. Carter and Rudolph H. von Ezdorf. From 1912 to 1917 the main effort was directed toward determining where malaria was prevalent in the United States and measuring its economic impact.

c. 1917





Disease Control and Prevention

Typhoid fever, attributable to poor sanitary conditions, was a major cause of illness in the United States during the 19th and early 20th centuries, especially in the rural areas. Here an entire family receives inoculations against typhoid fever.

c. 1930





Disease Control and Prevention

The working environment and its effect on worker's health became a major area of study for the Public Health Service starting in 1910. Investigations in the garment making industry, as illustrated by these women making flowers, revealed unsanitary conditions and an excessive rate of tuberculosis. Other studies were done of silicosis among miners, sanitation and working conditions in the steel industry, lead poisoning in the pottery industry, and radiation hazards in the radium dial painting industry. These studies and surveys were coordinated by the Division of Industrial Hygiene and led by such officers as Joseph W. Schereschewsky. They eventually helped to better health conditions and provided safer work environments for many workers.

c. 1910





Disease Control and Prevention

Rural sanitary surveys conducted by the Public Health Service under the leadership of such officers as Leslie L. Lumsden (1875-1946) and Charles W. Stiles (1867-1941) tried to ascertain the health conditions in rural areas of the United States through house-to-house canvasses. Working in close cooperation with local officials, the public health survey teams also provided advice to these households concerning the safe disposal of human wastes by building sanitary privies, the protection of water supplies by safeguarding wells to prevent surface drainage, and the screening of homes to prevent the entrance of disease-bearing insects, particularly flies and mosquitoes. The construction of sanitary privies for each household, such as these shown here in an agricultural migrant village, played an important part in the development of rural sanitation. This work was greatly advanced during the 1930s through the federal privy-building programs of the Civil Works Administration and the Work Projects Administration.

c. 1930



(To Be Tacked Inside of the Privy and NOT Torn Down.)

Sanitary Privies Are Cheaper Than Coffins



For Health's Sake let's keep this Privy CLEAN. Bad privies (and no privies at all) are our greatest cause of Disease. Clean people or families will help us keep this place clean. It should be kept as clean as the house because it spreads more diseases.

*The User Must Keep
It Clean Inside. Wash
the Seat Occasionally*

How to Keep a Safe Privy:

- 1. Have the back perfectly screened against flies and animals.*
- 2. Have a hinged door over the seat and keep it CLOSED when not in use.*
- 3. Have a bucket beneath to catch the Excreta.*
- 4. VENTILATE THE VAULT.*
- 5. See that the privy is kept clean inside and out, or take the blame on yourself if some member of your family dies of Typhoid Fever.*

Some of the Diseases Spread by Filthy Privies:

Typhoid Fever, Bowel Troubles of Children, Dysenteries, Hookworms, Cholera, some Tuberculosis.
The Flies that You See in the Privy Will Soon Be in the Dining Room.

Walker County Board of Health

Disease Control and Prevention

The Public Health Service rural sanitary surveys during the first two decades of the 20th century led to the establishment of many local county health boards and departments, who continued the work of rural sanitation on a daily basis. Health education was one of their primary tools. The poster for privies, printed for one of Dr. Lumsden's county health campaigns, is an example of the methods used. The results were quite dramatic as the incidence of typhoid fever and hookworm markedly diminished in areas where active sanitary measures were taken.

c. 1920



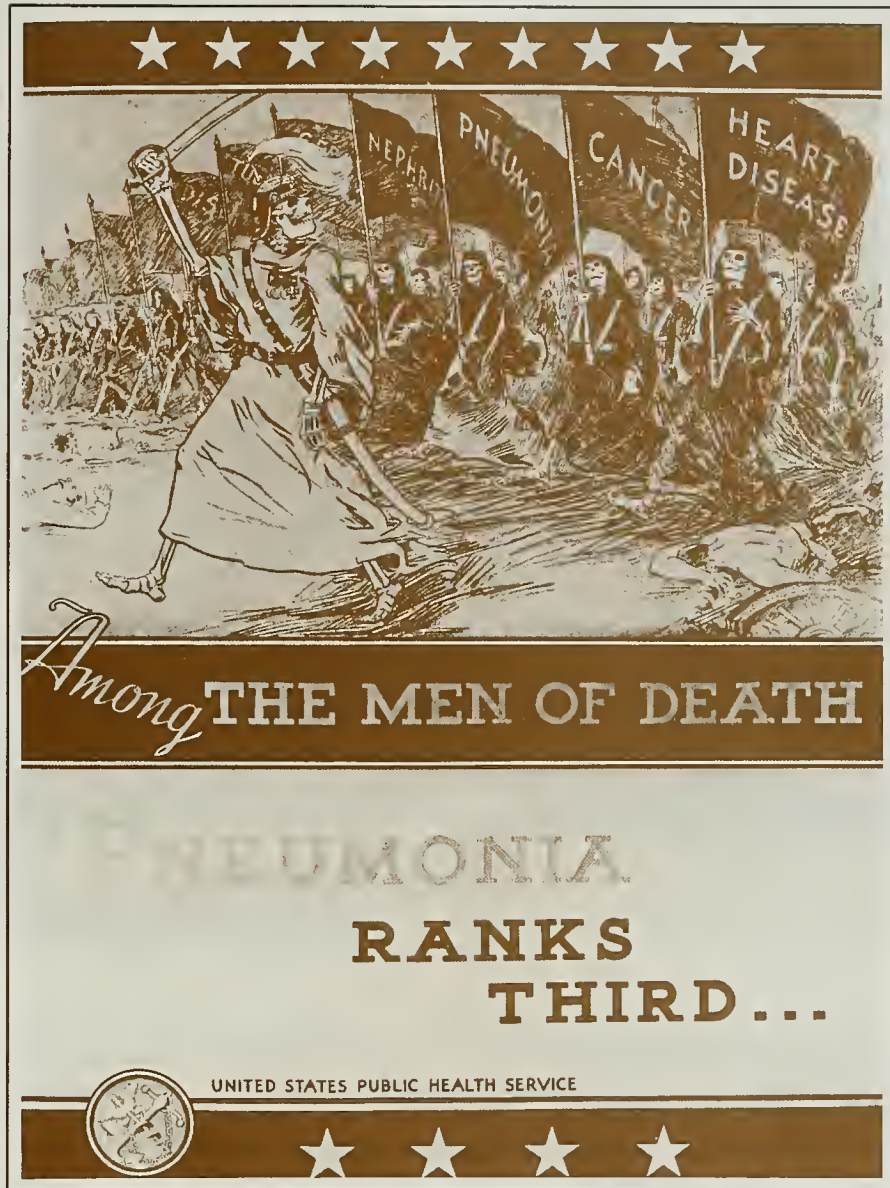


Disease Control and Prevention

Smallpox has been one of the most devastating diseases in American history, especially among Native Americans. Sporadic cases of smallpox were still being reported in the United States during the 1930s and early 1940s. The Public Health Service, primarily through the work of the Hygienic Laboratory, played an important role in controlling and finally eradicating this disease. Important contributions included the inspection of vaccine being produced to ensure purity, especially from contamination with tetanus; recommending the abandonment of dressings at the vaccination site to avoid post vaccination tetanus; and the development of the multiple pressure method of vaccination.

c. 1920





Disease Control and Prevention

Pneumonia was a serious concern of the Public Health Service in the early decades of the 20th century. Together with influenza it was the leading cause of death in the United States in 1900.

c. 1930





Disease Control and Prevention

This World War II advertisement informs the soldiers and other citizens about a new wonder drug that can cure venereal disease. The introduction of penicillin, first in limited amounts in 1943 for clinical trials and then in massive quantities by 1944 as a result of the war effort, brought about revolutionary changes in the control of infections and venereal disease. The Public Health Service together with other government agencies carried out an extensive study of the effect of penicillin in treating syphilis and gonorrhea.

c. 1944





Disease Control and Prevention

The Malaria Control Unit of the Philippines Public Health Rehabilitation Program in front of their headquarters. Following the reoccupation of the Philippines by the United States Armed Forces in 1945, and until 1950, the Public Health Service aided the Philippine government in surveying the general public health conditions on the Islands, and reestablishing public health programs and quarantine facilities. The prevention and control of malaria, with four to five million cases annually, was a major objective of the program.

c. 1946





Disease Control and Prevention

Medical discoveries and public health campaigns have almost eliminated deaths from the common diseases of childhood such as measles, diphtheria, scarlet fever, and whooping cough. As a result of these successes nearly 20 years were added to the average life expectancy at birth between 1900 and 1950—from 47 to 67 years.

c. 1950



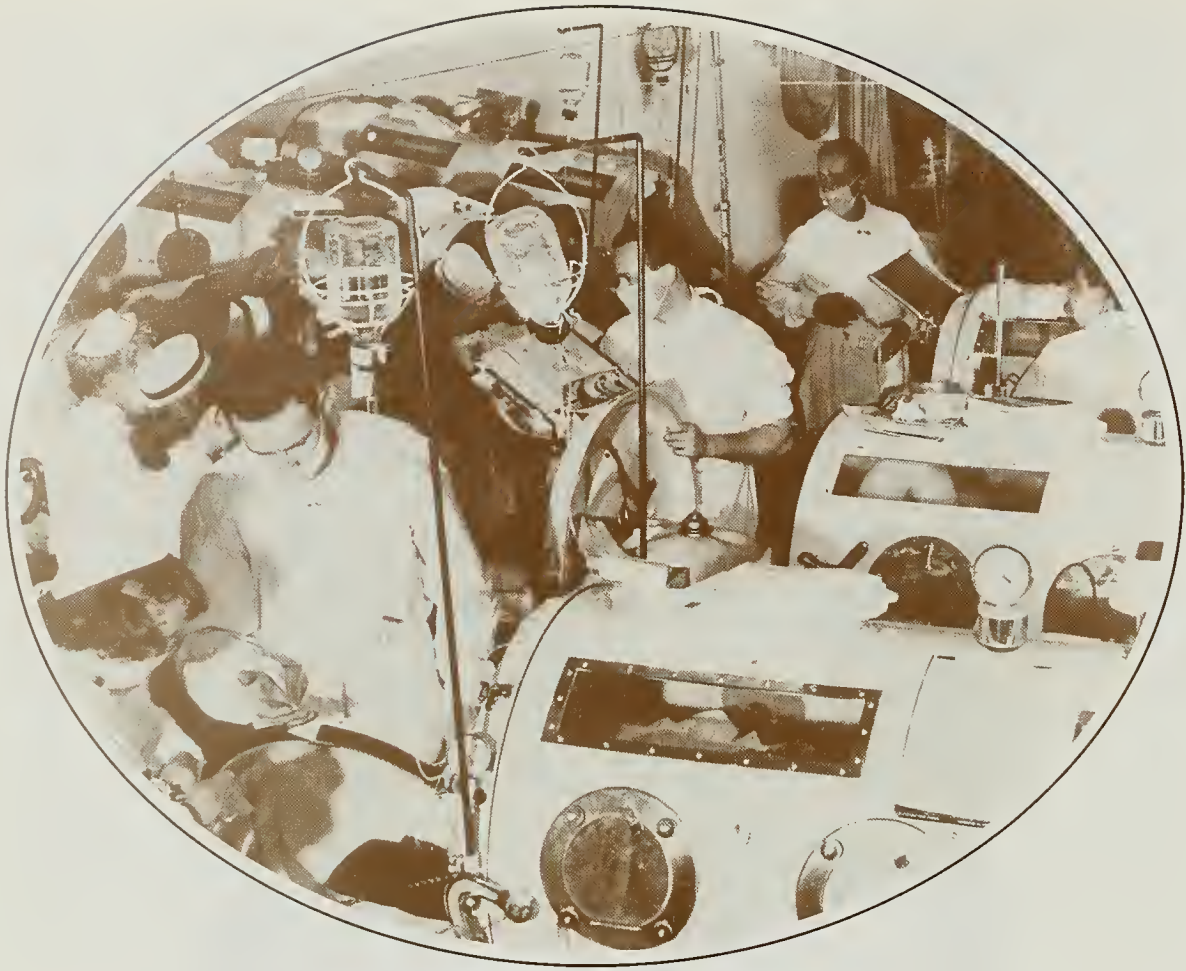


Disease Control and Prevention

A collage of well known personages who gave publicity and support for a chest X-ray campaign in Los Angeles. During 1950 more than 2 million X-ray examinations were made by the Public Health Service, more than 1.8 million of them in community-wide chest X-ray surveys in Denver, Boston, Salt Lake City, San Diego, and Los Angeles.

c. 1950





Disease Control and Prevention

The iron lung was used to sustain the lives of polio victims. Dr. James P. Leake and other Public Health Service scientists were instrumental in field investigations of poliomyelitis.

c. 1950





Disease Control and Prevention

Accurate health statistics are very important for formulating national health policies and funding health programs. This specially designed and equipped mobile examination center is the site of testing for the third National Health and Nutrition Examination Survey (NHANES III). NHANES III is designed to assess the health and nutritional status of adults and children in the United States and is being conducted by the National Center for Health Statistics of the Centers for Disease Control and Prevention. Approximately 40,000 individuals in 88 communities across the country will be asked to participate in this six-year survey which began in September 1988. The first two national surveys were done in 1971-75 and 1976-80.

c. 1988





Disease Control and Prevention

Persons who participate in the third National Health and Nutrition Examination Survey receive a physical examination and several other tests from a physician and a highly trained medical staff. These other tests will include a dental examination, hearing test, allergy skin test, lung capacity test, body measurement, electrocardiogram (ECG), and measurement of bone density.

c. 1988





Disease Control and Prevention

Public Health Service officer Gail Schmidt checking the level of contamination on the exterior of a building used by a radium source manufacturer and importer in New York. Health hazards associated with radioactive materials have been a concern for the Service throughout most of this century. Since 1979 the Centers for Disease Control and Prevention in Atlanta, Georgia have had the primary responsibility of responding to environmental emergencies involving radiation and chemicals, such as those caused by spills during transport, fires, and other incidents. They assisted in the environmental epidemiologic investigation following the Three Mile Island nuclear reactor accident in 1979.

1966





Disease Control and Prevention

Not only did the Centers for Disease Control and Prevention take over the foreign quarantine functions in 1967, they also extended quarantine into space. The Centers for Disease Control and Prevention provided quarantine equipment and procedures for the United States space program, including the Apollo moon landings.

c. 1969





Disease Control and Prevention

Wearing high-level protective gear, Public Health Service response teams collect samples for toxic substance identification. Since 1979 the Centers for Disease Control and Prevention (CDC) have coordinated activities to protect the public's health against exposure to toxic chemicals in the environment. The Center for Environmental Health and the National Institute for Occupational Safety and Health (NIOSH) are the two organizational units within the CDC responsible for these activities. They include studies of indoor air quality, lead-based paint poisoning, and occupational exposure to asbestos and hundreds of other toxic and carcinogenic substances. Health studies of residents of Love Canal, an abandoned chemical waste dump in Niagara Falls, New York, in 1980 was one of their most well-known efforts.

c. 1980





Disease Control and Prevention

Health education is an important tool in the fight against the spread of AIDS. Surgeon General C. Everett Koop's *Report on AIDS* and other brochures produced by the Public Health Service help to disseminate important information about AIDS.

1987



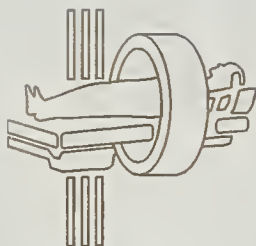
WORLD AIDS DAY

December 1, 1994



AIDS and FAMILIES

Protect and Care for the Ones We Love



Biomedical Research

The Beginnings of Organized Biomedical Research

The discovery of the microbes causing infectious diseases such as tuberculosis, cholera, diphtheria, and typhoid fever during the 1880s and 1890s created a revolution in medical thought and practice. The Hygienic Laboratory was established at the Marine Hospital on Staten Island, New York in 1887 to apply the methods of this new science of bacteriology to the diagnosis and study of epidemic diseases. The establishment of this single room bacteriological laboratory by the U.S. Marine Hospital Service marked the beginning of the National Institutes of Health and laid the groundwork for government-supported scientific research in the United States.

The Marine Hospital Service was responsible for diagnosing infectious diseases among passengers on incoming ships to prevent the entry of disease into the United States. Under the leadership of its first Director, Joseph J. Kinyoun, an early American proponent of the germ theory of disease, and equipped with the best German instruments, the Laboratory began doing some very fine work in the diagnosis, study, and treatment of cholera, yellow fever, smallpox, and bubonic plague. Of special concern were cholera and yellow fever, the two great scourges of 19th century America.

Many studies and experiments were made on different kinds of disinfectants. Special fumigation apparatus was designed. Water was tested for the presence of disease-causing microbes.

In 1891 the Hygienic Laboratory moved from Staten Island to larger quarters in Washington, D.C., where its sections were expanded to include pathology, chemistry, pharmacology, and zoology. The workload and the responsibilities increased even more significantly after the passage of the Biologics Control Act in 1902. The task of testing as well as regulating the production of all vaccines and other biologic products was delegated to the Laboratory.

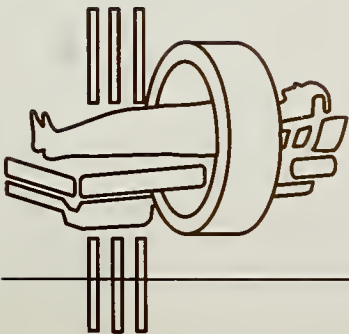
The Ransdell Act in 1930 officially changed the name of the Hygienic Laboratory to the National Institute of Health and the move to its present site in Bethesda, Maryland began in 1938. Thus from the single room bacteriological laboratory in Staten Island's hospital for sick and disabled sailors grew one of the largest biomedical research organizations in the world.



Biomedical Research

The National Institutes of Health began as a single room Laboratory of Hygiene for bacteriological investigation established by the U.S. Marine Hospital Service at Stapleton, Staten Island, New York, in 1887. From 1887 to 1891 the Laboratory was located in the attic of the Marine Hospital on Staten Island, which had been the Seaman's Retreat until leased by the Federal Government in 1883 and made part of the Marine Hospital Service. The building that housed the Laboratory still stands and is part of the Bayley Seton Hospital.

c. 1887

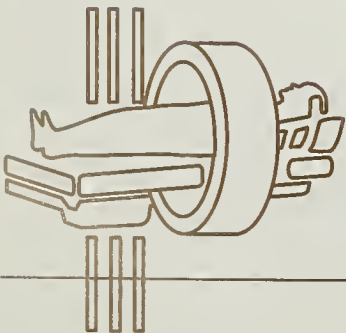




Biomedical Research

In 1891, after four years on Staten Island, the Hygienic Laboratory, as it began to be called, moved to Washington, D.C., where it occupied the top floor of the Butler Building on Capitol Hill; the building was the headquarters of the Marine Hospital Service. The Laboratory was housed there for fourteen years until a separate building for it was completed. The Laboratory needed more space for its new functions of giving courses in bacteriology and pathology to Service officers, and regulating the sale of biologic products. Space was needed also for the newly created divisions of chemistry, zoology, and pharmacology and the existing division of bacteriology and pathology.

c. 1900

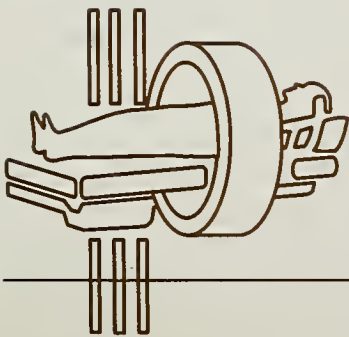




Biomedical Research

In 1901 Congress appropriated funds for a new building for the Hygienic Laboratory and provided a five-acre site on the old Naval Observatory grounds at 25th and E Streets, N.W. The building was completed in 1904 but soon proved too small for the quickly expanding laboratory. By the time the research laboratories began the move to their present site in Bethesda, Maryland, in 1938, a south wing and two additional buildings had been added.

c. 1910

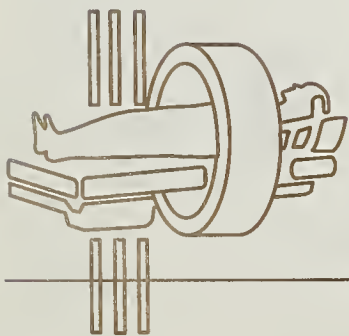




Biomedical Research

The National Institutes of Health campus covers 306 acres in Bethesda, Maryland. In 1930 the Ransdell Act changed the name of the Hygienic Laboratory to the National Institute of Health. With the creation of other research units, the name was changed again in 1948 to the National Institutes of Health. The move to this present location began in 1938.

c. 1986

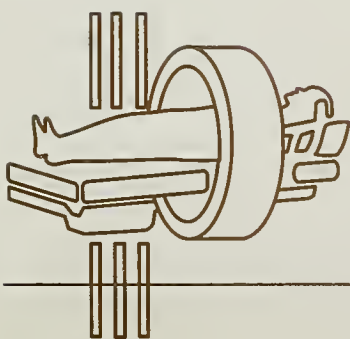




**Biomedical
Research**

Bacteriologist Joseph J. Kinyoun (1860-1919), a graduate of Bellevue Hospital Medical College in New York City, was the first director of the Hygienic Laboratory from 1887 to 1899. He helped design the Kinyoun-Francis sterilizer, a portable steam disinfecting apparatus used in the quarantine service, and was instrumental in introducing the production of diphtheria and tetanus antitoxin serums in the United States.

c. 1895

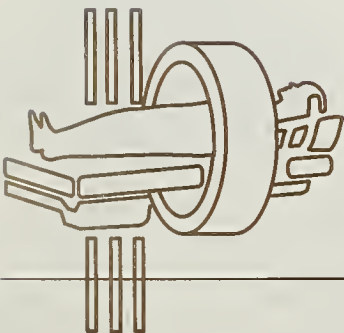




Biomedical Research

The 1902 Biologics Control Act authorized the Hygienic Laboratory to inspect firms producing vaccines, and grant licenses to those that met rigorous standards of cleanliness and product purity. The technique to produce diphtheria antitoxin was first announced in Europe in the fall of 1894. This bottle of diphtheria antitoxin, produced by the Hygienic Laboratory and dated May 8, 1895, is the oldest known sample in the United States. It is being preserved at the Smithsonian Institution's National Museum of American History.

1895

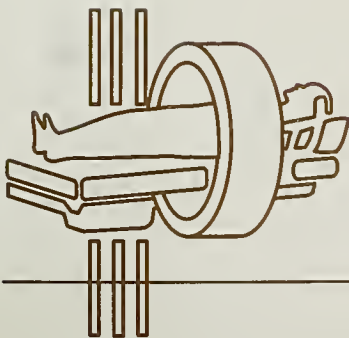


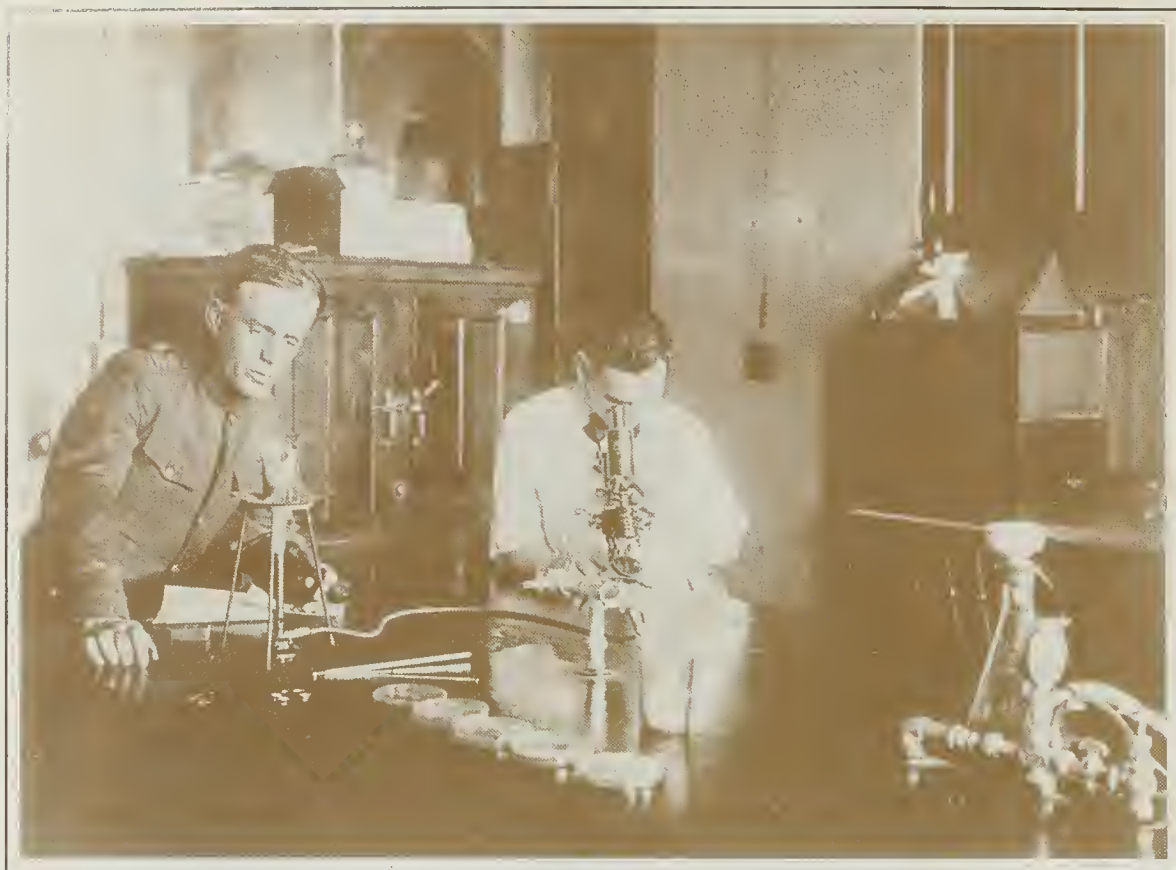


Biomedical Research

Testing vaccines and serums for purity and potency. The National Institutes of Health played a leading role in the development and regulation of biologic products that have protected the lives of millions of Americans from 1903, when the 1902 Biologics Control Act became effective, until the transfer of these regulatory functions to the Food and Drug Administration in 1972.

c. 1930

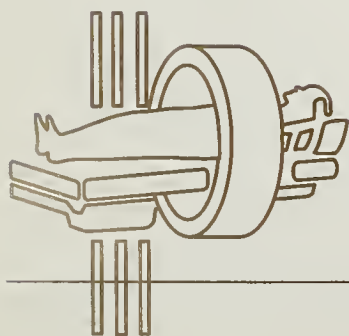




Biomedical Research

Most of the bacteriology work and all of the biologics control from 1903 to 1937 was done in the Hygienic Laboratory's Division of Pathology and Bacteriology. This division made major contributions to the study of over 30 infectious diseases.

1925

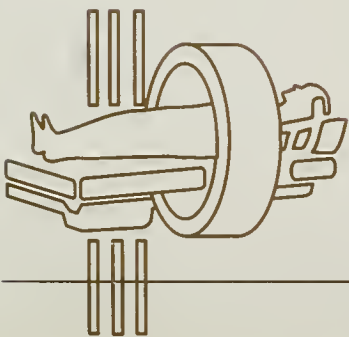




**Biomedical
Research**

Researchers at work on biologics control. In 1937 this work was placed in a newly established Division of Biologics Control. In 1944 this division was redesignated the Laboratory of Biologics Control.

c. 1930

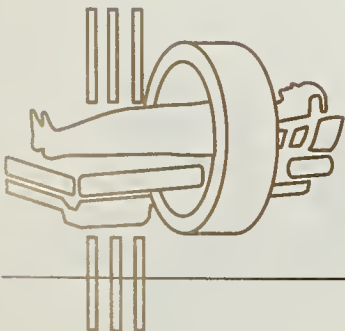




Biomedical Research

Researcher Emily Emmart working in the NIH's Rocky Mountain Laboratory in Hamilton, Montana. The laboratory had been established by the state for the study of Rocky Mountain spotted fever, and became a part of the Public Health Service as a result of legislation enacted in 1931.

c. 1937

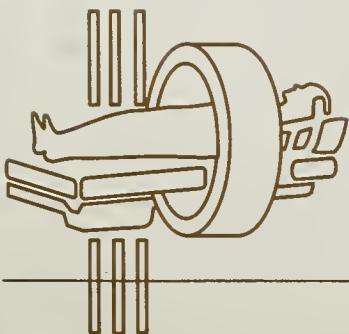


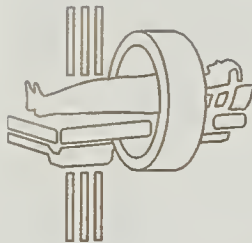


Biomedical Research

Bacteriologists Ida A. Bengston (1881-1952), on the left, and Alice C. Evans (1881-1975) were the first women employed on the scientific staff of the Hygienic Laboratory. Ida Bengston was particularly noted for her studies of bacterial toxins, especially the discovery of the organism *Clostridium botulinum*, which caused limberneck, a paralytic disease in chickens. Alice Evans identified undulant fever as a human form of abortive fever in cattle and traced its transmission to contaminated milk. This hastened the spread of the pasteurization movement in the United States.

c. 1940





Biomedical Research

Notable Contributions to Biomedical Research

The many significant contributions of Public Health Service scientists to the development of the biomedical sciences and to the improvement of the public health cannot be summarized easily.

The major research endeavors during the early years were the diagnosis and study of infectious diseases, standardization and regulation of biologic products, the development of vaccines, the study of anaphylaxis or hypersensitivity to drugs, chemical tests for blood, the chemistry of vitamins, stream pollution, occupational health, and industrial hygiene. The aim was to apply science to the basic problems of health. The objectives were usually very practical in nature.

Joseph Kinyoun and his colleagues in New York City, for example, were the first in the United States in 1887 to make a bacteriological diagnosis of cholera. Studies in the South during the first half of the 20th century of the hookworm disease by Charles Stiles and of pellagra by Joseph Goldberger clearly demonstrated the relationship between poor living conditions, meager diet, and disease, and they helped stimulate full-time county health work. Epidemiological studies of typhoid fever in Washington, D.C., and elsewhere during 1906-10 by Leslie Lumsden contributed to the development of the rural sanitation movement.

After World War II the focus of research shifted to the study of chronic diseases, such as those of the heart and kidneys, cancer, arthritis, the neurological disorders, diseases of the eye and the teeth, health problems associated with aging, child health, and environmental health. Great emphasis has been placed on the study of human biology: immunology, genetics, cellular and molecular biology. The National Institutes of Health have played an important role in the development of recombinant DNA technology, which has given birth to genetic engineering and the new biotechnology industry.

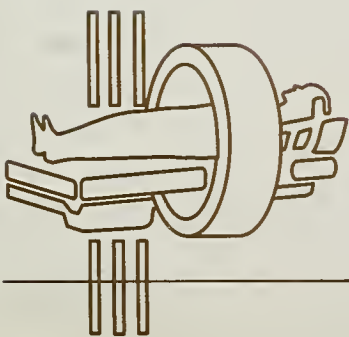
NIH scientists have won Nobel Prizes for deciphering the genetic code, for work on the three-dimensional structure of proteins, for discovering how brain cells communicate with one another, and for work on slow viruses. They are at the forefront of research on AIDS.



Biomedical Research

Through brilliant field investigations of orphanages, insane asylums, and prison farms in the South during the 1910s and early 1920s, Joseph Goldberger (1874-1929) demonstrated that pellagra, which killed thousands of mostly poor people yearly, was caused by a nutritional deficiency resulting from an unbalanced diet and could be cured by the addition of fresh milk, meat, or yeast. The deficient nutrient was identified in 1937 as niacin, a member of the vitamin B complex.

c. 1910

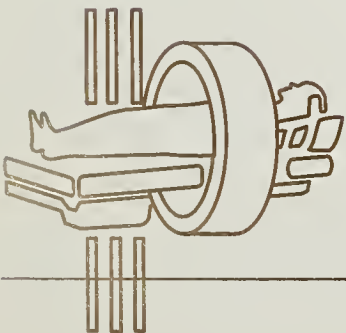




**Biomedical
Research**

Dr. Joseph Goldberger and his young assistant, Dr. William Henry Sebrell, Jr., who was appointed director of the National Institutes of Health in 1950, working on pellagra at the Hygienic Laboratory.

c. 1926

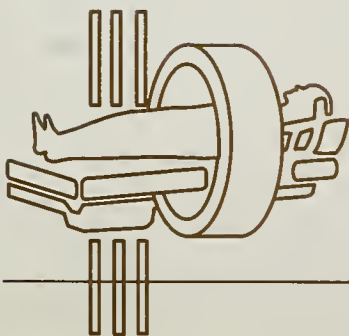




**Biomedical
Research**

A family, mother and children, all suffering from pellagra, which caused the skin to turn red and then scaly. Stomach disorders, diarrhea, and depression followed. Victims often became insane.

c. 1920

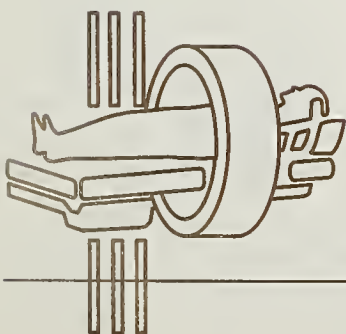




**Biomedical
Research**

A poor diet of hominy grits, mush, molasses, cabbages, potatoes, and rice was the main cause of pellagra.

c. 1920

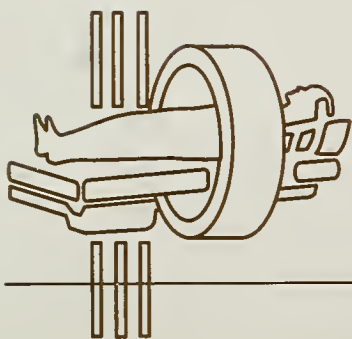




**Biomedical
Research**

The diet laboratory where extensive research was carried out to establish that pellagra was caused by a dietary deficiency.

c. 1920

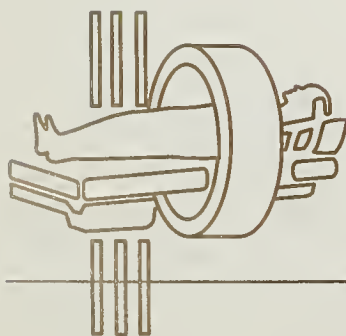




Biomedical Research

Nurses Bullard, Ferguson, and Norsdoff at a temporary yellow fever hospital in Franklin, Louisiana. Fast action by Dr. Henry R. Carter, who arranged the establishment of a detention camp, temporary hospital, and train inspection service, averted a major outbreak of yellow fever like the one in 1878 that swept up the Mississippi River claiming 20,000 lives. The last outbreak of yellow fever in the United States occurred at New Orleans in 1905.

1898

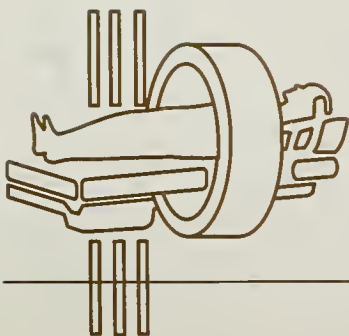




**Biomedical
Research**

Henry R. Carter (1852-1925), the yellow fever expert of the Public Health Service, collecting mosquito larvae at Baden Pond in North Carolina. His discovery of the extrinsic incubation period of yellow fever in 1898 led to the determination of the role of the mosquito in the transmission of the yellow fever virus.

c. 1924

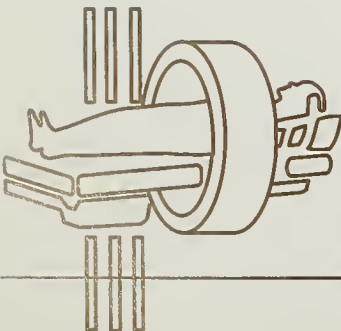




**Biomedical
Research**

Thomas Parran (1892-1968) was a strong national and international leader in the field of public health. As chief of the Public Health Service's Division of Venereal Diseases (1926-30) and as Surgeon General (1936-48) he led the fight against venereal disease, with special emphasis on public education. He greatly strengthened and extended the research programs at the National Institutes of Health, established the Communicable Disease Center (later Centers for Disease Control and Prevention) in Atlanta, Georgia, and participated in the planning of the World Health Organization.

c. 1930

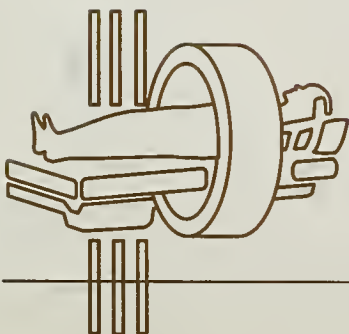




**Biomedical
Research**

The first definite work of the Public Health Service in the control of venereal diseases began during World War I. An act of Congress in 1918 created a Division of Venereal Diseases in the Public Health Service and appropriated two million dollars for the prevention, control, and treatment of venereal diseases. Posters, such as this one, were a very popular form of health education.

c. 1940



The DUTIES OF THE HEALTH DEPARTMENT IN SYPHILIS CONTROL

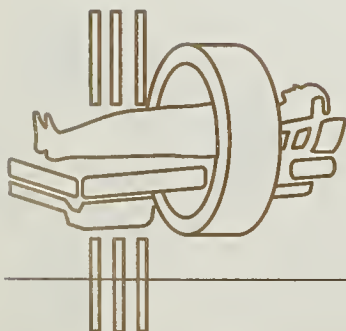
Your State and local health departments, in cooperation with voluntary agencies and the physician in private practice, are responsible for the control of syphilis. . . .

You SHOULD SUPPORT THEM

Biomedical Research

State and local health departments planned and conducted campaigns to find persons with venereal disease and bring them for treatment, either in their own clinics or by private physicians. These departments also provided the diagnostic and laboratory services necessary in venereal disease control. The Public Health Service aided the states to finance and administer their control programs.

c. 1945

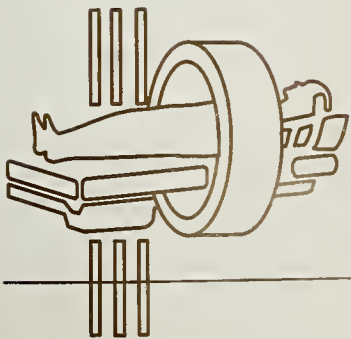




Biomedical Research

The two-story empty school building in Hamilton, Montana, which in 1922 became the U.S. Public Health Service Laboratory for research on Rocky Mountain spotted fever. Here bacteriologist Roscoe R. Spencer (1888-1982) of the Hygienic Laboratory and Montana entomologist, Ralph R. Parker (1888-1949), worked through the summer tick seasons of 1922 to 1928 developing a vaccine. Dr. Spencer gave himself the first human vaccination against spotted fever in 1924.

c. 1925

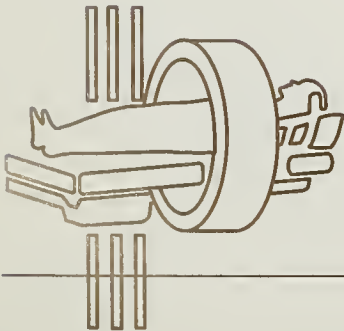




Biomedical Research

Men being tested for spotted fever by scientists from the Rocky Mountain Laboratory in Hamilton, Montana. Spotted fever, a rickettsial disease transmitted by ticks, was taking a devastating toll of western settlers when the Hygienic Laboratory first sent Dr. Julius O. Cobb in 1902 to the Bitter Root Valley in Montana to investigate.

c. 1930

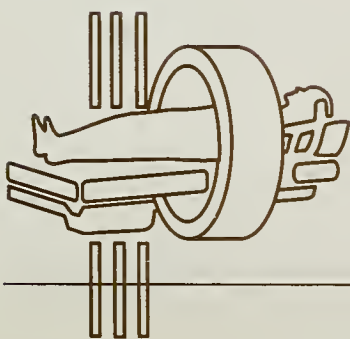




Biomedical Research

Much joint research by bacteriologists and entomologists had to be done at the Rocky Mountain Laboratory on ticks and guinea pigs before a successful vaccine against spotted fever was developed. The results of the Spencer-Parker vaccine were impressive. Before vaccination began in the spring of 1925, the mortality from spotted fever in the Bitter Root Valley had ranged between 80 and 90 percent. Between 1927 and 1940 half a million people in the Rocky Mountain region were vaccinated. Of these, only 61 developed spotted fever and only three died.

c. 1935

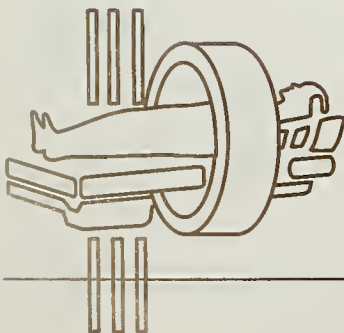




Biomedical Research

After its successful work with spotted fever the Rocky Mountain Laboratory expanded its facilities and programs in the 1940s and 1950s to work on other insect-borne diseases, such as yellow fever and the spirochetal relapsing fevers. In 1979, the Laboratory was reorganized and its name made plural—the Rocky Mountain Laboratories—because it now consisted of three laboratories: the Laboratory of Microbial Structure and Function, the Laboratory of Persistent Viral Diseases, and the Laboratory of Pathobiology.

c. 1951

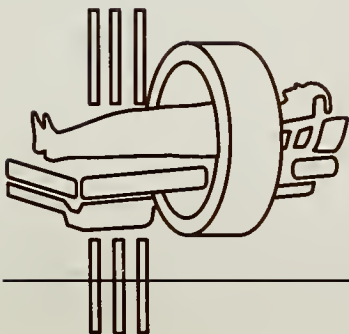




Biomedical Research

Bubonic plague first struck the continental United States at San Francisco in March of 1900. The presence of this contagious and often fatal epidemic disease was verified bacteriologically by Dr. Joseph Kinyoun, who had been the first director of the Hygienic Laboratory and now was in charge of the U.S. Quarantine Station at San Francisco. Quarantine measures that were instituted, including fumigation and sterilization, provoked violent criticism and protest in the local community. The Service responded by creating a special plague commission of eminent medical researchers from academia, who went to San Francisco in 1901 and confirmed the existence of plague, by establishing a Plague Laboratory in the city, and by sending Dr. Rupert Blue, who later became Surgeon General (1912–1920), to head the plague control work. Plague was first proclaimed eradicated in 1905 (after 121 cases and 113 deaths), but struck again in 1907 as a result of the San Francisco earthquake. A luncheon by the Citizen's Health Committee of San Francisco in 1908, pictured here, commemorated the completion of the plague control campaign. Its slogan was: "San Francisco is so clean a meal can be eaten in the streets." Dr. Rupert Blue was guest of honor.

c. 1908

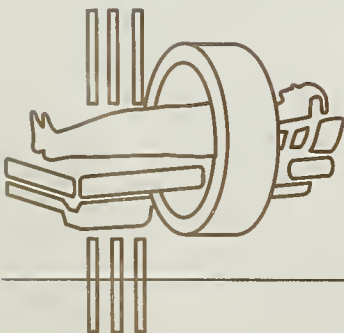




Biomedical Research

Controlling the spread of bubonic plague became a very important task for the Public Health Service at the turn of the twentieth century. Under the leadership of Dr. Rupert Blue (1867-1948) a major outbreak of urban bubonic plague in San Francisco, which started in 1900, was brought under control. But the infection, transmitted by flea-infected rats, had spread from rats to ground squirrels. A campaign of killing ground squirrels to obtain information on the presence of plague infection, which is pictured here, was started by Dr. Blue in rural areas around San Francisco in 1909 and then was extended to other areas of California and to other states.

c. 1910

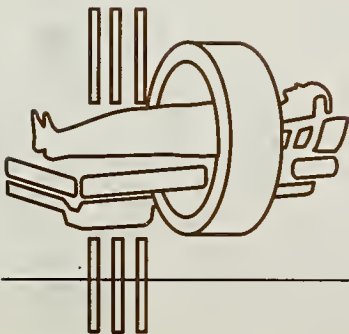




Biomedical Research

Bubonic plague appeared in New Orleans in 1914. State and city authorities immediately requested the Public Health Service to take charge of the plague control operations. Since it was now known that the disease was transmitted by fleas from infected rats, rat-trappers, such as these, would set baited traps all around the city and then visit them twice daily. The trapped rats were removed, labeled with the specific address at which they were caught, placed in galvanized buckets or cloth bags, and returned to the laboratory where the laboratory workers would examine them for signs of plague infection. The daily total could run as high as 4,000 to 5,000 rats.

c. 1914

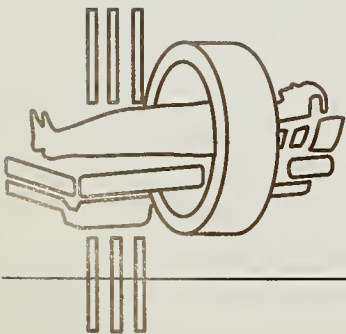




Biomedical Research

A Public Health Service survey in 1912 found that trachoma was prevalent in the rural mountains of Kentucky. Dr. John McMullen, who conducted that survey and who had extensive experience in the surgical treatment of trachoma from his work with immigrants at Ellis Island, New York, was assigned by the Service to begin trachoma control work in Kentucky. The goal was to find and treat existing cases and to prevent new ones through health education, especially encouraging improvement in personal hygiene. To help in this work, small temporary hospitals of 20–30 beds, such as this one in Jackson, Kentucky, were established throughout the area. The professional staff of each hospital consisted of one physician trained in diseases of the eye, and from two to four nurses.

c. 1916

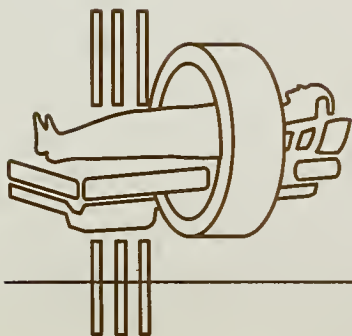




Biomedical Research

Trachoma was also found in the Ozark mountain area of Missouri and a trachoma hospital was established in Rolla, Missouri. Pictured here are the examining and waiting rooms of the Rolla hospital. Bacteriologist Ida Bengston was sent here about 1922 from the Hygienic Laboratory in Washington, D.C., and spent several years trying to find the cause of trachoma.

c. 1930

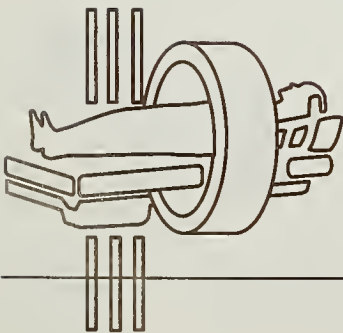




Biomedical Research

From its inception the Hygienic Laboratory played a major role in the study of water-borne diseases such as cholera and typhoid fever. The Laboratory's bacteriological experts conducted many studies of the biochemistry of sewage and industrial wastes to isolate and identify the causative organisms, and devised better physical methods for treating various kinds of waste. In 1913 the Public Health Service opened a laboratory in Cincinnati devoted exclusively to the study of water pollution.

c. 1930

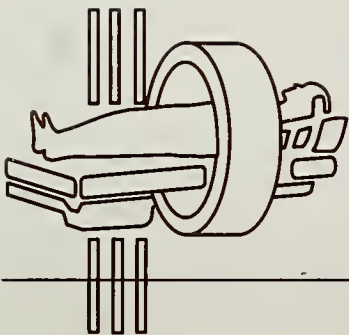




Biomedical Research

Frequent explosive outbreaks of typhoid fever in urban areas and the high morbidity and mortality rates in cities attributed to water supplies forced the nation's attention in the early 1900s to the pollution of rivers and lakes. Congress enacted a law in 1912 authorizing the Public Health Service to conduct investigations of pollution of navigable waters. A small group of sanitary engineers, medical officers, chemists, biologists, and bacteriologists was assembled by the Public Health Service in the summer of 1913 to begin the study of stream pollution. Dr. Wade H. Frost (1880-1938) and Dr. Leslie L. Lumsden (1875-1946) were leaders in this effort.

c. 1915

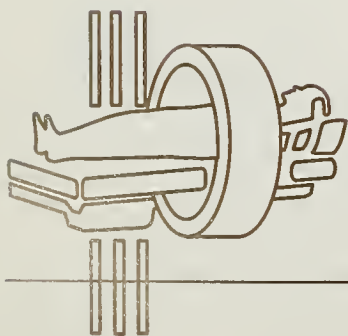




Biomedical Research

Malaria has been a major scourge throughout much of American history, particularly in the South. A family sitting on an unscreened porch in the early evening was at risk to malaria from mosquito bites. Eliminating mosquito-breeding areas by draining swamps and applying a mixture of kerosene and crude oil together with extensive screening of houses and the use of quinine helped bring malaria under control.

c. 1920

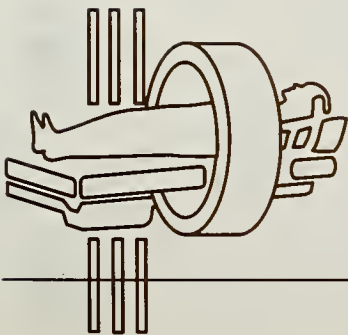


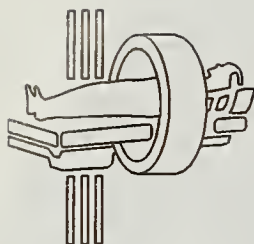


Biomedical Research

The first large-scale engineering operations to control malaria in the United States began in the second decade of the twentieth century. Previous mass-killings of malaria mosquitoes had been undertaken only in relatively small demonstration areas, in Cuba and in the Panama Canal Zone. The airplane became an important tool for dispersing insecticides in the battle against malaria and other insect-borne diseases.

c. 1930





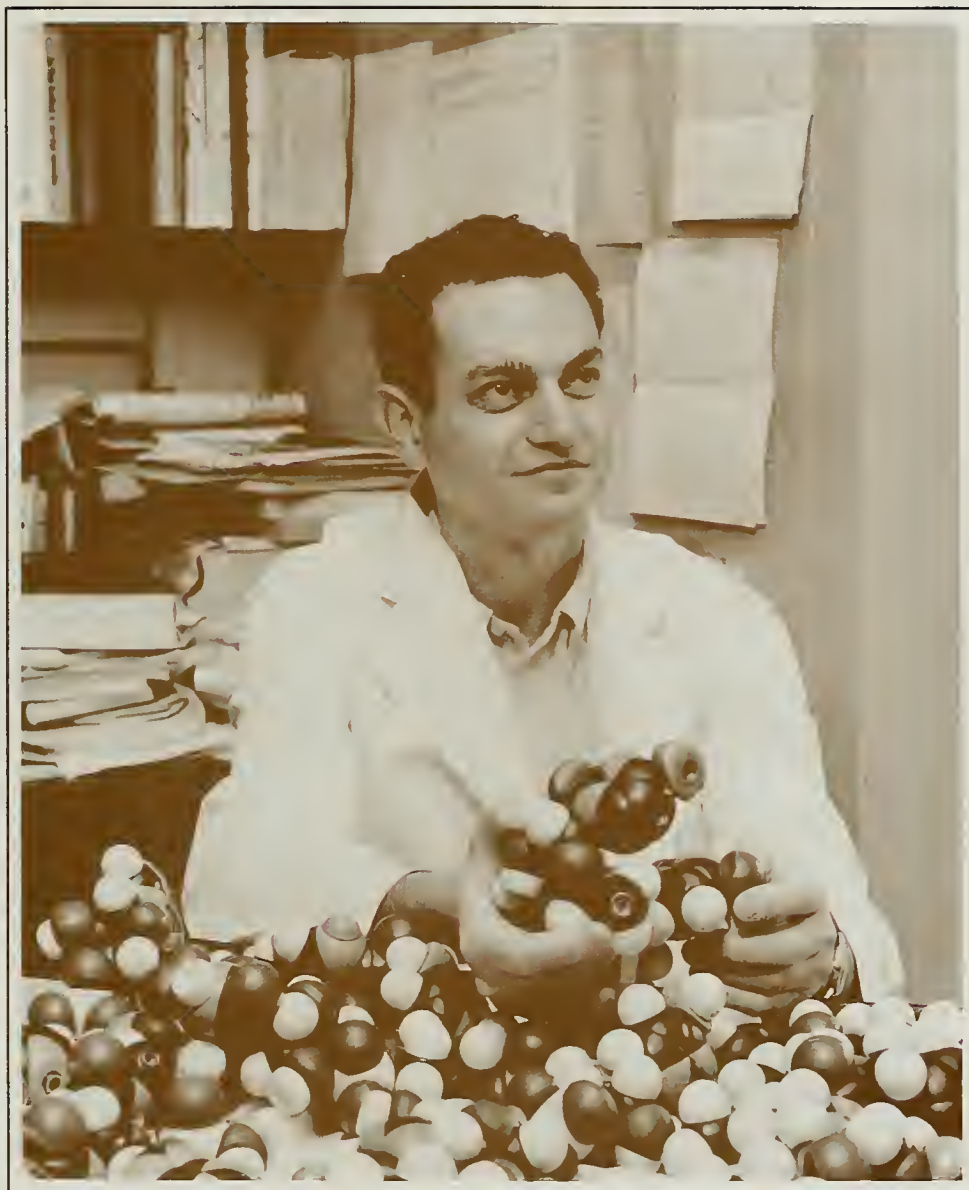
Biomedical Research

Current Research

Following World War II, federal support for biomedical research was greatly expanded and so was the role of the National Institute of Health, which was renamed the National Institutes of Health to reflect the growth of research functions. Today NIH encompasses seventeen research institutes, two research divisions, the world's largest research hospital, the National Library of Medicine, the National Center for Human Genome Research, the National Center for Research Resources, and the Fogarty International Center. Its operating budget in 1990 was 7.6 billion dollars.

NIH conducts research on its Bethesda, Maryland campus and supports research throughout the United States by means of a competitive grant system. This research deals with every aspect of human biology and almost every disease and disability.

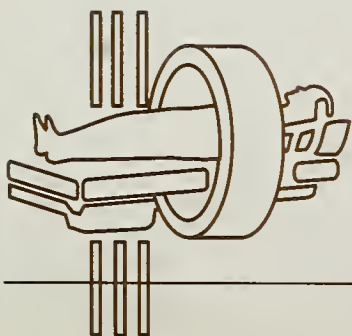
Some of the major topics of research today include: oncogenes and the question of how a normal cell becomes a cancer; the workings of immune cells and how they help to defend the body against cancer; the isolation of genes, including those for blood clotting factors; brain changes in Alzheimer's disease; the application of genetic engineering techniques to vaccine production; the discovery and isolation of bone growth factors; the study of neurotransmitters and modulation in the brain; cancer risk from passive smoking; new uses of the laser for the treatment of eye diseases; the construction of artificial chromosomes; the development and refinement of new body imaging technologies, such as magnetic resonance imaging (MRI) and, of course, the study of AIDS.

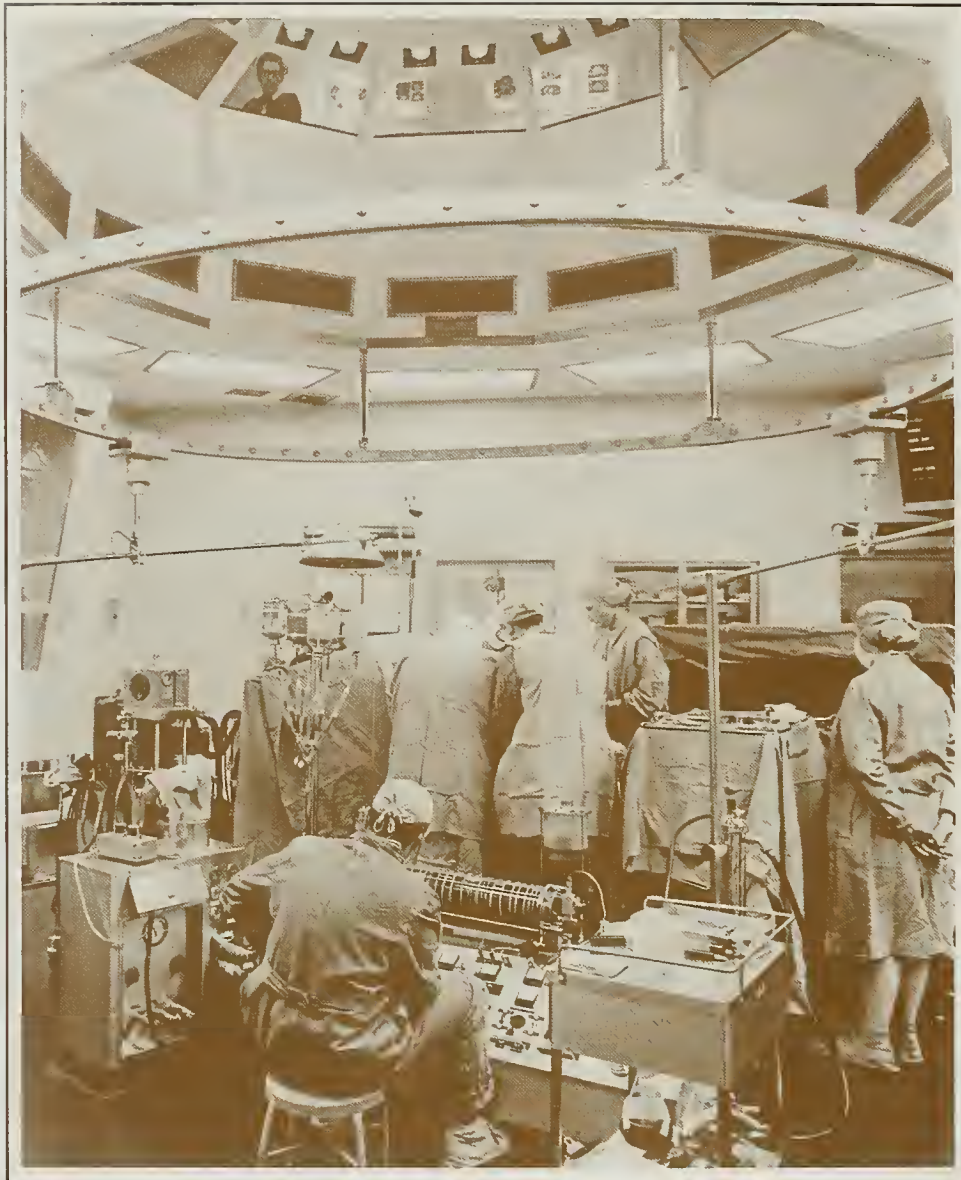


Biomedical Research

In 1968, Dr. Marshall W. Nirenberg of the National Heart, Lung, and Blood Institute became the first of four NIH Nobel laureates to date. He won the Nobel Prize in Physiology or Medicine for his work in translating the genetic code and its function in protein synthesis; he is shown here with his molecular models.

c. 1965

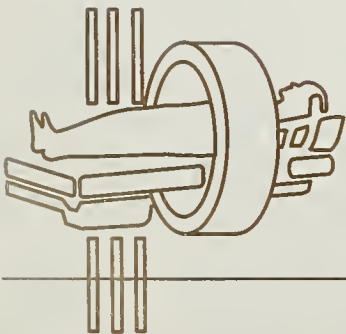




Biomedical Research

The National Heart, Lung, and Blood Institute has been a leader in conducting and supporting clinical studies of heart disease, including open heart surgery and artificial hearts, as well as educating the public about the prevention of heart attacks through control of high blood pressure, control of high levels of blood cholesterol, and cessation of smoking. Research advances and lifestyle changes have helped lower the death rate from heart disease by 43 percent since 1972.

c. 1970

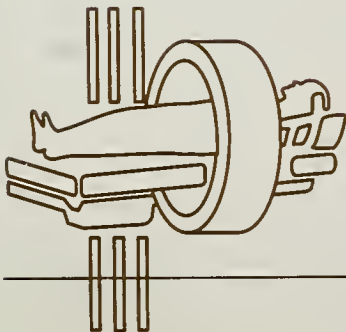




**Biomedical
Research**

Researcher at the National Heart, Lung, and Blood Institute's Laboratory of Kidney and Electrolyte Metabolism uses fluorescence microscopy to study kidney physiology, specifically kidney tubule transport. Other important research work on kidney function, such as improving the prevention and management of end-stage renal disease and improving dialysis techniques, is done at the National Institute of Diabetes and Digestive and Kidney Diseases.

c. 1987

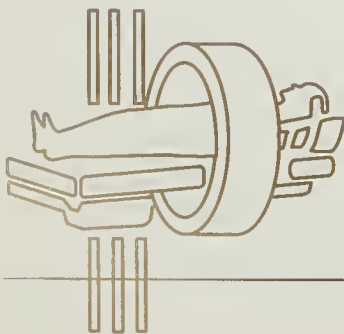




Biomedical Research

Researcher at the National Heart, Lung, and Blood Institute engaged in the study of sickle cell anemia, a genetic blood disease which, in the United States, affects primarily Afro-Americans and is caused by an abnormal hemoglobin molecule. A new test, known as chorionic villus biopsy, promises to advance the prenatal diagnosis of genetic blood diseases, including sickle cell anemia, from the second trimester of pregnancy to the first. Tissue from the chorionic villi, hairlike projections of the membrane that surrounds the early embryo, can be removed before the 10th week of pregnancy and analyzed immediately for chromosomal or biochemical defects.

c. 1987

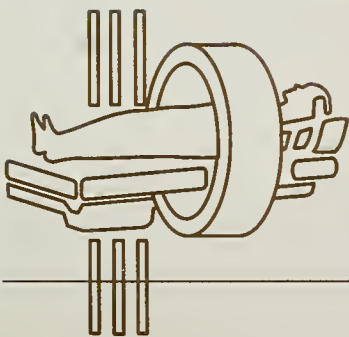




**Biomedical
Research**

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has pioneered in the study and treatment of diabetes, the fifth leading cause of death in the United States. The NIDDK supported research which led to the development of the insulin pump. A physician instructs a patient in its use.

c. 1987

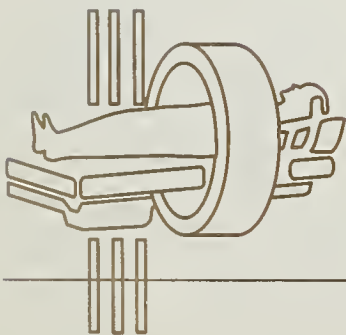




Biomedical Research

Dr. John Klippel of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) examines and measures the extension of the fingers of a patient with lupus, a disease characterized by eruption of scarred lesions and inflamed joints. Researchers at the NIAMS elaborated the underlying immunologic mechanisms in systemic lupus erythematosus (SLE), developed more effective treatments, and dramatically improved survival.

c. 1987

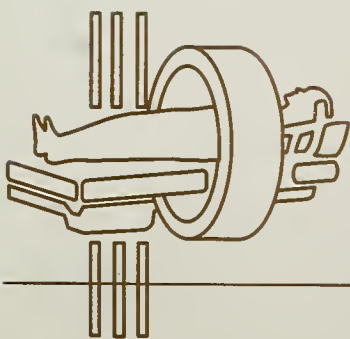


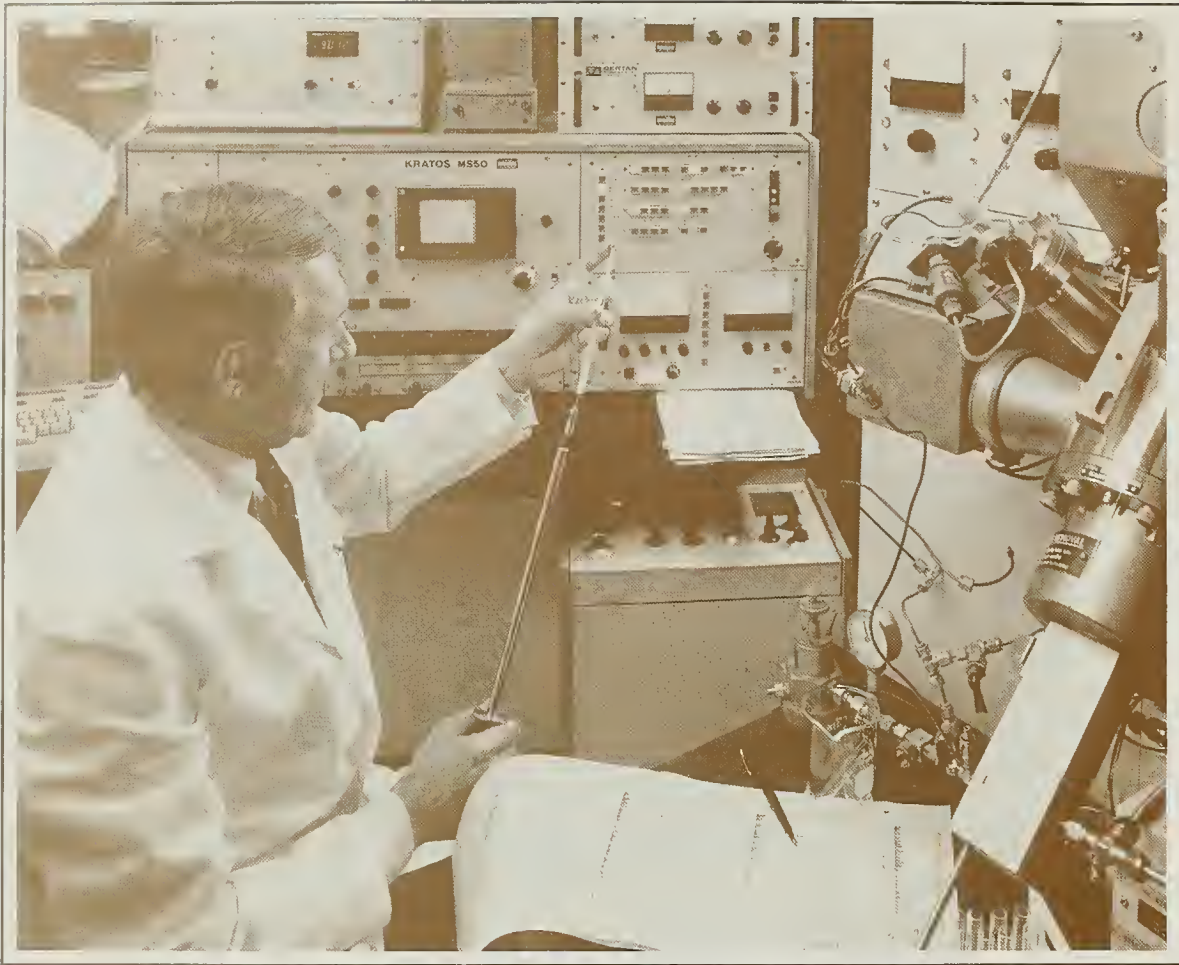


**Biomedical
Research**

The development and testing of new and promising experimental drugs or vaccines for a variety of ailments is one of the key functions of the National Institutes of Health researchers.

1987

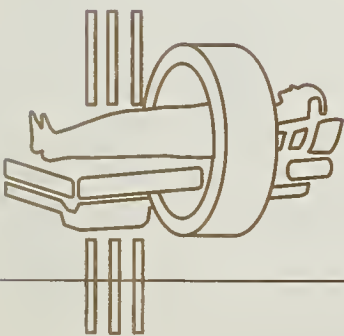




Biomedical Research

Increasingly sophisticated instrumentation such as this fast atomic bombardment mass spectrometer, which separates chemical components, is being used at the FDA's Center for Biologics Evaluation and Research to determine the purity and potency of biologics and other products.

c. 1987

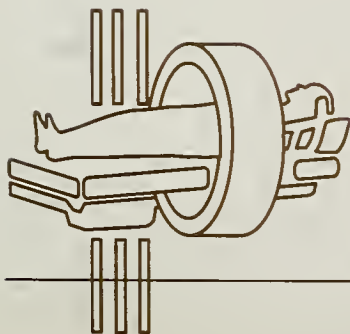




**Biomedical
Research**

Laser technology is being applied to biomedical research by scientists at the FDA's Center for Biologics Evaluation and Research. Here a laser cell separation machine is separating a line of cells, such as T-cells, for immunology studies.

c. 1987

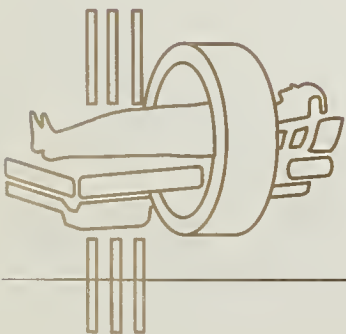




**Biomedical
Research**

A computed tomography (CT) scan, a noninvasive method of getting good cross-sectional images of the body, is being done on a patient at the NIH's Warren G. Magnuson Clinical Center. The Clinical Center is the world's largest hospital devoted solely to biomedical research where physicians from all the different NIH institutes, together with the Center's staff, pursue clinical and laboratory studies related to patient care.

c. 1987

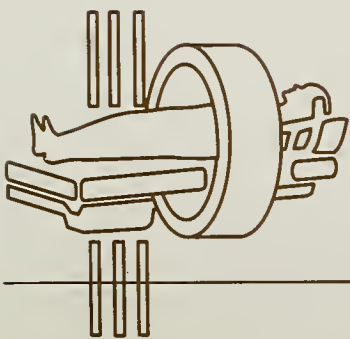




Biomedical Research

Legionnaires' disease was first recognized in July 1976, when a sudden outbreak of pneumonia, resulting in several deaths, occurred mostly in persons who had attended an American Legion convention in Philadelphia. Researchers Charles C. Shepard (1914-85) and Joseph E. McDade of the Centers for Disease Control and Prevention were the first in 1977 to identify the disease-causing bacterium — *Legionella pneumophila*, which is pictured here. Since then more than 20 species in the *Legionella* genus have been identified and the mystery surrounding many illnesses associated with them solved, in the grand tradition of the microbe hunters of the late 19th and early 20th centuries. Many of these modern day microbe hunters or epidemiologists were trained in the Centers for Disease Control and Prevention's Epidemic Intelligence Service, which was established by Dr. Alexander Langmuir in 1951.

c. 1977

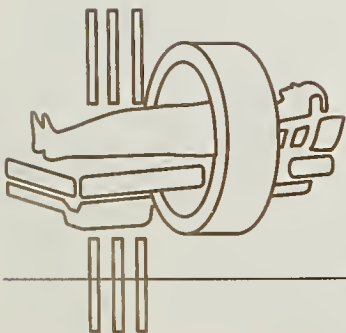




Biomedical Research

Researchers, such as this man in the Centers for Disease Control and Prevention's new maximum containment virology laboratory, use the most advanced technology available to study dangerous organisms like the Lassa, Machupo, Ebola, and AIDS viruses that cause deadly diseases for which no cure or vaccine exists. Statistics about these and other diseases are published in the *Morbidity and Mortality Weekly Report (MMWR)*, a widely read publication around the world. Weekly reporting of morbidity and mortality statistics to the Public Health Service began in 1893. Various bureaus of the Service have published these reports. Since 1961, the Center for Disease Control and Prevention's Epidemiology Program Office has been responsible for publishing the MMWR.

c. 1987

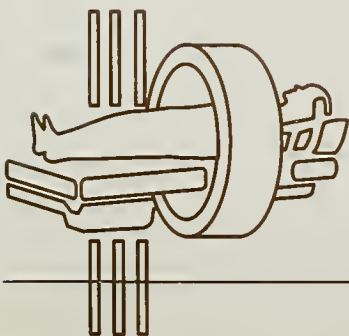




Biomedical Research

Researcher at the National Eye Institute (NEI) tests the peripheral and central visual fields of a patient to find areas of visual loss. The NEI has helped pioneer the use of lasers in preventing visual loss from diabetes and other eye diseases, and is testing new medicines that may be able to prevent diabetes-induced damage to the retina and other tissues.

c. 1987

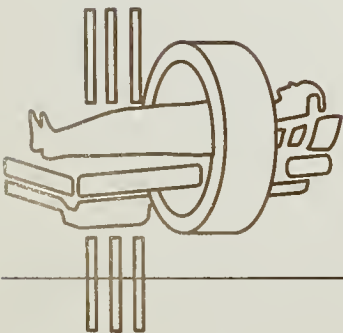




Biomedical Research

Researcher at the National Institute of Dental Research (NIDR) uses computers to measure very small changes in teeth and their surrounding tissues that are not detectable with conventional dental X-rays. Since its creation in 1948, the NIDR has been the primary sponsor of dental research in the United States. Much of its work was focused on preventing tooth decay, through such programs as community water fluoridation.

c. 1987

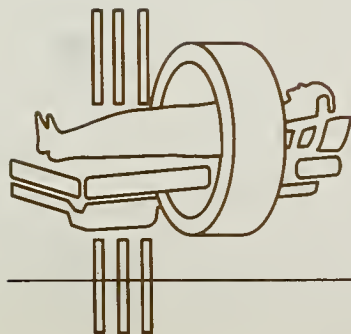




**Biomedical
Research**

Dr. Robert C. Gallo, since 1972 chief of the National Cancer Institutes's Laboratory of Tumor Cell Biology, is an internationally prominent investigator of human viruses and tumor cells. He played a leading role in isolating and characterizing the family of human viruses to which the AIDS causing virus, HIV (human immunodeficiency virus), belongs. Gallo and his colleagues are also responsible for the development of a blood test to detect HIV antibodies in blood collected for transfusions.

1987

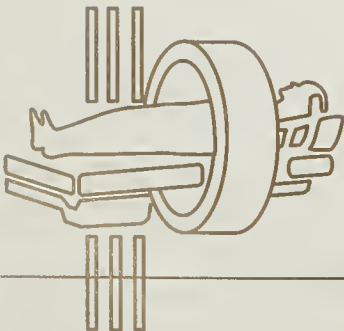




Biomedical Research

Vice-President George Bush addresses the AIDS Executive Committee during the centennial year of the National Institutes of Health. As the NIH enters its second century it faces one of its greatest research challenges—a cure and vaccine against the deadly viral disease AIDS (acquired immunodeficiency syndrome), which has become the major scourge of the late twentieth century. To the left of the Vice-President is Dr. James B. Wyngaarden, director of the NIH, and to the right of the Vice-President is Dr. Anthony Fauci, director of the NIH's National Institute of Allergy and Infectious Diseases and coordinator of NIH research on AIDS.

1987

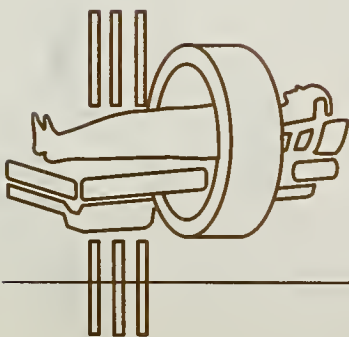


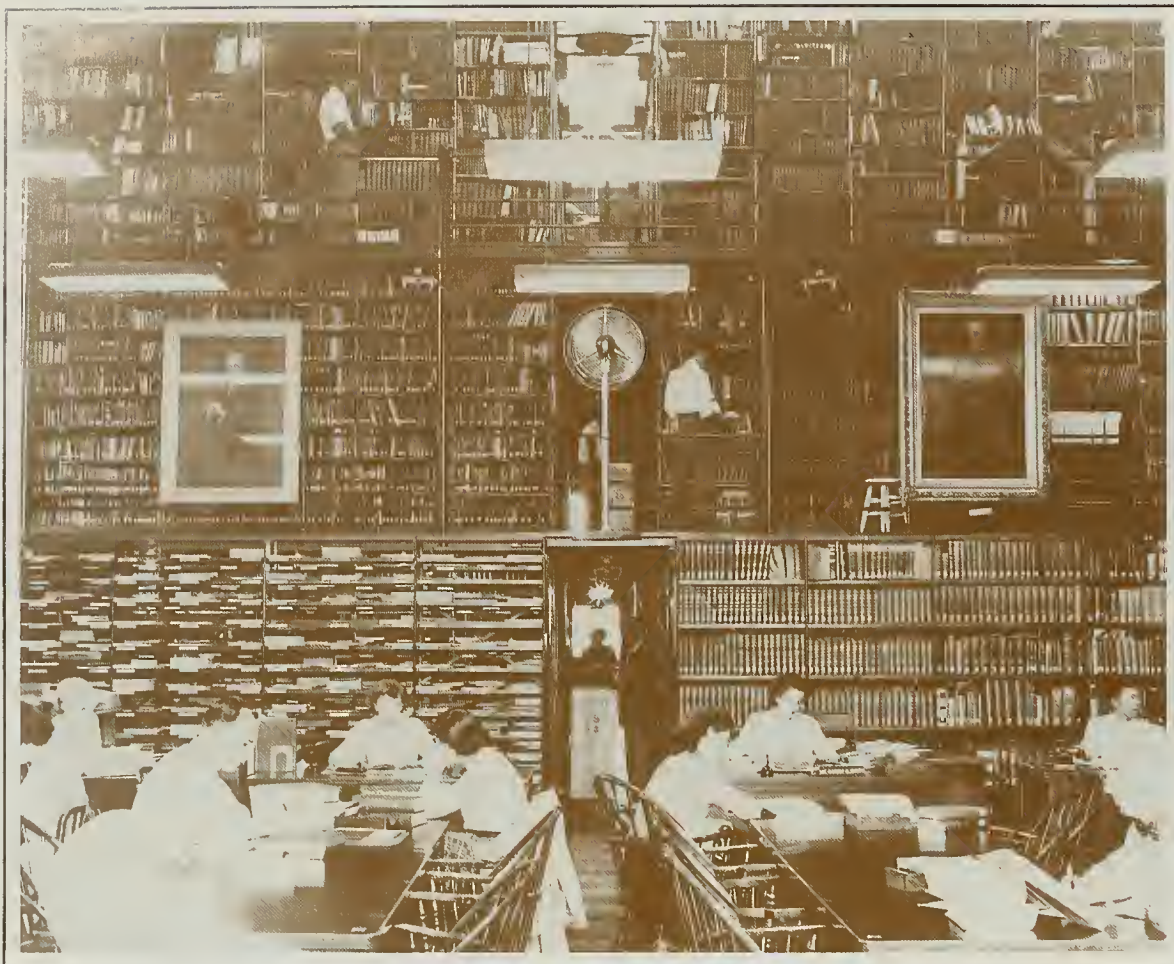


Biomedical Research

The National Library of Medicine was established in 1836 as the Library of the Army Surgeon General's Office. The Armed Forces Institute of Pathology and its Medical Museum were founded in 1862 as the Army Medical Museum. Throughout their history the Army Medical Library and the Army Medical Museum often shared quarters. This red-brick building was built on the Mall in Washington, D.C., in 1887 for these two institutions. It was torn down in the late 1960s to make room for the Hirshorn Museum of Art. By an act of Congress in 1956 the Library collection was transferred from the Department of Defense to the Public Health Service of the Department of Health, Education and Welfare and renamed the National Library of Medicine. The Library moved to its current quarters in Bethesda, Maryland, on the campus of the National Institutes of Health in 1962.

c. 1890

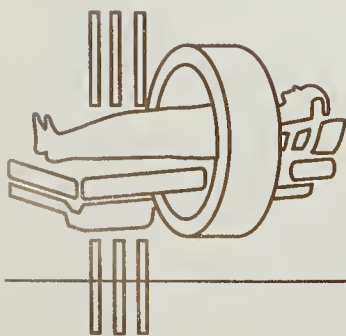




Biomedical Research

Under the very able leadership of Dr. John Shaw Billings (1838–1913), a Civil War surgeon who served as director from 1865 to 1895, the Library increased in size from about 2,000 volumes to over 100,000 volumes of books and bound serials and expanded from serving primarily military medical officers to serving all physicians. It soon became the leading medical library in the United States and then the world. The first issue of *Index Medicus*, a comprehensive monthly medical bibliography with a subject and author index to articles published in medical journals around the world, was published in 1879.

c. 1950

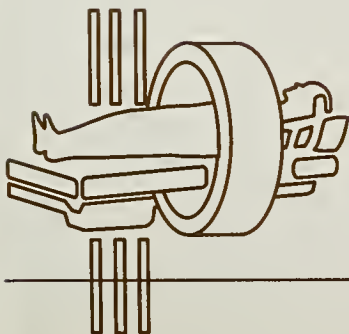




Biomedical Research

The National Library of Medicine is now the world's largest medical research library. Its holdings include more than 3.5 million books, journals, technical reports, theses, pamphlets, photographs, manuscripts and audiovisual materials covering more than 40 biomedical areas and related subjects. The Library also houses one of the world's finest historical collections of rare medical texts and manuscripts. The 10-story Lister Hill Center was built in 1980 to house the Library's expanding computer facilities, audiovisual studios, and research and development laboratories. With materials in 70 languages and international exchange capabilities the Library can serve health professionals worldwide.

c. 1983

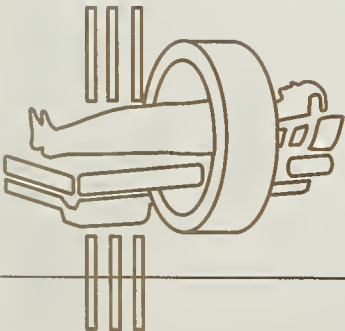




Biomedical Research

In order to keep up with the ever-increasing volume of biomedical literature that had to be included in the *Index Medicus* bibliography, the Library turned to computers in the early 1960s. An extensive computerized literature retrieval system, known as MEDLARS, became totally operational in 1964. It performed thousands of searches before on-line searching capabilities and data bases, such as MEDLINE, became available in 1971. Through MEDLINE, health professionals and other interested individuals have immediate access to more than 5 million journal article references accumulated since 1965 and growing at a rate of over 300,000 a year.

c. 1964





Pure Food and Drugs

Concern about the purity of food, drink, and medicines goes back at least to the beginning of recorded history. Regulation of food in the United States dates from early colonial times. Federal controls over the drug supply, namely banning the importation of adulterated drugs, started in 1848.

In the last quarter of the 19th century many attempts were made to enact a national food and drug law. Gradually a coalition developed, including farmers, food processors, state officials, physicians, women's club members, and muckracking journalists. Pressure from this powerful lobby together with public alarm over unhygienic conditions in Chicago's meat-packing plants revealed in Upton Sinclair's novel, *The Jungle*, and confirmed by government investigators, finally pushed Congress to enact, in 1906, both a meat inspection law and the Food and Drugs Act. The law forbade adulteration and misbranding of foods, drinks, and drugs in interstate commerce but contained few specific requirements to insure compliance. Technological changes and adverse court decisions soon made it obsolete.

Thirty years later a drug tragedy in which over 100 people were killed by a poisonous solvent used to dissolve the wonder drug sulfanilamide, greatly dramatized the need to broaden existing legislation and ensure product safety before marketing. The following year Congress passed and President Franklin D. Roosevelt signed into law the Federal Food, Drug, and Cosmetic Act of 1938 which, with major amendments in the last 50 years, remains the basic law of the land. Among numerous new provisions, it required manufacturers to provide scientific proof of a new drug's safety before it could be marketed and made dangerous or falsely labeled cosmetics and therapeutic devices illegal.

Enforcement of these laws is the mission of the Food and Drug Administration (FDA), established originally as the Bureau of Chemistry in the Department of Agriculture. Today, as a major regulatory agency of the Public Health Service, the FDA ensures consumers that foods are safe and wholesome; prescriptions and nonprescription medicines, animal drugs, and biologic drugs are safe and effective for their labeled uses; cosmetics are harmless; medical devices are safe; all these products are honestly and accurately labeled and packaged; and that radiation from electronic products does not pose a consumer hazard.



Pure Food and Drugs

In 1902 Dr. Harvey W. Wiley (third from the left), chief chemist at the U.S. Department of Agriculture and the “human catalyst” who helped coordinate the national campaign for pure food and drugs, started research with human volunteers, officially designated the “Hygienic Table,” to determine the effects of food preservatives on digestion and health. Overnight the press made the “Poison Squad” a national sensation. Wiley’s research showed that such additives as borax, salicylic acid, and formaldehyde were harmful. He became convinced that chemical preservatives should be used in food only when necessary, that the burden of proving safety should fall on the producer, and that none should be used without informing the consumer on the label—basic principles of today’s law and regulations.

c. 1905



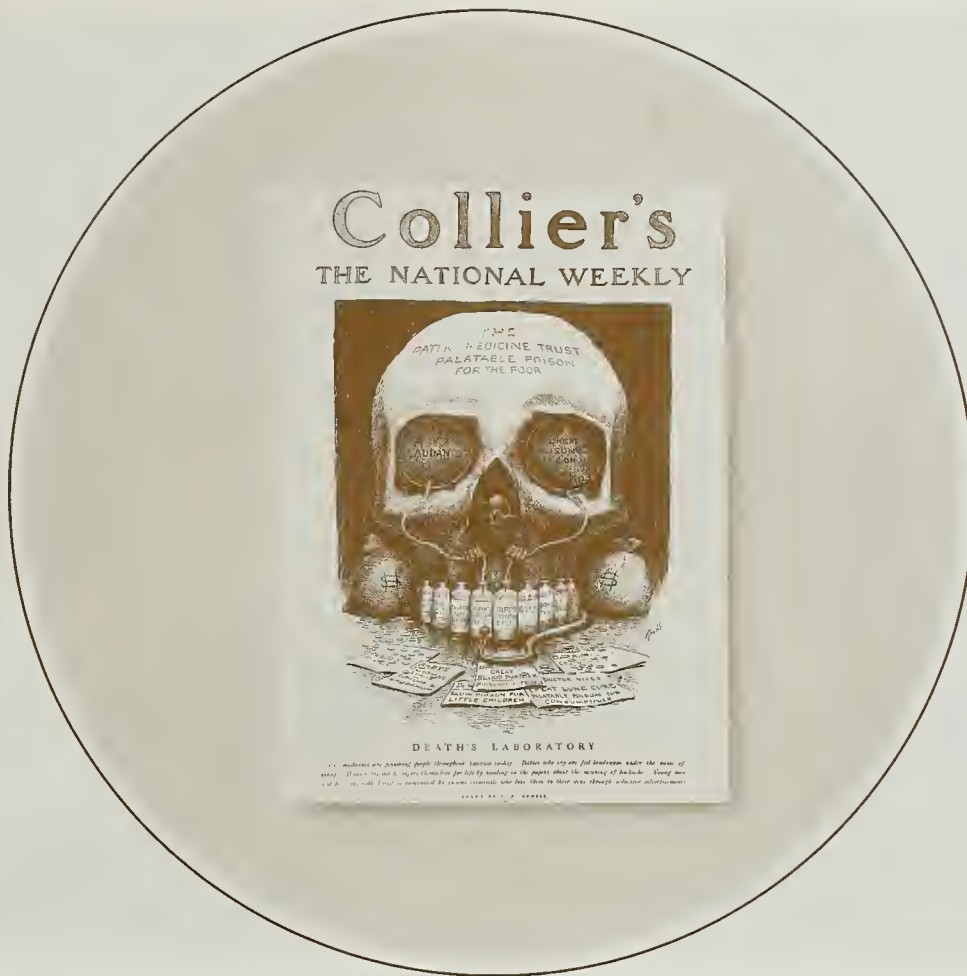


Pure Food and Drugs

Before the Food and Drugs Act of 1906 prohibited interstate commerce in misbranded and adulterated foods, drinks, and drugs, thousands of questionable remedies, some containing only harmless and inert preparations but many having narcotic drugs and alcohol, were sold everywhere and to anyone, without restriction. They claimed to cure every disease and symptom. Most labels did not declare ingredients, and warnings against misuse were unheard of. What information the public got about these products came from the physician or pharmacist, from hearsay, or sometimes from bitter experience.

c. 1910





Pure Food and Drugs

In 1905 *Collier's Weekly* launched a sensational campaign to expose the evils of patent medicines and to support federal food and drug legislation. The noted reporter and author Samuel Hopkins Adams wrote more than a dozen articles in his "Great American Fraud" series for that journal. Other famous "muckrakers" aroused public opinion with their articles, editorials, and cartoons in such national magazines as the *Ladies Home Journal* and *Good Housekeeping*.

1905





Pure Food and Drugs

The Food and Drug Administration dates from 1862 when President Lincoln appointed Charles Wetherill as chemist of the new Department of Agriculture. Studies of food adulteration, begun by Wetherill's successors, were greatly expanded when Dr. Harvey W. Wiley became Chief of the Bureau of Chemistry in 1883. One of the Bureau's early laboratories is shown here. After the passage of the Food and Drugs Act in 1906, which forbade adulteration and misbranding of foods, drinks, and drugs in interstate commerce, the Bureau of Chemistry was given the task of investigating violations and preparing cases for the courts. In 1927 a separate law enforcement agency, the Food and Drug Administration, was formed. In 1940 the Food and Drug Administration was transferred to the Federal Security Agency, which in 1953 became the Department of Health, Education, and Welfare. Another reorganization in 1968 placed the Food and Drug Administration in the Public Health Service.

c. 1910





Inspecting a creamery

Pure Food and Drugs

The first 28 food and drug inspectors were selected from over 2,000 applicants in 1907. One of these early Bureau of Chemistry inspectors was John Earnshaw, shown here inspecting a creamery in the Baltimore-Washington area. The adulteration of milk with water and chemicals was one of the common problems. Samples collected by the inspectors were sent back to the Bureau laboratories for bacteriological and chemical analyses.

c. 1910



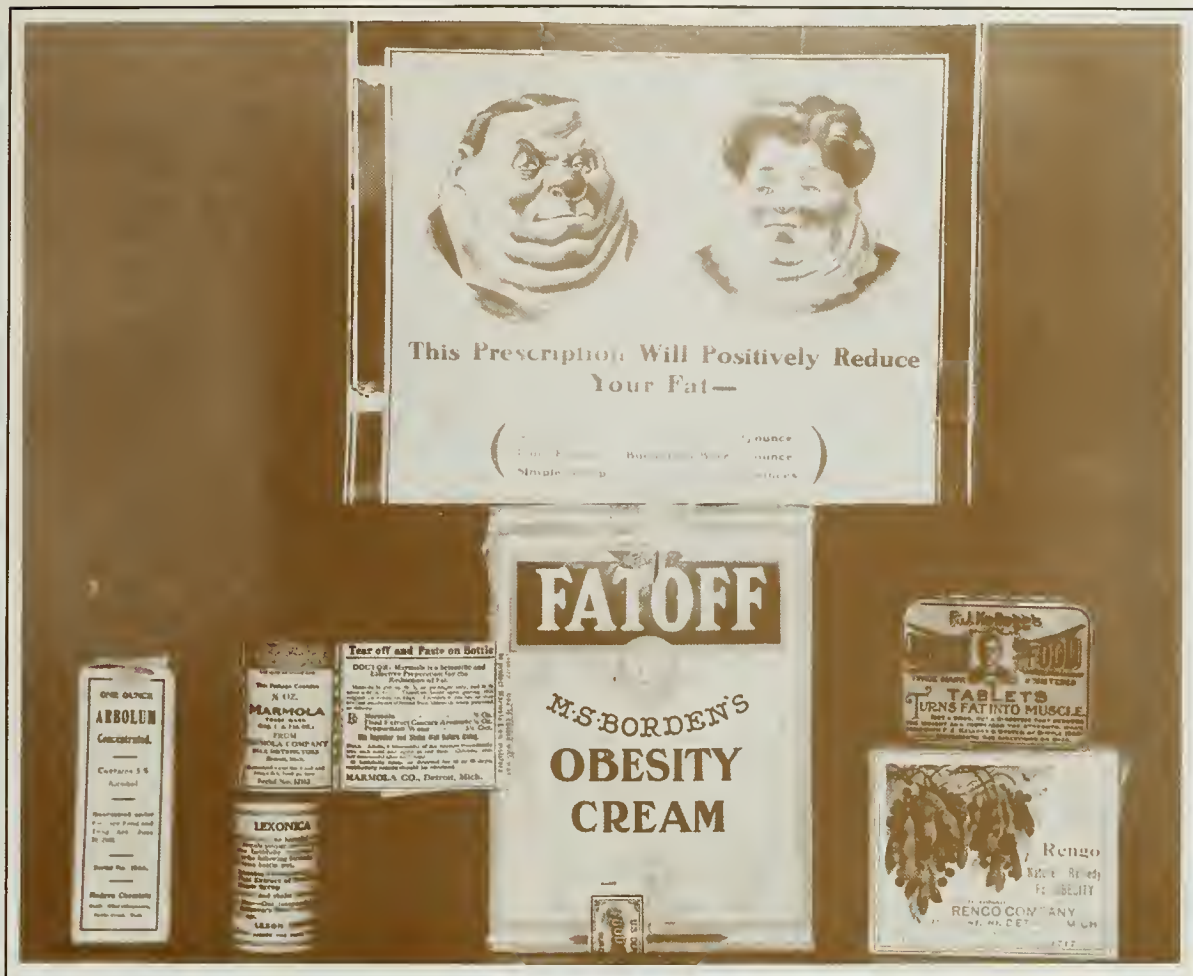


Pure Food and Drugs

Unprocessed foods such as milk, eggs, poultry, and oysters were of particular concern because of unsanitary conditions in many establishments and the primitive nature of refrigeration. Here, inspector John Earnshaw examines eggs. In order to ensure uniform enforcement of the law, an *Inspector's Manual* was issued in 1908. This manual contained a checklist of conditions to be reported, such as sanitation, the health of employees, and the use of chemical preservatives and colors, matters which still concern the Food and Drug Administration.

c. 1910





Pure Food and Drugs

After the passage of the 1906 law many nostrum vendors continued manufacturing and selling their products but changed their advertising tactics. They did not advertise their products in newspapers and magazines as patent medicines, but as apparently innocent ingredients among others in a “prescription” or recipe which the readers were urged to have “filled” at the nearest drugstore. Many of these “prescription fakes” included diet products such as “Fatoff,” which made claims about curing obesity. Diet aids continue to be one of the biggest on-going areas of health fraud in the United States.

c. 1910





Pure Food and Drugs

Cosmetics were not subject to the 1906 law, but some beauty products like Mme. Yale's Hair Tonic were considered drug preparations. The courts determined that they were misbranded by their claims to cure falling hair and dandruff, remove wrinkles, and feed the skin. The Food, Drug, and Cosmetic Act of 1938 expanded the 1906 law to include all cosmetics.

c. 1910





Pure Food and Drugs

The 1938 law considerably expanded consumer protection, but consumers continued to be guinea pigs for the many new chemicals that were being added to food and cosmetics. The law prohibited poisonous substances but did not require showing that food or cosmetic ingredients were safe. In 1951-52, a select committee of the House, chaired by Rep. James Delaney of New York, held extensive hearings on how to handle problems arising from chemicals in food and cosmetics. From these and later hearings came 3 major amendments to the drug law: the Pesticide Amendment (1954), the Food Additives Amendment (1958), and the Color Additives Amendment (1960). This cartoon expresses public concerns about color additives in cosmetics and the need for scientific investigations to establish safety. The caption reads: "No, Doris, lips that touch Fire Plug Pink shall never touch mine."

c. 1960





Pure Food and Drugs

The protection of the public against unnecessary exposure to potentially hazardous radiation was a function of the FDA's Bureau of Radiological Health. The first large scale radiological examinations of food were made in 1954 when the FDA began round-the-clock checking of frozen tuna from Pacific waters exposed to fallout from atomic bomb tests. More than 35 million pounds of the fish were checked with Geiger counters originally designed for civil defense work. Determining the extent of atomic contamination of foods, drugs, and cosmetics, and workable procedures for decontamination, were major concerns of the FDA scientists through the 1950s. Based on this experience came the FDA's "total diet" studies which detect and measure many substances in the United States food supply including vitamins and pesticides. In 1983, radiation safety became the responsibility of the FDA's Center for Devices and Radiological Health.

c. 1954



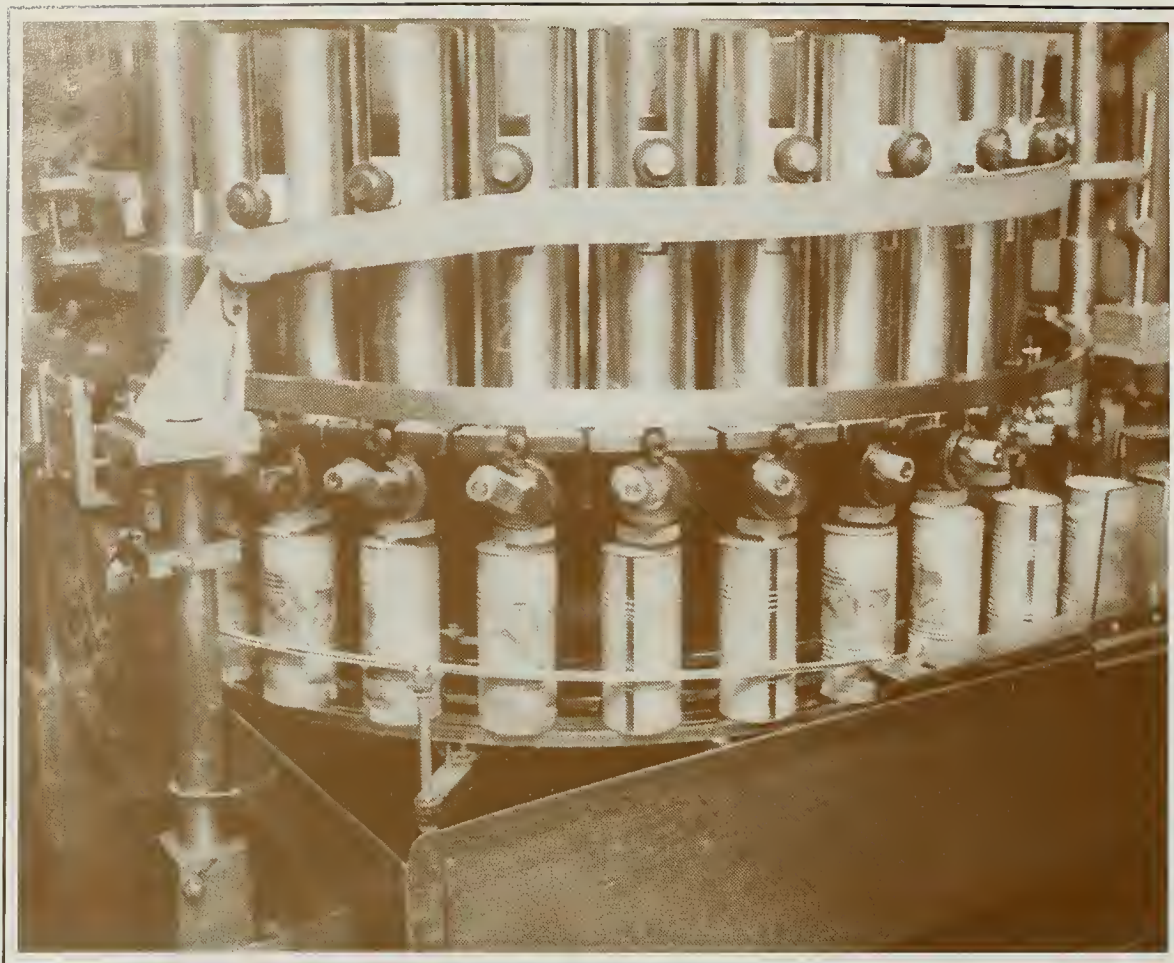


Pure Food and Drugs

Researchers at the Food and Drug Administration's Center for Devices and Radiological Health develop a method to calculate radiation doses from medical fluoroscopy. Ensuring the safety, efficacy, and proper labeling of medical devices for human use is the major function of this Center. Even before World War I, the Food and Drug Administration was taking action against quack drugs and devices which claimed to be radioactive. The Public Health Service became concerned about workers who contracted cancer from radioactive luminous paint they applied to watch dials and the increase in overdosage with diagnostic X-rays. With the development of electronic technology came new products such as televisions, microwave ovens, and lasers which could emit harmful radiation. Congress passed a Comprehensive Radiation Health and Safety Act in 1968 to deal with such problems. In 1971, the product-related activities of the Public Health Service's Bureau of Radiological Health were transferred to the Food and Drug Administration, while its environmental activities were shifted to the new Environmental Protection Administration.

c. 1985





Pure Food and Drugs

Following reports during 1979 that over 100 infants had been made seriously ill because of the lack of chlorides in two soy-based infant formulas, Congress passed the Infant Formula Act of 1980. This new law authorized the Food and Drug Administration to adjust nutritional standards for infant foods to conform with the best available scientific knowledge. Manufacturers are required to test their products periodically and report promptly to the Food and Drug Administration when they do not meet the official specifications.

c. 1987

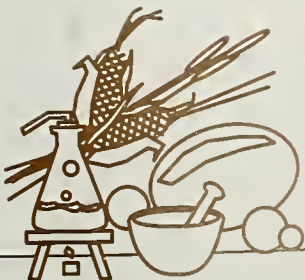




Pure Food and Drugs

The regulation of vaccines, serums, and other biologic products, which includes the establishment of product standards and the licensing of manufacturers, previously carried out by the National Institutes of Health was transferred to the FDA's Bureau of Biologics in 1972, and in 1987 to the FDA's Center for Biologics Evaluation and Research which became responsible for the continued safety, purity, potency, and efficacy of these products.

c. 1980





Pure Food and Drugs

From its beginning FDA has been concerned with the health of animals, an important source of human food and clothing. In 1984 the FDA's Center for Veterinary Medicine assumed responsibility for developing policies regarding the safety and efficacy of animal drugs, feed additives, and devices. The Center also evaluates for safety and efficacy any proposed and marketed drugs, feed additives, or devices for animal use.

c. 1980





Pure Food and Drugs

Studying the biological effects, especially any adverse health effects, of potentially toxic chemical substances in our environment is the major job of the FDA's National Center for Toxicological Research. Created by a presidential order in 1972, this Center also emphasizes the development of improved methodologies and tests for evaluating the safety of chemical toxicants.

c. 1980





Pure Food and Drugs

An important function of the FDA is to develop and implement standards for the safety and effectiveness of all over-the-counter drugs. These nonprescription drugs are generally regarded as safe for the consumer to use by following the required directions and warnings on the label.

1982





Mental Health and Drug Abuse

The problems of alcohol and drug abuse and mental health are being studied in three research institutes now part of the National Institutes of Health (NIH) as well as in the Substance Abuse and Mental Health Services Administration (SAMHSA). The NIH research institutes are the National Institute on Alcohol Abuse and Alcoholism, the National Institute on Drug Abuse, and the National Institute of Mental Health.

Federal involvement with mental health goes back to the mid 19th century when St. Elizabeths Hospital for the mentally ill opened in Washington, D.C. But it was only in the second decade of this century that the Public Health Service began systematic field studies related to mental health, focusing on school children. A Division of Mental Hygiene was established in the Public Health Service in 1930 and became the National Institute of Mental Health in 1949.

The importance of the problem of drug addiction was also recognized by the Federal Government in the 1920s and 1930s, and two hospitals for the treatment of narcotic addicts were created within the Service.

Concern with these problems continues in the work of the three institutes and SAMHSA. They provide financial support for a broad spectrum of basic, applied, and clinical research, ranging from investigations at the molecular level to study of risk factors in the environment. Prevention projects, dissemination of scientific and technical information, and the provision of professional and technical assistance to states and communities in operating alcohol, drug abuse, and mental health programs are also important objectives.



Mental Health and Drug Abuse

A chemistry laboratory in St. Elizabeths Hospital's Blackburn Laboratory of Pathology. When St. Elizabeths, the first national mental hospital in the United States, opened in 1855, very little was known about the causes of mental disease. Thus, in 1884, Superintendent W.W. Godding appointed pathologist Isaac W. Blackburn, a pioneer in neuropathology, as chief of the first pathology laboratory established in a mental hospital in this country, and charged him with the task of studying the pathology of mental disease.

c. 1910





Mental Health and Drug Abuse

In order to understand better the pathology of mental disease a very rich collection of pathologic material was gathered together over the past century at the Blackburn Laboratory of Pathology at Saint Elizabeths Hospital. This drawing of an endothelial sarcoma of the duramater (inner lining of the brain and spinal cord) was made by portrait artist and neurologist Isaac Blackburn, the first chief of the pathology laboratory. Numerous reports of neuropathologic changes in patients who died with a variety of nervous and mental diseases in the hospital were published by researchers at the Blackburn Laboratory.

c. 1895





Mental Health and Drug Abuse

A nurse at St. Elizabeths Hospital for the mentally ill in Washington, D.C., monitors patients in continuously flowing baths which were supposed to have a soothing effect on the nerves. Cold packs can also be seen on the heads of patients. Hydrotherapy was one of the innovations at St. Elizabeths which began using it in 1897. Many other types of therapies were also tried, ranging from “moral treatment” in the 19th century that provided congenial, homelike surroundings in which mentally ill patients could learn from the example of healthy attendants to psychoanalysis in the 20th century.

c. 1950



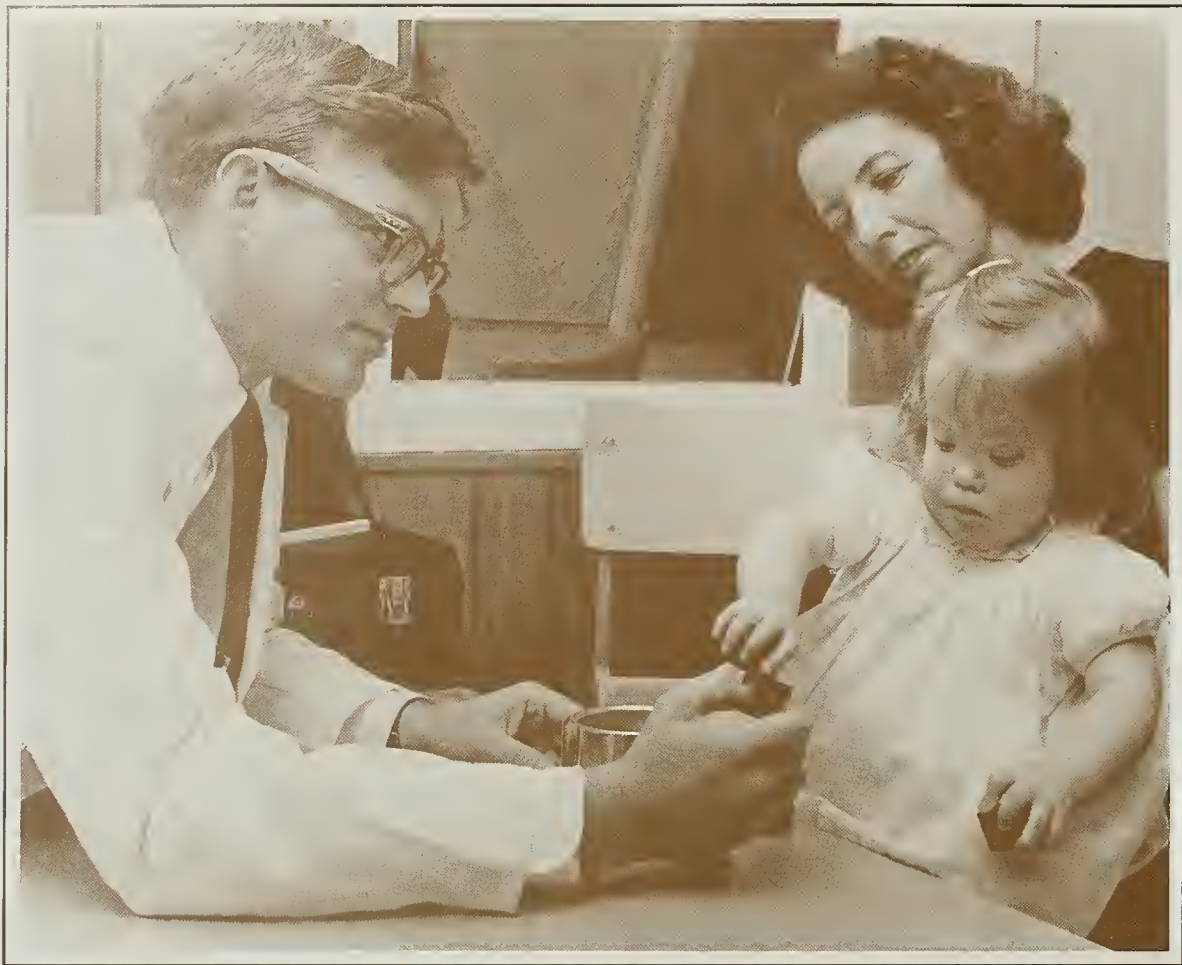


Mental Health and Drug Abuse

Art therapy has been a part of the treatment program for psychiatric patients at St. Elizabeths Hospital since 1924 when Dr. Nolan Lewis argued for the value of art in expressing the unconscious and projecting inner feelings. In the 1940s and 1950s, Prentiss Taylor was the first art therapist to work as a regular member of the hospital staff. He published on art as psychotherapy and put together a large traveling exhibition of patients' works. Here, Dr. John Lind, who treated the criminally insane, displays the handiwork of one of his patients entitled "dimensional divertissement."

c. 1950





Mental Health and Drug Abuse

Dr. Adam Metheny gives psychometric tests to a child in the Mental Retardation Clinic of the National Institute of Child Health and Human Development (NICHD). Much of the work at the NICHD in the 1980s has shifted to the molecular level. Scientists study development in animal models in order to understand human development better, especially the mechanism of cell differentiation. Errors in this process not only produce birth defects that can lead to mental retardation, but also set the stage for diseases such as cancer, premature aging, and immune disorders.

1975





Mental Health and Drug Abuse

Scientists at the National Institute of Mental Health and other research institutions in the Public Health Service dealing with mental illness have experimented with many different kinds of treatment methods. Here, psychiatrist Dr. Milton Shore uses puppets in his work with child patients.

c. 1970





Mental Health and Drug Abuse

Among a number of important clinical studies, intramural scientists at the National Institute on Alcohol Abuse and Alcoholism are studying the special problems of the homeless alcoholic.

c. 1980





Mental Health and Drug Abuse

The view of alcoholism as a single disorder arising from purely environmental causes or the result of "moral" weakness has been changing rapidly in light of recent evidence concerning genetic factors that predispose the development of alcoholism. Working with animal models of alcohol tolerance and dependence, intramural scientists of the National Institute on Alcohol Abuse and Alcoholism have been able to investigate the addictive process at the cellular and subcellular levels. Clinical studies using recently developed classifications of alcoholics are beginning to yield results about the differing contributions of environmental and biologic factors.

c. 1980





Mental Health and Drug Abuse

In 1929, feeling that drug addiction was primarily a medical and social problem and that treatment of addiction by incarceration in prisons was illogical, Congress passed a law establishing two United States “narcotic farms” for the confinement and treatment of persons addicted to the use of habit-forming narcotic drugs. The first of these “farms,” whose name was later changed to U.S. Public Health Service Hospital, is pictured here. It was built at Lexington, Kentucky, and opened to patients in 1935. The second was established at Forth Worth, Texas, and was opened in 1938.

c. 1950





Mental Health and Drug Abuse

Scientists at the Lexington Hospital began mapping the brain to learn the effects of many abused substances and the causes of addiction. Drugs studied range from the opiates and barbiturates to nicotine and cocaine. The Addiction Research Center neuroscientists are continuing this pioneering work to identify receptor sites in the nervous system for all types of psychoactive drugs. The work includes basic molecular studies, preclinical work with animals, and clinical studies with human volunteers.

c. 1965





Mental Health and Drug Abuse

The program of treatment at the Lexington Hospital included the withdrawal of drugs, the rehabilitation of the addict, and assistance to the patient in finding employment following discharge from the hospital. The rehabilitation program consisted of medical treatment for any correctable physical defects, vocational therapy designed to maintain or add to skills which the addict already possessed, and psychotherapy in selected cases.

c. 1965





Mental Health and Drug Abuse

The research unit at the Lexington Hospital, later named the Addiction Research Center, studied the nature of the addictive process and searched for a nonaddicting painkiller as an alternative to morphine. From this research emerged methods for determining the abuse potential of new psychoactive drugs that are proposed for therapeutic use. Tracking how and where drugs exert their actions in the central nervous system, especially the brain, in order to understand how psychoactive drugs produce their rewarding effects was another aspect of their work.

c. 1965





Mental Health and Drug Abuse

The Addiction Research Center (ARC) became part of the National Institute on Drug Abuse when it was created in 1973 and moved from Lexington to Baltimore, Maryland, in 1979. The ARC has become the largest facility in the United States devoted to studying addiction and drug abuse. Researchers at the ARC in Baltimore use new noninvasive imaging techniques, such as positron emission tomography (PET scanning), to produce images of the sites of action of drugs in the living human brain. The PET scan below, taken from a former opioid addict under the influence of morphine, shows decreased brain activity (lighter tones) as compared to activity in the same brain under the placebo (no drug) above.

c. 1980





Health Care Delivery

After nearly a century of providing health care to seamen, the mission of the Public Health Service was greatly expanded at the end of the 19th and the beginning of the 20th centuries to include the whole nation.

A Commissioned Corps of highly skilled and mobile health professionals was established in 1889 to work in the hospitals of the Service, to combat epidemics, and to respond quickly to other medical or public health emergencies anywhere in the United States and the world. At first the Corps was composed of only medical officers. Later, laws were enacted to include other health science disciplines.

The task of health care delivery and resource allocation lies primarily in the hands of the Health Resources and Services Administration. This includes supporting states and communities through the National Health Service Corps to plan and deliver health care, especially to people in medically underserved areas, migrant workers, mothers and children, and other groups with special needs; helping to improve the education and distribution of health workers; providing technical assistance for modernizing or replacing health care facilities; and administering the organ transplant program.

The Indian Health Service, which was made a separate agency in 1988, provides comprehensive health services for American Indians and Alaska Natives.

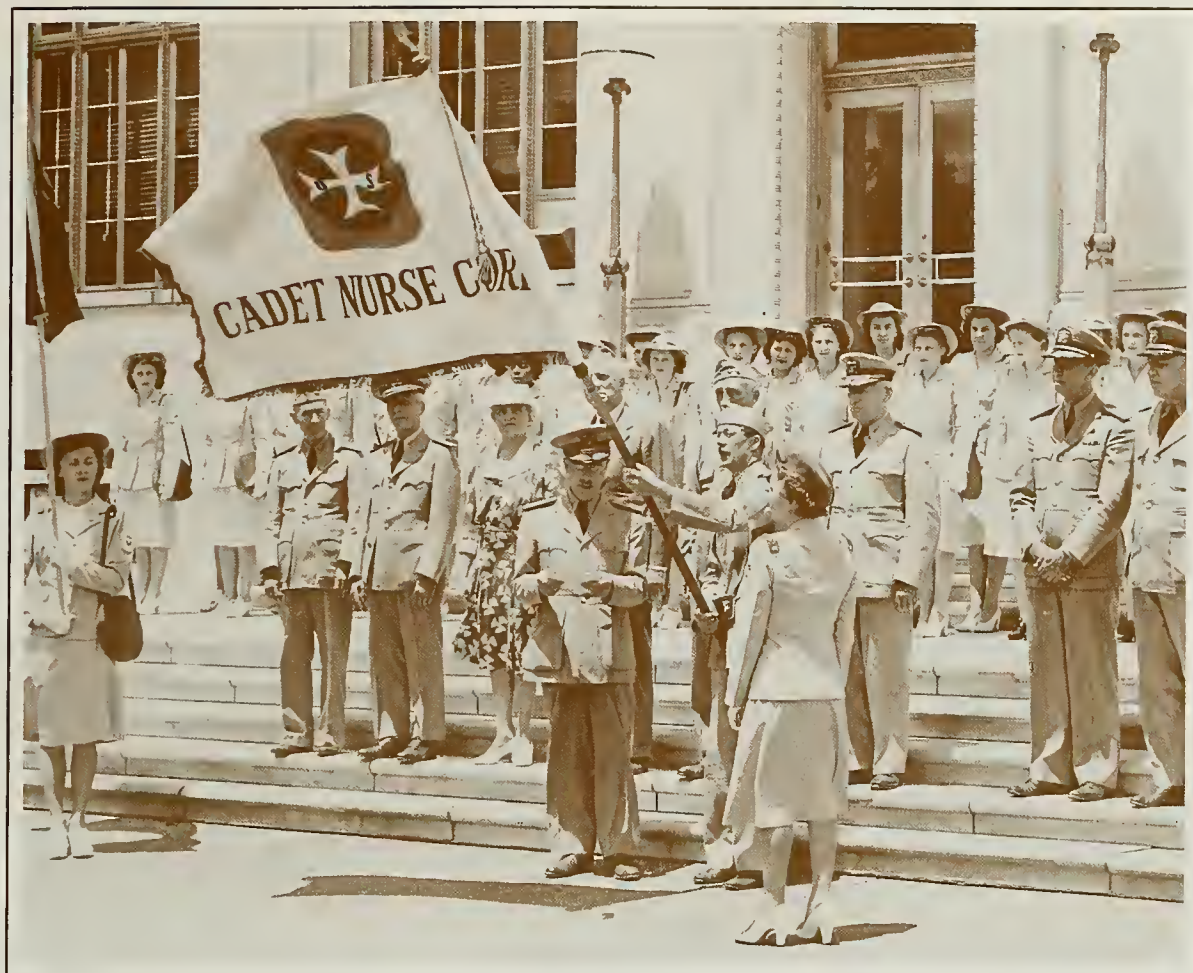


Health Care Delivery

Public Health Service officers aboard the Coast Guard Cutter *Bear*. Since 1879 medical officers of the Service have been assigned to Coast Guard vessels. Many of the early assignments were on expeditions to Alaska, the Arctic, and on training cruises from the Coast Guard Academy. The *Bear* was built in Scotland in 1873 and was especially designed for navigating through ocean ice. After being acquired by the Federal Government in 1884, the *Bear* served in the Arctic for nearly 40 years on various rescue, assistance, investigation, and patrol missions.

c. 1915





Health Care Delivery

Presentation of the Cadet Nurse Corps flag to Nurse Director Lucile Petry by Surgeon General Thomas Parran (reading), at ceremonies in Washington, D.C., in June 1944. The need for nurses during the second World War motivated Congress to pass an act in 1943, known as the Bolton Act, for Congresswoman Frances Bolton of Ohio (4th left front) who sponsored the bill in the House, establishing the Cadet Nurse Corps of the Public Health Service. Under the terms of this Act, Federal scholarships in nurse education were made available to qualified young women upon enrollment in schools of nursing whose curricula and nursing facilities met standards prescribed by the Service. Miss Lucile Petry was chosen by Surgeon General Parran as chief of the newly established Division of Nurse Education, which was to administer this program. During its 5 years of existence the Cadet Nurse Corps provided a great reservoir of trained nurses for the military and prevented the collapse of civilian nursing service on the home front.

1944





Health Care Delivery

Sanitary engineers in the Public Health Service during World War II. Since the turn of the 20th century sanitary engineers have played a very important role in the Service by dealing with problems related to water supplies, sewage disposal, industrial wastes, and other environmental hygiene concerns. They have worked to control yellow fever, malaria, and water-borne diseases, such as typhoid fever. The first sanitary engineer was employed by the Service in 1913. Although sanitary engineers had been commissioned in the Reserve Corps of the Service since then, it was not until the Parker Act was passed in 1930 that sanitary engineers were authorized to be commissioned in the regular Corps.

c. 1944





Health Care Delivery

One of the new wooden cottages built around 1923 at the Public Health Service hospital for patients with leprosy or Hansen's disease in Carville, Louisiana (located between New Orleans and Baton Rouge). In 1899 Congress asked the Public Health Service to investigate the origin and prevalence of leprosy in the United States. As the problem became better defined, efforts were made to establish a national leprosarium. In 1921 the Federal Government purchased the Carville Leprosarium from the State of Louisiana for that purpose. Today, the hospital complex is known as the Gillis W. Long Hansen's Disease Center and provides diagnostic, treatment, and rehabilitative services for patients with Hansen's disease.

c. 1968





Health Care Delivery

Public Health Service officer vaccinating Mexican migrant workers, "braceros," in El Paso, Texas. The medical care of migrant workers had been the domain of the Health Services Administration and is now under the aegis of the Health Resources and Services Administration's Bureau of Health Care Delivery and Assistance. The Bureau helps migrant and seasonal farmworkers and their families by funding project grants to State, local, voluntary, public, and private health providers that work with underserved populations. The efforts of Helen L. Johnston and others, which led to the Migrant Health Act of 1962, initiated many of these programs.

c. 1963





Health Care Delivery

Dedication ceremonies in November 1947, marking the opening of the George H. Lanier Memorial Hospital in Langdale, Alabama. This was the first hospital project approved under the Hospital Survey and Construction Act of 1946, also known as the Hill-Burton Act. The Act authorized federal grants to the states to survey their hospitals and public health centers, to plan construction of additional facilities, and to assist in their construction. Federal hospital construction funds were allocated on the basis of population and per capita income, the states with the lower income receiving more per capita than the wealthier states. This program has proved to be very valuable in establishing additional hospital facilities and health centers throughout the country, particularly in rural areas.

1947





Health Care Delivery

Prisoner volunteers, such as these at the U.S. Penitentiary in Seagonville, Texas, were used to test drugs against malaria in the 1940s. The reorganization of the activities of the Federal Bureau of Prisons in 1930 placed the supervision and provision of medical and psychiatric care for federal prisoners in the hands of the Public Health Service. Until then medical care was provided by local physicians.

1948





**Health Care
Delivery**

During the war in Vietnam the Public Health Service provided surgical teams and other forms of medical relief. Here Dr. Gilbert P. Herod attends to a patient suffering from napalm burns in Da Nang.

c. 1968





Health Care Delivery

National Health Service Corps physicians and other health workers have been providing care to families and individuals in medically underserved areas since 1970. The Corps is part of the Health Resources and Services Administration's Bureau of Health Care Delivery and Assistance.

c. 1975





Health Care Delivery

Professionally trained graduate female nurses began to be used more widely in public health hospitals beginning about 1912. Public health nurses were used by the Public Health Service during World War I in camp sanitation work and in special clinics. Their work included general district nursing, tuberculosis nursing, school nursing, infant welfare, visiting in mill villages, emergency communicable disease control, and venereal disease clinic work. Here a public health nurse visits rural patients.

c. 1920





**Health Care
Delivery**

A Public Health Service nurse teaches a mother how to prepare a feeding formula for her infant.

c. 1920





Health Care Delivery

The fight against the spread of communicable diseases through research and immunization programs has always been one of the Public Health Service's major goals. Mobile immunization clinics combined a loudspeaker system with vaccines for hard-to-reach populations.

c. 1955





Health Care Delivery

Public health nurses in the Indian Health Service bring medical care to the reservations. The Indian Health Service provides comprehensive health services to Native Americans and tries to assist tribes in obtaining and using health resources available through federal, state, and local programs. It also serves as the principal federal advocate for American Indians and Alaska Natives in the health field. In 1988 the Indian Health Service was made a separate agency within the Public Health Service with the same rank as other agencies such as the National Institutes of Health and the Food and Drug Administration.

1964





Health Care Delivery

Among the direct beneficiaries of medical care from the Federal Government as specified by law are the Alaska Natives. American Eskimos and other Alaskan tribes receive comprehensive health care including hospital, ambulatory, preventive, and rehabilitative care through the Indian Health Service.

c. 1965





International Health

Participation by the Public Health Service in international activities was very limited until the latter part of the 19th century. The earliest international contacts were mainly on an individual basis, usually American physicians going to study at European universities and laboratories, which were then at the forefront of biomedical research and the sanitary sciences. Toward the end of the 19th century Public Health Service officers began traveling to international sanitary conferences, both abroad and in this country, in order to explore and develop conventions for preventing the spread of epidemic diseases and for implementing effective quarantine measures.

Public Health Service officers took an active part in planning, creating, and directing the activities of several major international health organizations, such as the Pan American Sanitary Bureau, which was established in 1902; the International Office of Public Health, which was established in Paris in 1909; and the World Health Organization, which was created in 1948 and which eventually absorbed the other two organizations.

Since 1968 the John E. Fogarty International Center has been the primary focal point for coordinating NIH international activities by supporting biomedical research through international fellowships and scientist exchanges, and by providing assistance to the NIH in planning and implementing international research programs.

By means of its various computer data bases the National Library of Medicine provides a very valuable world-wide medical information service.



**International
Health**

The first person to board the arriving plane at Kennedy International Airport in New York City is a foreign quarantine inspector of the Public Health Service.

c. 1947





International Health

A foreign quarantine officer inspects the plane and sprays it with insecticide before allowing the passengers to disembark. Of particular concern was the spread of malaria and yellow fever by the importation of mosquitoes. The Public Health Service did important work in improving and standardizing insecticides for use on aircraft, and in developing methods of disinsectization.

c. 1947





International Health

Passengers arriving from Paris at LaGuardia Airport in New York City and walking through the walk-way, known as the "sheep run," to the quarantine room. They are led by inspection officers Evans and Weeks.

c. 1947





**International
Health**

Passengers from London entering the quarantine room at LaGuardia Airport in New York City.

c. 1947





**International
Health**

Passengers from Cairo, Egypt, Debarking at Kennedy International Airport in New York City with inspection officers Weeks and Evans in front. The number of aircraft inspections gradually increased from about 5,000 in 1930 to about 50,000 in 1950.

c. 1947



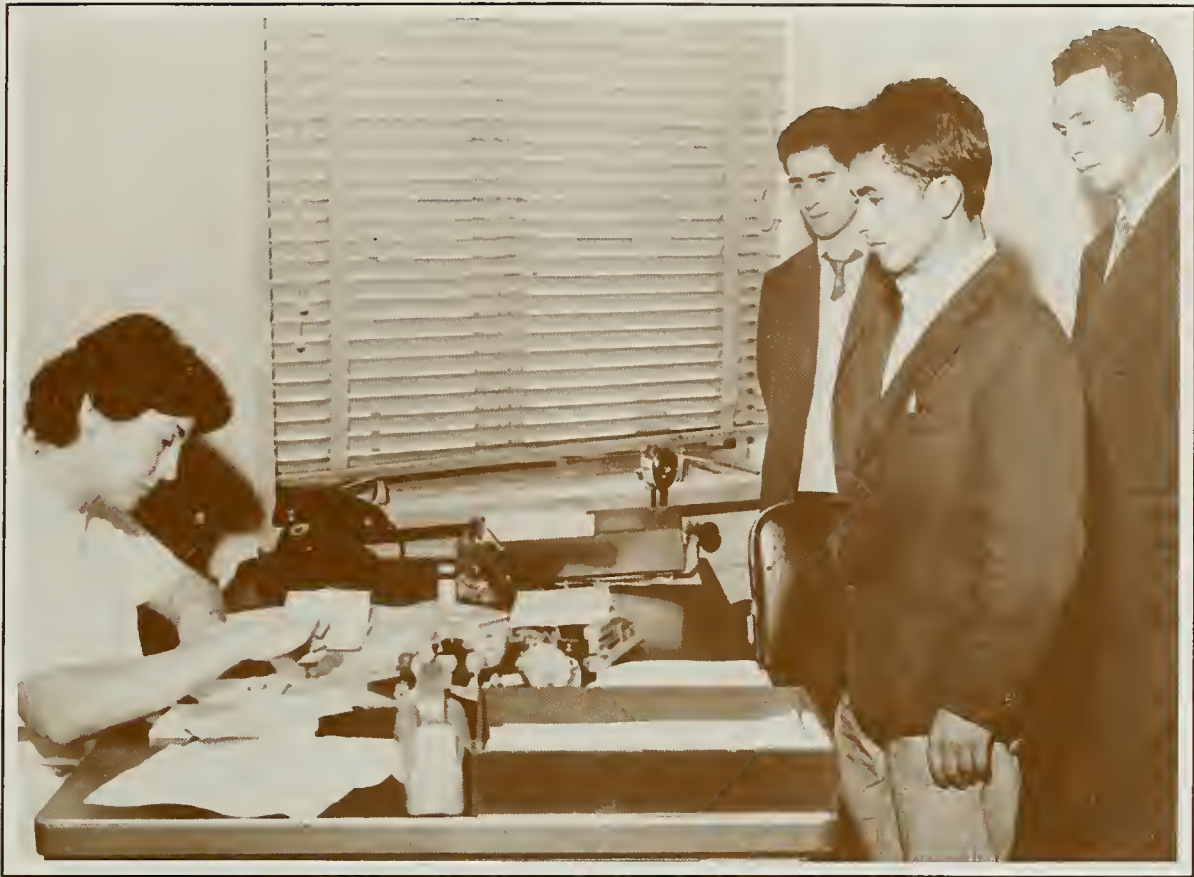


International Health

With the development of international aircraft travel, measures were instituted to prevent the introduction of diseased persons and disease-carrying insects and animals into the United States. This little boy had a recent case of chicken pox. Dr. Close, Medical Officer at Kennedy International Airport in New York City, takes a good look to make sure there are no signs of smallpox, a quarantinable disease in 1965.

c. 1965





International Health

Before 1921, many immigrants arrived at quarantine in the United States only to find they had an illness or physical defect which prevented them, by law, from entering the country. Sometimes a family was stranded without adequate funds to return to their former home. Examinations overseas prevented such hardships among visa applicants and simplified the administration of the United States immigration laws. The process begins at the Naples Foreign Quarantine Station with a series of questions concerning previous history of illness and accidents.

1959



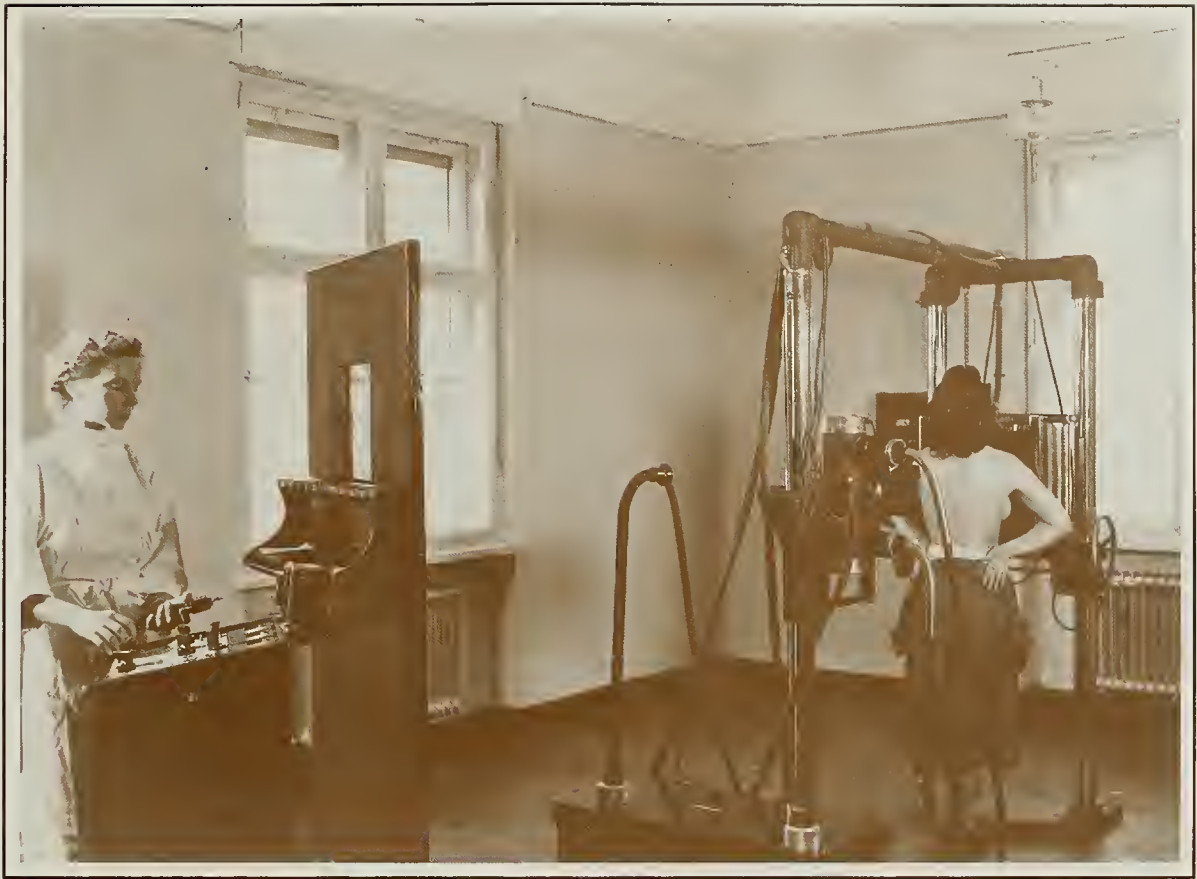


**International
Health**

Medical technical assistant Sara Maffezzoli at the Naples Foreign Quarantine Station prepares Osmanay Myslin, a 47-year-old refugee from Tirana, Albania, for a chest X-ray.

1959





**International
Health**

A woman getting X-rayed for tuberculosis in a U.S. quarantine office in Berlin, Germany, to see if she is eligible for a visa to enter the United States.

c. 1959





**International
Health**

Dr. Franco Ermenegildo and Miss Sara Maffezzoli read the X-ray films.

1959





**International
Health**

A blood test for syphilis was done also for each applicant.

1959





International Health

Dr. Franco Ermenegildo at the Naples Foreign Quarantine Station examines the eyes of 23-year-old Francesco Rotundo from Catanzaro, Italy, for trachoma. The Public Health Service's Division of Foreign Quarantine maintained examination centers in such cities as Paris, London, Frankfurt, Munich, Naples, Palermo, and Athens, with local physicians available for examinations through many United States consulates.

1959





International Health

At the Naples Foreign Quarantine Station Dr. Franco Ermenegildo examines the chest and heart of 27-year-old Ferdinando De Paolis from Bagno, Italy, who wants to emigrate to Hawthorne, New York. Besides the chest and heart, the physicians also tested the eyes and blood as well as mental health.

1959





International Health

At the Naples Foreign Quarantine Station Dr. Franco Ermenegildo examines 1-year-old Elias West from Athens, Greece, who was adopted by Mrs. Bobby West of Clarksville, Tennessee. In the center is Mrs. Emma Germano, visa examination aide. Every day in the week hundreds of would-be American citizens entered United States quarantine offices in Europe for medical examinations to determine whether they were eligible for visas to enter this country.

1959



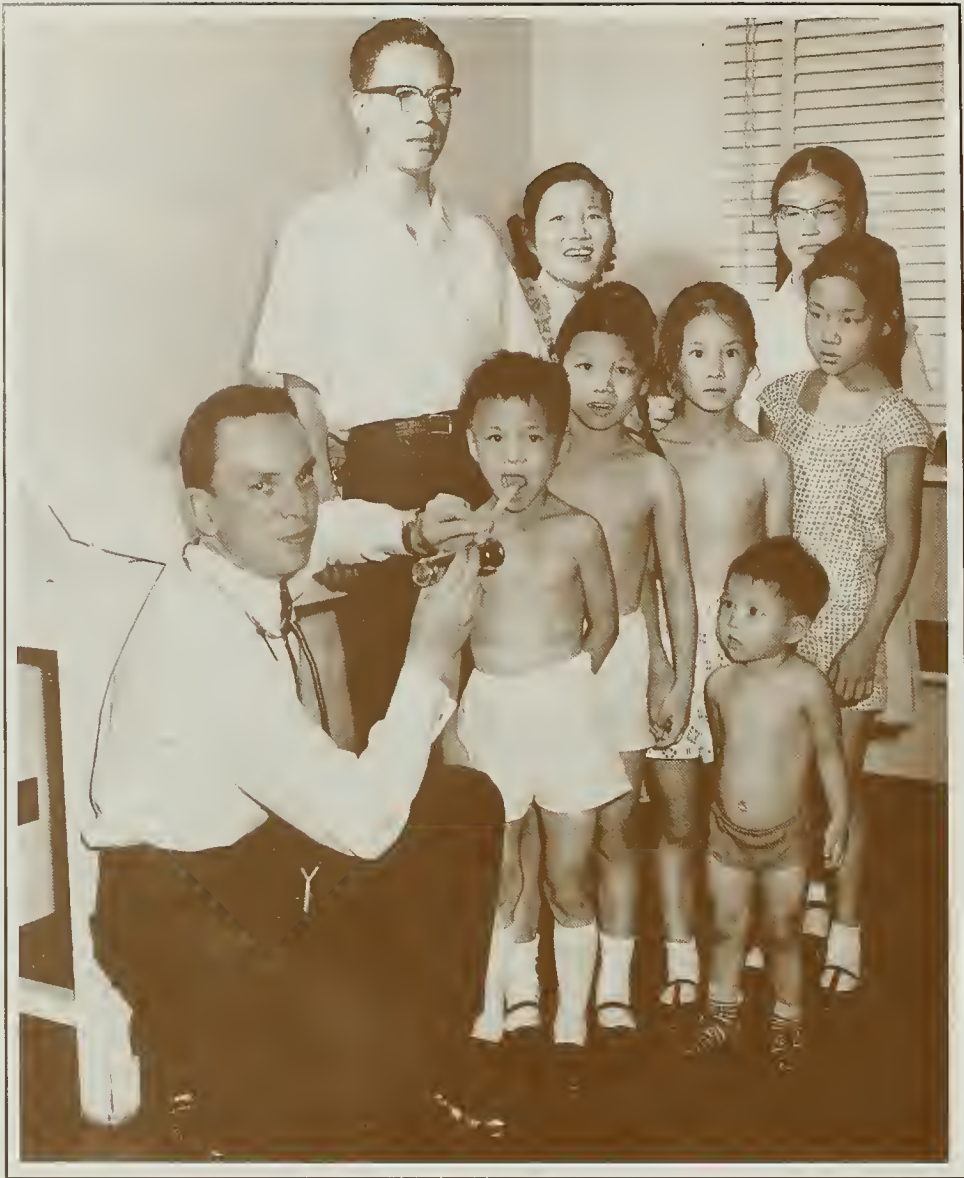


International Health

The Public Health Service's Division of Foreign Quarantine was responsible for preventing the importation of disease into the United States. Abroad it relied heavily on the work of United States consular officers, who were required to notify the Surgeon General immediately of the appearance of any infectious or contagious disease in a foreign port, and to provide information regarding vessels from infected ports bound for the United States. At home the division's medical officers helped man quarantine stations in the major ports and inspected crews of cargo vessels from foreign ports, such as pictured here.

c. 1930





International Health

A Public Health Service medical officer at the United States consulate in Hong Kong is examining the family of Chang Kan Tai, whose members are applying for visas to the United States.

c. 1962





International Health

The Office of International Health Relations was established in 1945 under the authority of the Public Health Service Act of July 1, 1944. It was organized by its first director, Dr. James A. Doull, primarily to administer the overseas projects of the Service such as the Mission to Liberia and a growing fellowship training program. In 1948, Senior Surgeon Hildrus A. Poindexter (1901-1987) was appointed director of the Mission to Liberia, whose goal was to help the Liberian government in sanitation planning and the control of infectious diseases. Dr. Poindexter is pictured here on safari during a tsetse fly survey.

c. 1950





International Health

In addition to providing leadership and assistance in the prevention and control of disease in the United States, the Centers for Disease Control and Prevention in Atlanta, Georgia, work with international health and scientific organizations to improve the health of all people. Through the World Health Organization (WHO), the center's medical teams helped to eradicate smallpox from the countries of West Africa. Here a staff physician of the WHO vaccinates a youngster against smallpox by means of a jet injector.

c. 1970





International Health

Providing oral polio vaccine to children in Africa in order to reduce disability from poliomyelitis by 75 percent by 1991 is one of the target goals of the Combatting Childhood Communicable Disease (CCCD) project in Africa. Initiated in 1981, CCCD is a joint effort of the Centers for Disease Control and Prevention, the U.S. Agency of International Development, and governments of participating countries. The primary objective is to reduce high infant and childhood mortality rates by treating young children and pregnant women.

c. 1982





International Health

Another 1991 target goal of the Combatting Childhood Communicable Diseases (CCCD) program in Africa is to immunize pregnant women with tetanus toxoid vaccine in order to reduce neonatal tetanus mortality by 25 percent. The more general goal is to increase immunization coverage of pregnant women to 60 percent. The emphasis of the CCCD program, which is a joint project with the Centers for Disease Control and Prevention and other government institutions, is on the application of 3 simple, safe, effective, and economical technologies: immunization, oral rehydration therapy, and malaria treatment for children under the age of 5.

c. 1982



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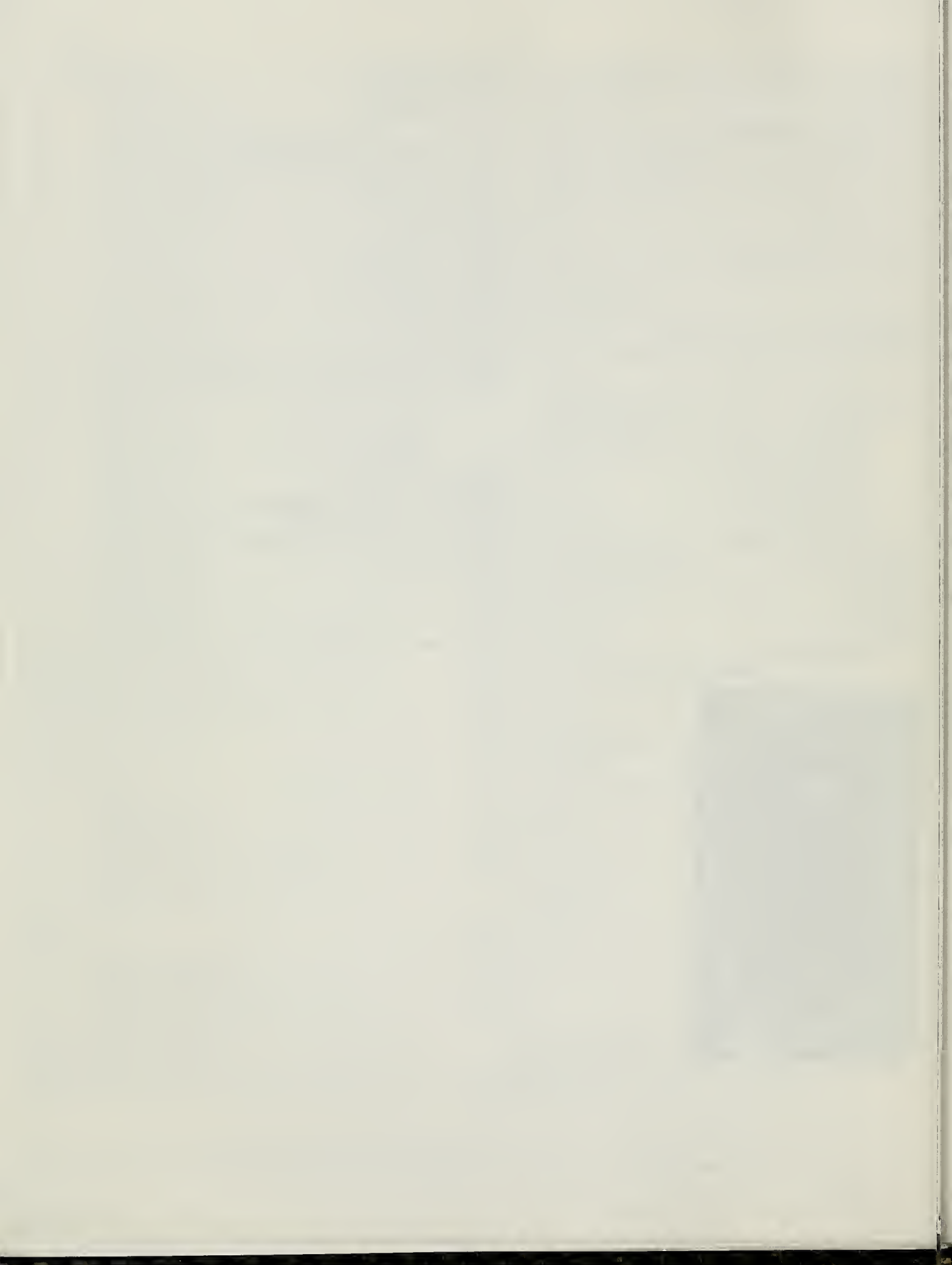
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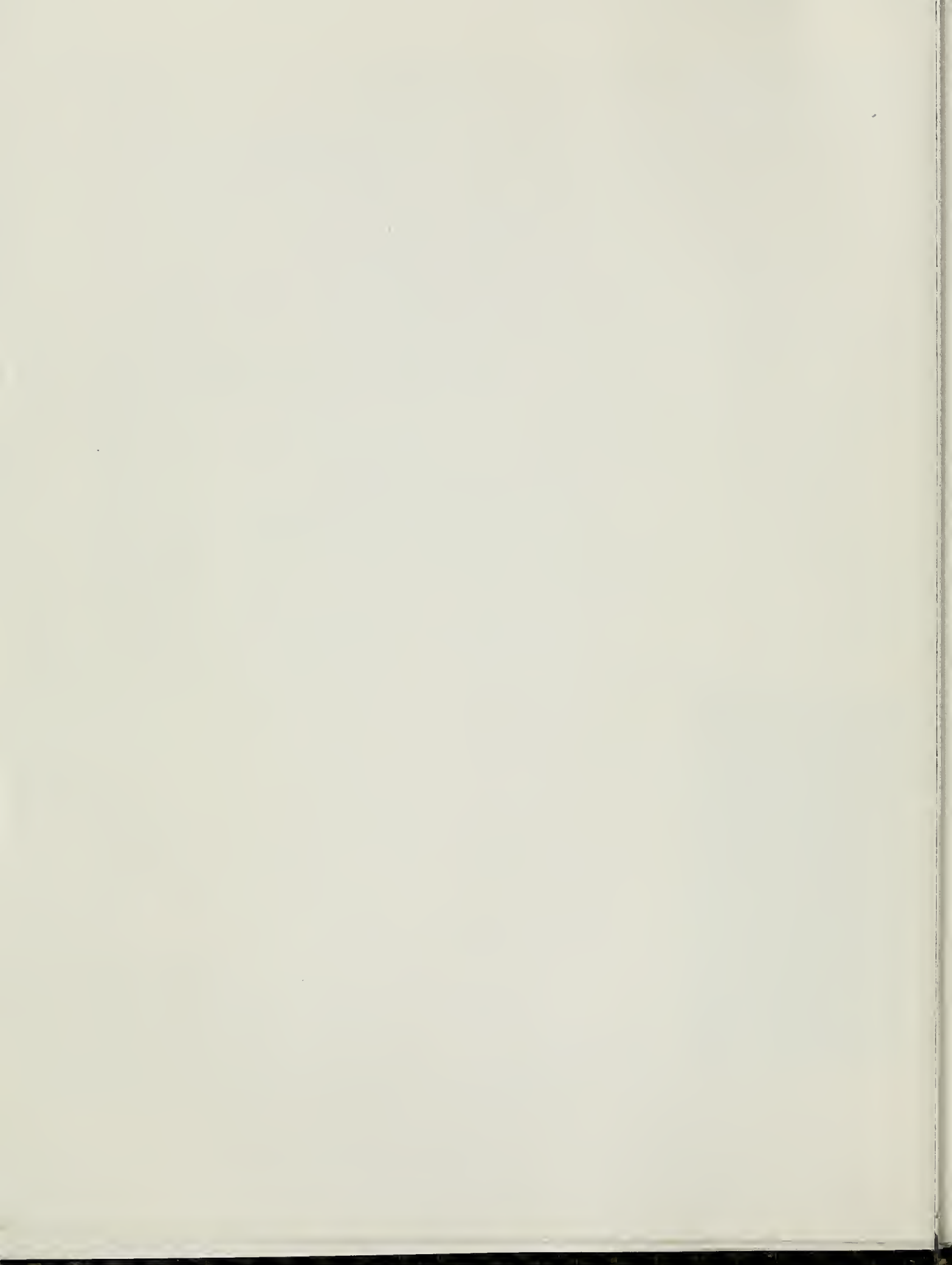


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