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*The Beall-Dawson House, c. 1815  
home of the Montgomery County Historical Society  
103 W. Montgomery Ave., Rockville, Maryland*

# THE MONTGOMERY COUNTY STORY

Published by the Montgomery County Historical Society

Nancy S. Hafer  
President

Mary Charlotte Crook  
Editor

Vol. 30

February 1987

No. 1

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THE NATIONAL INSTITUTES OF HEALTH  
A BETHESDA LANDMARK CELEBRATES ITS CENTENNIAL  
by Dorothy Pugh

In 1935, Luke Ingalls Wilson wrote a most unusual letter to the Secretary of the Interior of the United States. He offered half of his 94-acre Bethesda estate, "Treetops," to the Federal Government if it could be used to benefit the people of the United States. Luke Wilson was a retired men's clothing manufacturer from the Chicago area, whose wife, Helen Clifton Woodward, was the daughter of one of the founders of the Woodward and Lothrop Department Store. Their estate was on the southwest corner of Rockville Pike and Cedar Lane.

Luke waited in vain for a reply from the Interior Department. When none came, Luke, a persistent man, wrote directly to President Franklin Roosevelt. The President, delighted with the offer, circulated the letter to his various departments. The Procurement Division of the Treasury Department immediately referred its copy to the Surgeon General of the Public Health Service for consideration of the site as the location for the National Institute of Health's new animal building.

Congress had just appropriated \$100,000 for a building in which the National Institute of Health (NIH) scientists could raise their own pure strains of the small animals needed for research and for the control of vaccines, serums, and other biologic products. Unfortunately there was no room for this building at NIH's headquarters in Washington, D.C. Another piece of land was needed somewhere in the area. Assistant Surgeon General Lewis Thompson, who was soon to become Director of NIH, had already been negotiating with the Department of Agriculture for 45 acres of its land in Beltsville, Maryland. Luke's propitious offer thus snatched our nation's greatest health research facility from Beltsville and brought it so appropriately to Bethesda, a village whose name has stood for healing since Biblical days. We find the name in John 5:2-4 of the King James version of the Bible:

Now there is at Jerusalem by the sheep market a pool, which is called in the Hebrew tongue Bethesda, having five porches. In these lay a great multitude of impotent folk, of blind, halt, withered, waiting for the moving of the water. For an angel went down at a certain season into the pool, and troubled the water: whosoever then first after the troubling of the water stepped in was made whole of whatsoever disease he had.

The concept that the Federal Government has a responsibility for civilian medical care and public health was first acknowledged on July 16, 1798, when President John Adams signed "An Act for the Relief of Sick and Disabled Seamen." The Act established the Marine Hospital Service for merchant seamen who became ill and were put ashore. Since the merchant fleet in those days was vital to our young nation's economy and defense, Congress felt that hospitalization and medical care should be provided for seamen when needed. The following year these benefits were extended to cover U.S. Navy officers and men. However, these medical services were not free to the men; each month 20 cents was deducted from the pay of each merchant seaman and Navy man, creating one of the first prepaid medical care plans in the United States. The Navy built its own hospitals in 1818 and stopped using the Marine Hospital Service, but Navy personnel were subject to deductions from their pay until 1943.

The first permanent Marine Hospital was built in Boston, Massachusetts, in 1807, where the physician in charge, Dr. Benjamin Waterhouse, was the first to use interns and residents in a hospital in the United States. Subsequently many more Marine Hospitals were built.

By the 1870's, our country was being flooded with immigrants from Southern and Western Europe, many of them carrying contagious diseases. Epidemics of infectious

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1. Lewis R. Thompson, M.D., NIH Administration Building cornerstone statement, June 30, 1938.

illness were nothing new to the U.S., but now new discoveries by Louis Pasteur and other bacteriologists in Europe offered hope that these devastating diseases might be contained and controlled. Since the United States had no effective research institutions at this time, the Federal Government, in a novel experiment, provided funds "for investigating the origin and causes of epidemic diseases, especially yellow fever and cholera."

The stage was set for the birth of the National Institutes of Health in a small attic room in the Marine Hospital in the village of Stapleton on Staten Island, New York. In August 1887, 27-year-old Dr. Joseph James Kinyoun set up his one-person Laboratory of Hygiene (equipment cost - \$300) to research cholera and other communicable diseases such as diphtheria, typhoid, small pox, typhus, plague, and tuberculosis.

Dr. Kinyoun was well-qualified to be our first government research scientist, having studied under the Nobel-Prize-winning German bacteriologist Robert Koch, who discovered the cause of anthrax and laid the foundations of our present knowledge of the cause of infectious disease. Dr. Kinyoun soon proved the worth of his small laboratory when he made the first diagnosis of Asiatic cholera in the U.S. in 1888. He also developed facilities for the diagnosis of diphtheria and the production of its antitoxin in horses.<sup>2</sup> Another personal achievement of Dr. Kinyoun was the design of the Kinyoun-Francis sterilizer, a disinfecting apparatus for use on shipboard. Dr. Kinyoun's interests and achievements provided a solid base for the development of this country's present extensive health research program.

After four years, in 1891, it became obvious that the Laboratory of Hygiene needed more space. Its name was shortened to the Hygienic Laboratory, and it was moved to Washington, D.C., where it occupied the top floor of the Butler Building on Independence Avenue across from the Capitol.<sup>3</sup> This building was the headquarters of the Marine Hospital Service, and both Dr. Kinyoun and the Surgeon General of the Service found the location most convenient for lobbying Congress for money to improve health research facilities.

In turn, the U.S. Congress also found the Hygienic Laboratory convenient for their many requests, including one about the ventilation of the House of Representatives. Dr. Kinyoun conducted an investigation, and, after finding illuminating gas in the air due to leaky gas pipes and pollution from smoking, he recommended a general overhaul and the installation of electric lighting in all parts of the building. He also pointed out the stains, wetness, and odor of the carpet in the House and its gallery where it was saturated with tobacco expectoration.<sup>4</sup>

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2. DeWitt Stetten, Jr., Editor, *NIH: An Account of Research in Its Laboratories and Clinics* (Orlando, FL: Academic Press, Inc., 1984), p.115.

3. Bess Furman, *A Profile of the United States Public Health Service 1798-1948* (Washington, DC: U.S. Department of Health, Education, and Welfare, 1973), pp. 198, 202. (The Butler Building was built by Union General Benjamin F. Butler as his residence when he served as Republican Representative from Massachusetts. It was also President Chester A. Arthur's temporary White House when Louis Tiffany was redecorating the real White House. The Longworth Building stands there today.)

4. *Ibid.*, pp. 213-214.

In 1902, impure vaccines were causing a lot of problems, and a District of Columbia physician who had some powerful political men for patients asked them to pass a bill to regulate biologics in the District of Columbia. His bill was passed by acclamation in the last minute of the session, without the congressmen realizing that someone had inserted the word "national" in the bill. The resulting Public Law 244 regulated the shipment of viruses, serums, toxins, and analogous products in the entire United States, not just the District of Columbia. This very potent health bill put the Hygienic Laboratory in the commanding position of setting proper biologic standards for the entire nation.<sup>5</sup>

That same year the first studies of Rocky Mountain spotted fever were begun in the Bitterroot Valley of Montana. This illness had been known since the valley was first settled but was now getting publicity as a new disease. Researchers were astonished to hear that the residents believed the bite of the wood tick to be the cause. They soon learned that the residents were right and went on to study the various aspects of the disease. Working conditions in the Bitterroot Valley were quite primitive, with the researchers occupying tents, mountain cabins, a woodshed in 1919, and an abandoned brick schoolhouse in 1922. A proper laboratory was finally built for them in 1927 at Hamilton, Montana.

During 45 years of research, the disease was defined, its cause was discovered, its carriers were identified, and its distribution was understood, showing that the disease was, in reality, widespread. A vaccine was developed, but in the early years its manufacture was very primitive, requiring grinding of infected ticks by hand with a mortar and pestle. In the course of the work on Rocky Mountain spotted fever, five scientists contracted this very dangerous disease and died from it.<sup>6</sup> The history of NIH lists many such heroes who gave the ultimate sacrifice in pursuit of scientific information. (NIH still maintains a substantial field station in Hamilton, Montana, but today the main focus is on molecular biology.)

Meanwhile, back in Washington, the Hygienic Laboratory had once again run out of space, and, in 1904, it moved into a new \$35,000 building at 25th and E Streets, N.W., on the grounds of Naval Observatory. The five quiet acres used by the Laboratory overlooked the Potomac River and provided room for stables and outdoor runs for the animals, an ideal spot for a small laboratory with less than 50 employees. By this time, Dr. Milton J. Rosenau was in charge of the Laboratory, Dr. Kinyoun having retired. Dr. Rosenau was a brilliant 29-year old who ran such a tight ship that even the matches used by employees had to meet his specifications. He allowed only safety matches provided by the Government.<sup>7</sup> His book *Preventive Medicine* is still a standard text for students of public health.

The first nutritional research by the Hygienic Laboratory was conducted by Dr. Joseph Goldberger in 1914 when he investigated pellagra, a devastating disease that caused red and scaly skin, diarrhea, depression, and insanity. Two hundred thousand people a year died from it. The disease was thought to be caused by an infectious

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5. *Ibid.*, pp. 250-251

6. Stetten, *op.cit.*, pp. 116-118

7. Furman, *op.cit.*, p.266.

organism. It was prevalent in almshouses and orphanages, but Dr. Goldberger noticed that the caregivers in these institutions did not get it. This fact led him to suspect that diet might be the cause - a revolutionary idea for those days. He found that the inmates ate far less meat, milk, eggs, vegetables, and fresh fruit than the caregivers. The inmates survived on hominy, grits, mush, molasses, cabbages, potatoes, and rice. Field tests proved Dr. Goldberger right. He suggested dried peas and beans as easy supplements and later settled on dried brewer's yeast as the best and cheapest vitamin safeguard. Nicotinamide, otherwise known as niacin, was the important ingredient.

After noticing that pellagra became epidemic in the South about the time many workers were moving from farms to low-paying jobs in textile mills, several researchers pointed out that the underlying cause of pellagra was poverty. These workers left the meat, milk, and eggs behind on the farms and could only afford foods like corn bread, biscuits, fat pork, and coffee in their new circumstances.<sup>8</sup> The research on pellagra became a classic. It was the first long-term epidemiological investigation of a chronic non-communicable disease that considered economic and social factors.

In his career with the Hygienic Laboratory, Dr. Goldberger made many valuable contributions to research on measles, typhus, diphtheria, dengue (a tropical fever), and cholera. He himself, in the course of his work, became ill with dengue, typhus, and yellow fever. After a life of selfless service to his fellowman, he died of cancer in 1929, leaving his wife and three children in poor financial straits. But, in earlier years, Mrs. Goldberger had helped her husband in a way that probably no other wife ever had. She had risked her life by receiving an injection of blood from a dying pellagra patient to help Dr. Goldberger prove that the disease was not contagious. For that, Congress granted her a larger pension than she would normally have received.

Another dedicated bacteriologist was Dr. Alice C. Evans, who, with great difficulty, proved that undulant fever came from drinking milk or eating meat from cattle infected with brucellosis, a disease that caused cows to abort their calves. After getting undulant fever herself in 1923, Dr. Evans suffered from it for 21 years, one time being hospitalized for 14 months.<sup>9</sup>

A mainstay of the Hygienic Laboratory from 1921 to 1950 was Dr. Charles Armstrong, who made major contributions to health and medical knowledge in every study he undertook. Some of the health areas in which he made breakthroughs were polio, psittacosis (parrot fever), encephalitis, vaccinations, and canning. Safer canning methods were required after he showed that botulism had resulted from eating improperly canned olives.<sup>10</sup> He risked his life many times, contracting severe cases of malaria, dengue, psittacosis, encephalitis, Q fever, and tularemia (rabbit fever).

By far the most dangerous disease Dr. Armstrong worked with was psittacosis, a viral disease of parrots that can be communicated to man. In 1929, a Christmas shipment of parrots from South America brought the disease into this country, and the

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8. *Ibid.*, pp. 300-304

9. Furman, *op.cit.*, pp. 352, 362-364.

10. *N.I.H Record*, May 31, 1955.

Hygienic Laboratory was inundated with calls for help. In one day, three people died from it in Baltimore alone. Dr. Armstrong, who was in charge of the investigation, collected some of the diseased birds and began his research. However, psittacosis was so contagious that everyone connected with the study came down with the disease, even the night watchman who just walked by the closed door of the parrot room. When the disastrous conditions became evident, Dr. George W. McCoy, the Director of the Hygienic Laboratory, took charge. He ordered everyone else out of the building, sealed all the windows, chloroformed all the birds, and had the building so thoroughly fumigated that sparrows flying over the roof fell dead!

Dr. Armstrong's assistant died of the disease, and some of the victims remained hospitalized for four months. However, when Dr. Armstrong and the others recovered, they were immune to psittacosis, and they continued the research at a Quarantine Station in Baltimore. They were able to discover the causative agent, and strict quarantine regulations were imposed on imported parrots and love birds. Psittacosis is now treated successfully with antibiotics.<sup>11</sup>

Big changes came to the Hygienic Laboratory in 1930 when Senator Joseph E. Ransdell of Louisiana, convinced that fundamental research could lead to cures for diseases, finally got his Ransdell Act through Congress. This Act reorganized and expanded the Hygienic Laboratory and renamed it the National Institute of Health. (NIH's parent organization, the Marine Hospital Service, had also undergone a name change in 1912 and was by this time the Public Health Service.) A system of fellowships was created, and \$750,000 was authorized for construction of two more buildings on the property overlooking the Potomac. An administration building and a laboratory were built, but the scientists still desired an animal building in which they could raise their own pure strains of mice, rats, guinea pigs, and rabbits.

Mice were being used in psittacosis, encephalitis, and poliomyelitis studies; fleas were being raised on rats for typhus fever studies; ticks were feeding on guinea pigs for Rocky Mountain fever work; and rabbits were used in studies of tularemia. At this time, these animals could be obtained only from a few different locations in the Eastern U.S. The strain of being shipped, adverse weather conditions, and other factors caused some animals to die, occasionally resulting in failed experiments for the scientists.<sup>12</sup>

Finally, in the middle of the depression, \$100,000 was authorized for NIH's animal farm. The search for a proper location for the building had barely begun when the Wilson offer of land in Bethesda was received. Dr. Thompson, who was in charge of the search, promptly became friendly with the Wilsons and held many discussions with them, extolling the importance of NIH's proposed animal building. The Wilsons pondered a long time over their decision, wanting to be absolutely sure that NIH would fit into their neighborhood and community. Dr. Thompson summed it up very well when he called Luke Wilson a very fine gentleman, a philanthropist at heart, but still a keen businessman. Wilson refused to accept NIH's proposal until he thoroughly understood its future implications and what effect the establishment of an animal farm would have on his own remaining residential property and that of his neighbors.<sup>13</sup>

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11. Furman, *op.cit.*, pp. 370-372.

12. Associated Press, "Where U.S. Will Raise Laboratory Animals," *The Evening Star*, Washington, D.C., 13 August 1935, Sec. A, P. 4.

13. Thompson, *op.cit.*

At that time, Rockville Pike was lined with prestigious estates, among them George Freeland Peter's impressive stone mansion just to the south of the Wilsons' Treetops, George Hamilton's "Stone Ridge" across the Pike, and Brainard Parker's "Cedarcroft" directly across Cedar Lane from Treetops. Mrs. Parker was Helen Wilson's sister, and the Wilsons had visited Cedarcroft many times during Luke's working years. In fact, they liked the area so much that, in 1923, they bought the old 94-acre Britton farm across the road from Cedarcroft for their retirement years and turned it into Treetops. They tore down the old farmhouse and built Treetops in its place on a high knoll in the center of the property.

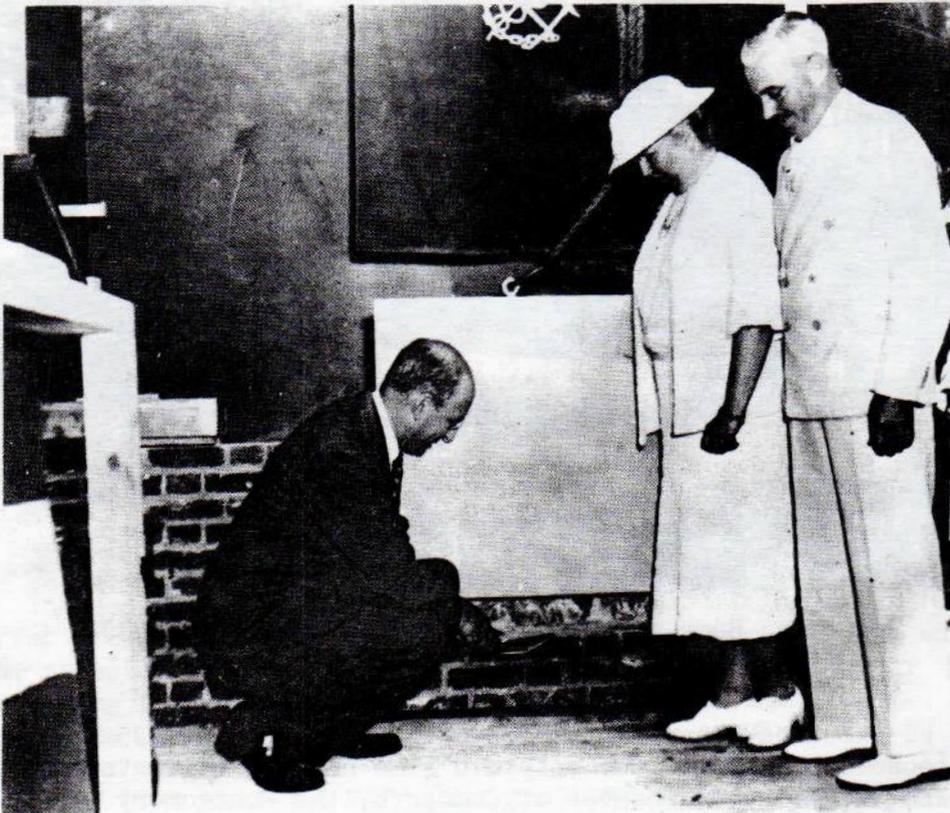


Treetops, Home of Luke and Helen Wilson, Late 1930's

As might be expected, construction of an animal farm in 1935 in this environment was sure to arouse opposition. Not only did some nearby residents and businessmen object, but also the Bethesda Chamber of Commerce, the Montgomery County Commissioners (*the* government of Montgomery County at that time), and the Maryland-National Capital Park and Planning Commission. However, the Wilsons, with the help of Dr. Thompson, decided that this was the right use for their land, and so they gave the United States Government 45 acres on August 10, 1935, for a consideration of \$10. The estimated value of the land at that time was almost \$75,000.

Just four days later, President Franklin Roosevelt signed the Social Security Act, a bill that was to have a great influence on public health because it provided \$2,000,000 per year for "investigation of disease and problems of sanitation." when President Roosevelt sent a letter to the Wilsons later thanking them for their donation, the President wrote that the "Social Security Act, which I have just signed, makes public health research an integral part of a great program looking toward the social security of the nation."

The busy Dr. Thompson and the Surgeon General of the Public Health Service, Dr. Hugh S. Cumming, had had their fingers in this pie, influencing Roosevelt to provide money for medical research. Now that he had, they conceived the idea of putting the entire NIH operation in Bethesda, not just the single animal building. When Roosevelt's friend Dr. Thomas Parran was appointed the new Surgeon General in 1936, he concurred and immediately moved the NIH building program ahead of all other Public Health Service construction. On January 1, 1938, Dr. Parran stood on the former Wilson land and dug the first shovelful of soil for the future home of the National Institute of Health.<sup>14</sup>



Cornerstone Ceremonies at the Administration Building,  
June 30, 1938

Shown are the Secretary of the Treasury, Henry Morgenthau, Jr.,  
Mrs. Luke I. Wilson, and Surgeon General Thomas Parran

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14. *Ibid.*

December 1938 found NIH comfortably ensconced in Bethesda in three dignified Georgian-style buildings situated around a neat grass quadrangle. Building 1 was the Administration Building and still serves as that today. Building 2 was the Industrial Hygiene Laboratory, and Building 3 was the animal farm for which the Wilson land had originally been accepted. Buildings 4 and 5 had also been authorized and were under construction.

Dr. Thompson was appointed Director of NIH on February 1, 1937, by Surgeon General Parran. These two men, helped by their close association with President Roosevelt and members of Congress, were the driving force that brought NIH to Montgomery County and then expanded its work and its physical presence in the County. They were determined to make NIH into a major medical research center, respected around the world.

Just before NIH moved to Bethesda, the nation had become concerned about the prevalence of cancer. A bill establishing the National Cancer Institute and providing money for research was introduced into both Houses of Congress. Although Dr. Thompson, under the direction of Surgeon General Parran, had actually written the bill, the Senate copy of the bill listed as co-authors every one of the 96 senators, the first time such sponsorship had ever occurred. The Cancer Bill was unanimously passed by both Houses on July 23, 1937.

The Wilsons, who continued to live at Treetops, became very interested in the scientific work of NIH. Unfortunately, Luke was to have much closer ties to that work than anyone would have wished. Early in 1937, it was discovered that he had cancer, and he died on July 19, just three days before the Cancer Bill was passed. Now, with a personal, tragic interest in furthering cancer research, Helen and her son, Luke W., immediately offered NIH an additional 10 acres as a site for the Cancer Institute. Building 6 was completed in September 1939.

Helen Wilson later donated almost all of her remaining land and the large home, Treetops, to NIH. She moved into a guest house known as "The Lodge." Once she was established there, it became her new Treetops.

The National Institute of Health continued to grow at a nominal pace, adding personnel and buildings until World War II demanded a specialized, accelerated program of scientific research in all available facilities in the country. Of the basic research at NIH, only the most important, such as cancer, continued. Everything else was work necessitated by the war. Even the Surgeon General's quarters in Washington were affected. They were taken over for military use, and Surgeon General Parran ran the headquarters of the Public Health Service out of a temporary building on the grounds of NIH.

Before the United States entered the war, it was learned that British pilots were dying when they climbed too fast in their airplanes. Experiments were done at NIH with sheep in an airtight metal altitude chamber in which atmospheric and temperature changes could be simulated. The result was an oxygen-supply apparatus for high-altitude flying. NIH scientists also tested heated and unheated clothing. They tried to create synthetic drugs for ones the U.S. could no longer import. Typhus and yellow fever vaccines were developed.<sup>15</sup>

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15. Furman, *op.cit.*, p. 414.

During these war years there was an explosion of new medical information in this country. Penicillin, gamma globulin, and cortisone were just a few amazing discoveries. Most of this wartime research had been accomplished in laboratories other than NIH under the Office of Scientific Research and Development. When the war ended, this office closed down. The funds and responsibility for the remaining 250 research projects at universities, medical schools, and pharmaceutical companies were turned over to the newly established Research Grants Office at NIH. This action paved the way for future biomedical research to flourish in major universities and medical schools under the aegis of NIH. Today NIH is funding \$3.5 billion worth of projects in over 20,000 research grants around the world.

The war marked a change in the basic research conducted at the National Institute of Health. In the early years, the scientists studied infectious and parasitic diseases, biologicals control, and nutrition. They attacked yellow fever, cholera, small pox, measles, and tuberculosis, among other diseases. They proved the need for pasteurization and proper sanitation. They developed serum and vaccine therapies.

Now, after achieving some success in these areas, NIH was able to enlarge its scope to include fundamental medical research on major chronic diseases, such as cancer, heart trouble, stroke, arthritis, and mental illness. A watershed year was 1948, when four new Institutes were created to work on heart problems, dental research, microbiological studies, and experimental biology and medicine. Construction was begun on the Clinical Center, a 516-bed hospital where new research findings could immediately be tested on patients. This was also the year when the National Institute of Health (singular) officially became the National Institutes of Health (plural).

This mushrooming growth demanded physical expansion. It was lucky for NIH that the areas south and west of its campus had not yet been gobbled up by developers. About 200 acres were in the hands of only three owners: George Freeland Peter, the Sisters of the Visitation, and the Town and Country Golf Club.

All 200 acres had once been owned by Dr. Armistead Peter, a leading Georgetown physician, who had his summer home, "Winona," here at the turn of the century. Now, in 1949, his son, George Freeland Peter, still owned almost 48 of those acres, his share of his father's land. G. Freeland was a retired canon of the Washington Cathedral, and he and his wife, Lulie, lived in a magnificent stone mansion which they had built just south of NIH. They were not anxious to part with their property, but they agreed to sell it for just over a half-million dollars, with the stipulation that their favorite boxwood bushes would be moved to their new place at Cobham Park, Virginia.<sup>16</sup> Today their Stone House is a show place of NIH, being used for office and conference space.

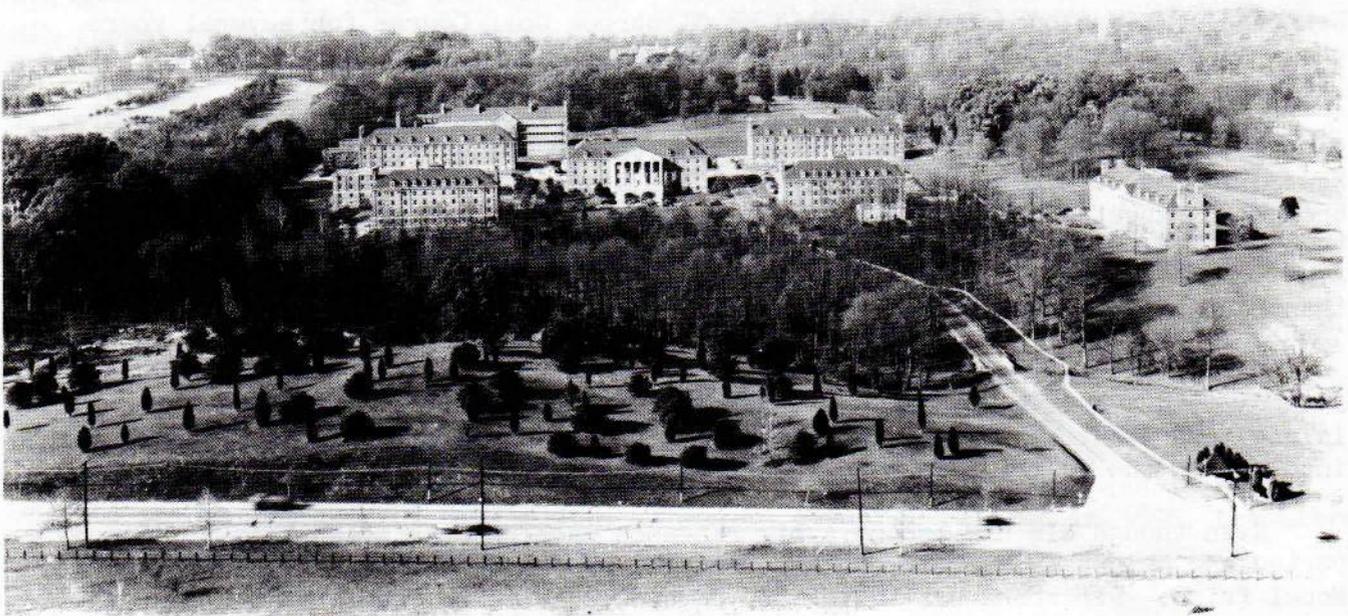
The 64 acres between NIH and Old Georgetown Road were owned by the Sisters of the Visitation, a cloistered order whose three-story brick convent was surrounded by a high wall. Their particular community was begun in 1850 in the District of Columbia by seven nuns who opened the Washington Academy of the Visitation, a Catholic grammar school. In 1876, they bought land on Connecticut Avenue and built

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16. *Ibid.*, p. 460.

a large new academy and convent. But, by 1923, enrollment was dropping, and they closed the school, sold the property, and retreated to Bethesda. (The Mayflower Hotel occupies their former space on Connecticut Avenue.)<sup>17</sup>

In 1949, when NIH wanted their land, the Sisters did not want to sell. They claimed that they could never replace their convent with one as sturdy and beautiful. So the Government allowed them to keep their convent and a few acres but took their 50-acre dairy farm by a condemnation judgment. The Sisters missed their own milk and freshly churned butter but continued their quiet lives within the cloistered walls of their convent for the next 35 years.



The National Institutes of Health in 1949  
Rockville Pike is in the foreground. The Wilson home, Treetops,  
is in the clump of trees just above the Cancer Building on the  
right. The convent of the sisters of the Visitation is in the center  
background, and part of the Town and Country Golf Course is on the left.

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17. James M. Goode, *Capital Losses, A Cultural History of Washington's Destroyed Buildings* (Washington, DC: Smithsonian Institution Press, 1979), pp. 397-398.

By 1984, there were only a dozen or so elderly and ailing nuns left in the convent. The time had come to sell their building and last bit of land to the Government. The remaining Sisters moved to other Visitation Convents in surrounding states. At the present time, NIH is enlarging the convent building in the same architectural style that the Sisters loved so much. It will be the Mary Woodard Lasker Center for Health Research and Education.

The third piece of ground which NIH coveted in 1949 was a 117-acre golf course owned by the Town and Country Golf Club, Inc. It lay south and west of Canon Peter's property. The members had moved their club from the District of Columbia in 1922 and built a nine-hole golf course and some tennis courts in the green countryside of Bethesda. Their property included the old Winona Mansion, which proved to be a spacious clubhouse, its gracious verandas serving tired golfers and relaxed card players as comfortably as they had the Armistead Peter family years ago.

In 1947, the Club expanded, adding nine more holes to the golf course, bringing it to a full 18. The members looked forward to enjoying it for many years to come. But just one year later, with NIH in the throes of expansion and looking for land, the Government threatened condemnation proceedings, forcing the club to sell. The Club moved out to Rockville, where it is now known as Woodmont Country Club, a name it officially took in 1930. The Government then owned the golf course remaining in Bethesda. It was open to the public as Glenbrook Golf Course for several years until NIH's building program forced its closure.

The postwar years exciting ones at NIH. The institution's reputation soared. By 1955, it was one of the world's most active and productive research centers. New buildings were going up every year. The atmosphere was heady, but growth brought unexpected new problems, such as what to do when a craniotomy extended beyond 5 P.M. and overtime had not been authorized for operating-room personnel. Also, proof had to be given that research beds in the Clinical Center cost more than beds in the Veterans Administration hospitals.<sup>18</sup>

By the late 1950's and the 1960's, the close relationship of Director James A. Shannon with congressmen such as Representative John Fogarty (Democrat of Rhode Island) and Senator Lister Hill (Democrat of Alabama) accelerated the flow of funds into NIH in the belief that money could buy cures. Biomedical research mushroomed.

Even though NIH had become a big research machine, the scientists still supported and helped each other, as evidenced by Dr. Marshall Nirenberg's run for the Nobel Prize. Nirenberg was racing Dr. Severo Ochoa to be the first to crack the genetic code. Dr. Ochoa, working at New York University, had a major laboratory and many assistants. At NIH, Nirenberg had made important discoveries, but he could never win the race with only the single assistant that NIH allowed him. But, when word spread through the NIH laboratories, other scientists rallied round. They put aside their own projects and provided around-the-clock help that enabled Nirenberg to win the Nobel Prize in Physiology or Medicine in 1968 for discovering the key to deciphering the genetic code.<sup>19</sup>

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18. Stetten, *op.cit.*, pp. 49-50.

19. *Ibid.*, pp. 293-295.

Sometimes very strange research yielded surprising results. In 1959, Dr. Carleton Gajdusek was carrying on very narrow research in a curious, fatal nervous disorder called kuru, which afflicted only the Stone Age Fore Tribe in the interior highlands of New Guinea. First thought to be toxic or hereditary because of its isolation, kuru proved to be caused by slow or "latent" viruses. Dr. Gajdusek's revolutionary discovery that viruses could incubate in humans for years opened up new pathways in the investigation of degeneration and aging in the nervous system. Dr. Gajdusek won the Nobel Prize in Physiology or Medicine in 1976 for his imaginative discovery concerning new ways infectious disease could originate and spread.

An interesting sidelight on Dr. Gajdusek is that he has regularly brought boys from the New Guinea area to his home and sent them to school and college at his expense, so they could later return to their homes as leaders of their people. He took several to Stockholm with him when he accepted the Prize.<sup>20</sup>

Another Nobel Prize winner at NIH was Dr. Julius Axelrod in 1970, who won the Prize in Physiology or Medicine for research into the chemistry of nerve transmission. The fourth was Dr. Christian B. Anfinsen, who won the Prize in Chemistry for his work on ribonuclease. Dr. Anfinsen's work has furthered the understanding of normal life processes and inherited metabolic diseases. Besides the four intramural NIH Nobel Laureates, more than 90 other Laureates were supported in their work by NIH funds.

In 1962, the prestigious National Library of Medicine moved to NIH, a most fitting addition to the scholarly environment of the Institutes. The Library began as a shelf of books in the office of the first Surgeon General of the Army, Dr. Joseph Lovell. Although Dr. Lovell had kept up with current medical publications all of his previous 17 years in office, 1836 was the first year he included them in his budget: "Books for Office - \$150." The Library of the Surgeon General's Office was born. Its 150th birthday was celebrated in 1986.

In 1865, a multitalented and energetic Civil War surgeon, Dr. John Shaw Billings, was put in charge of the Surgeon General's Library. Dr. Billings had many other medical responsibilities and could devote only a fraction of his time to the Library. Yet, over the next 30 years, operating on a shoestring budget, he built that Library into a comprehensive collection of major medical books and journals, open to the entire medical profession. When Dr. Billings retired in 1895, the Library of the Surgeon General's Office was considered the third best medical library in the world.

The Library had moved out of the Surgeon General's office and into Ford's Theater after Lincoln's assassination. It shared the theater with the Army Medical Museum, also Dr. Billings' responsibility. When still more space was needed in 1887, a large, red brick building was put up on the Mall to house both institutions. (It was torn down in 1968 to make room for the Hirshhorn Museum and Sculpture Garden.)

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20. *Ibid.*, pp. 55-56.

The Library became the Army Medical Library in 1922 and the Armed Forces Medical Library in 1952. In 1956, legislation sponsored by Senators Lister Hill and John F. Kennedy renamed it the National Library of Medicine and transferred it from the Defense Department to the Department of Health, Education, and Welfare. Its home at NIH is an airy, modern building overlooking the green swells that used to be the Town and Country Club golf course. The building sits where the ancient mansion Winona sheltered the Peter family so long ago.

In 1980, the dramatic, tall Lister Hill Center of Biomedical Communications rose to the south of the main library building. Work is done here on the uses of computer and communications technology in the health-care field and in the collection and distribution of biomedical data. It is named for Senator Lister Hill whose father, Dr. Luther Leonidas Hill, was the first surgeon in the United States to operate on the human heart. In his youth, Dr. Hill had studied under the famous Dr. Joseph Lister and was so impressed by him that he named a son Lister Hill. Undoubtedly influenced by his name and background, Senator Lister Hill was tireless in sponsoring legislation to provide money to enlarge NIH and to build the Library of Medicine and many other medical facilities.

Today the National Library of Medicine contains over three and a half million books, journals, and other documents. Its fine collection of historical medical texts and manuscripts includes a 1094 Arabic manuscript on gastroin-testinal disease. There are seven regional medical libraries, and computers provide easy access to what is now the largest medical research library in the world.

In the 1970's, the growth of NIH slowed, but the war against cancer intensified, with increased support coming from both Congress and President Richard Nixon. Although complete victory has not been achieved, many breakthroughs have resulted from those years.

Today there are twelve Institutes and eight other Divisions in the National Institutes of Health; they are:

National Cancer Institute

National Eye Institute

National Heart, Lung, and Blood Institute

National Institute of Allergy and Infectious Diseases

National Institute of Arthritis and Musculoskeletal and Skin Diseases

National Institute of Child Health and Human Development

National Institute of Dental Research

National Institute of Diabetes and Digestive and Kidney Diseases

National Institute of Environmental Health Sciences

National Institute of Neurological and Communicative Disorders and Stroke

National Institute on Aging

John E. Fogarty International Center for Advanced Study in the  
Health Sciences

Division of Computer Research and Technology

Warren Grant Magnuson Clinical Center

Division of Research Grants

Division of Research Resources

Division of Research Services

National Library of Medicine

National Center for Nursing Research

In the last century, personnel at NIH has risen from one to almost 15,000, of whom over 3000 are scientists. The budget has gone from \$300 to over \$5 billion. There are now over 40 buildings on the Bethesda campus. Field stations range as far as Guam and Puerto Rico, and NIH grants go around the world. There is no question that the National Institutes of Health have the largest biomedical research program in the world and that their distinguished scientists will continue to expand the frontiers of knowledge for the benefit of all mankind.

#### ACKNOWLEDGEMENTS

Basic source documents for this Story were the 1986 *NIH Almanac*, published by the U.S. Department of Health and Human Services in 1986, and *A History of the National Library of Medicine, The Nation's Treasury of Medical Knowledge*, written by Wyndham D. Miles and published by the U.S. Department of Health and Human Services in 1982.

Special thanks are due those who provided valuable information: Mrs. Luke W. Wilson; Rita Millay; Sister Margaret Mary Fox of Georgetown Visitation Convent; H. Conway Hunt; Michael Dwyer of the Maryland-National Capital Park and Planning Commission; and Victoria Hardin, Edward Driscoll, Donald Ralbovsky, Mark Stern, Susan Gerhold, and personnel of the Centennial Office of the National Institutes of Health.