

War and the Mosquito

Since ancient times, war has meant malaria, and World War II was no exception. During that struggle, however, marked progress was made against the ancient foe. December 7, 1941, a day President Roosevelt said would “live in infamy,” marked the beginning of a new assault on a disease that for centuries had plagued armies the world over. Harry Pratt, an entomologist with the U.S. Public Health Service, knew this instinctively. When he learned of the Japanese attack on Pearl Harbor after a lazy Sunday on the beach, Pratt knew that his south Florida unit would no longer chase the aedes mosquito, vector of dengue and yellow fever. Their new target surely would be the anopheline mosquito, vector of malaria.

The sudden entry into World War II of the United States affected the course of public health, just as it did every national concern. “The MCWA was born that day,” Pratt recalled, using an acronym that stood for Malaria Control in War Areas, a government agency created just two months later.¹ Pratt spent the war years at MCWA and the rest of his career at its successor institution, the CDC. In a formal sense, the letters stood for different names over the years, but they were always symbolic of a new and systematic attack on the plagues of the world, ancient and modern.

America’s most recent experience with war offered proof enough of the devastation of malaria. Extraordinary measures were taken in World War I to protect both troops and the public from the disease. The U.S. Army vigorously pursued mosquitoes at its southern camps in 1917 and 1918, and the Public Health Service took up the pursuit in forty-three areas around these camps and stations. But in spite of their

best efforts and a combined expenditure of more than \$5 million, malaria was a problem throughout the war, and more than 10,500 cases were reported. Yet some important lessons were learned: mosquito control was too expensive to be financed locally; the states and the counties played a vital role, but the federal government had to be involved, too.²

The early months of World War II focused attention once more on the importance of tropical diseases in wartime, especially malaria. The anopheles mosquito was a worse threat than the Japanese in the Pacific and threatened troops training in the South, which had always been plagued by malaria. "Autumnal fever" discouraged settlement of the region during the colonial period, and during the Civil War, malaria was the major cause of illness in both northern and southern troops. During World War I, the South was the focus of the nation's attack on malaria.

In 1942, there was every reason to believe that malaria posed a threat to the nation's security. The task of fighting it was at once easier and more difficult than in World War I. Advances in technology facilitated the pursuit, but exacted a price of their own. During World War I, it was enough to eliminate mosquitoes from a military base and the surrounding zone over a radius of about one mile, the distance an anopheles mosquito could fly or that persons ordinarily walked. In World War II, the universality of automobiles expanded that radius to thirty miles, a 900-fold increase.³

Dr. Louis L. Williams, the Public Health Service's chief expert on malaria, was put in charge of the fight against the disease in the South. A year before the United States entered the war, he was assigned to a liaison detail with the Fourth Corps Headquarters in Atlanta to work with the state health departments, the Army, and the Public Health Service on malaria-control projects on or near military bases. It was Williams's task to keep malaria from spreading to the armed forces from its reservoir in the civilian population. He brought a great deal of experience to the job. He had fought malaria since World War I, his most recent assignment being as director of the Malaria Commission on the China-Burma highway. Colleagues remembered him as a "rare individual of great spirit, professional ability and administrative competence."⁴

In 1941, the incidence of malaria was the lowest since registration had been established in 1910, but the disease was known to occur in five- to seven-year cycles, and the last upswing had been in the mid

1930s. During that decade, the federal government made a massive effort to bring the disease under control. The Works Progress Administration set workers to digging thousands of miles of ditches to drain malaria-breeding sites. In Georgia, where malaria was a particularly difficult problem, two businessmen who later played an important role in making Atlanta an important center for disease prevention also joined in the fight. Preston Arkwright, president of the Georgia Power Company, was concerned about malaria wherever a stream was dammed and a lake created for the production of electric power. In those areas, Dr. Glenville Giddings, Arkwright's son-in-law and a prominent Atlanta physician, organized teams to survey both the mosquito and the human population.⁵

Giddings was the medical advisor of the Coca-Cola Company, whose board chairman, Robert Woodruff, became interested in malaria when he found the disease widespread at Ichuaway Plantation, his hunting preserve in Baker County, Georgia. Woodruff consulted the county health officer, sent enough quinine to treat everyone in the county, and hired two nurses to distribute it. He also made a grant to Emory University to establish a station at Ichuaway to study malaria. It had been in operation for two years when the United States entered World War II.⁶

Dr. Joseph W. Mountin, who directed the PHS's State Services division, had a plan for the emergency. He wanted a national organization to keep the more than 600 military bases and essential war-industrial establishments in the South malaria-free. Teams of physicians, entomologists, and engineers would work together to safeguard "the health of our soldiers, sailors, and workers in defense industries—those who are being trained to do the shooting and those who are providing the guns and materials with which to shoot."⁷

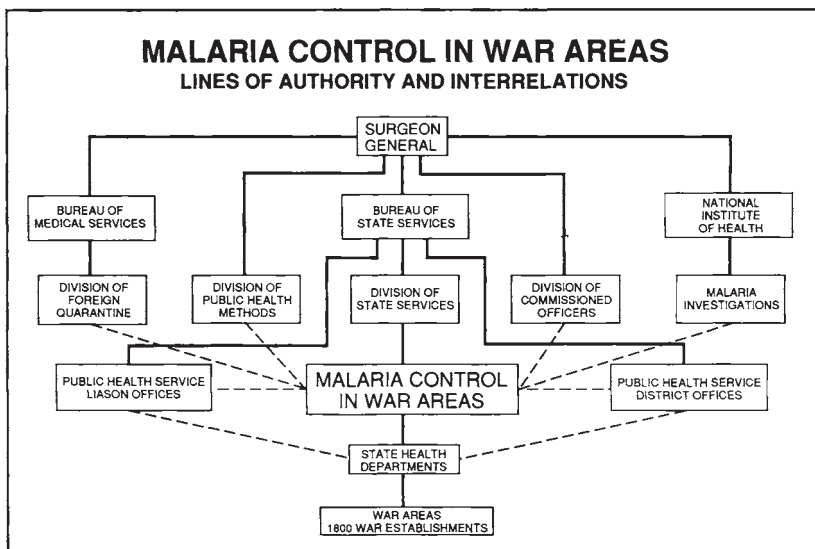
Dr. Williams was relieved of his military duties on February 9, 1942, and told to stand by in Atlanta, ready to establish headquarters for malaria control. The next day Surgeon General Thomas Parran sent a circular letter to all public and state health officials charged with protecting the health of the military. The letter, number seven of a series, referred to a new organization, "National Defense Malaria Control Activities," although the name shortly became "Malaria Control in Defense Areas." A couple of months later, to better conform with the actual facts of the situation, the name was changed to "Malaria Control in War Areas." Circular letter number eight, dated April 27, 1942, made the new name official.⁸

As the man in charge of MCWA, Dr. Williams looked for a suitable headquarters site. Shortage of office space in Washington preempted that possibility. He considered Memphis, then sites in Texas and California to be closer to the war in the Pacific. It was Surgeon General Parran who finally decided that the headquarters would be in Atlanta. Mark Hollis, a PHS engineer from Georgia whom Williams took with him as his executive officer, immediately boasted of victory. "You're a Virginian," Hollis said to Williams. "Let this be the first time Georgia ever got anything over Virginia." It was Hollis who selected space for the agency in Atlanta.⁹

The first offices were modest, just three or four rooms and a bay on the sixth floor of the Volunteer Building on Peachtree Street, but it was enough for the small, sophisticated staff. Although the PHS provided most of the leadership, people were recruited from academe, other federal agencies, and wherever expertise about malaria existed. This expertise was in short supply. All the malaria specialists were snapped up by the Army, Navy, and the PHS in a few weeks in 1940. Thereafter, most of those recruited had to be trained, first at the National Institute of Health, and beginning in 1942, at MCWA. Fewer than 10 percent of the commissioned officers in the Atlanta organization came with any specialized training in malaria control. They learned fast, however, and with no rigid lines of responsibility and no turf to maintain, these outsiders contributed much to MCWA's ability to wage war on malaria. They were a key factor in building the reputation and efficiency of the organization, the first large operational program dealing with domestic health that the Public Health Service had ever undertaken.¹⁰

From the beginning, engineers and entomologists dominated MCWA. Physicians assessed malaria cases in the field, and parasitologists ran the laboratory, but major emphasis was always on mosquito control, the engineers' specialty. They determined control methods, directed operations, surveyed and designed drainage construction projects, and mapped field activities. Entomologists, first commissioned in large numbers in 1943, provided the necessary expertise on mosquitoes. The wartime need to save time, money, and equipment dictated that temporary measures like larvicidal control take preference over permanent drainage projects.

Innovation was encouraged, especially in the development of equipment. MCWA took over the Henry Rose Carter Laboratory in Savannah, previously owned and operated by that city for malaria control, and began to develop new equipment, materials, and procedures for killing mosquitoes. There were only four or five people in this small lab,



Malaria Control in War Areas (its place in the PHS), 1942–46

but Dr. Samuel W. (Sib) Simmons, who became the lab director in 1944, remembers them as “the finest staff you could ever get. They were handpicked and you could do things then.” Simmons loved his work. He got there early, stayed late, and hated to take even Sunday off.¹¹

The MCWA staff worked six-day weeks in Atlanta, too. Dr. Mountin’s philosophy was that “there was so much work to be done that we could not possibly move fast enough.” Initially MCWA’s assignment was to control malaria in fifteen southeastern states, Puerto Rico, and the Virgin Islands. The staff was to get rid of the anopheles in areas immediately adjacent to places of military importance: camps, bases, depots, shipyards, factories producing war materials, housing developments where war workers lived, recreational areas for troops, and access highways. In 1942 there were 900 of these “war establishments” to be protected. By 1945 there were approximately 2,000, and MCWA’s work had spread westward to California.

These “war establishments” were divided into 250 “war areas,” each directed by a supervisor, usually an engineer. An administrator was assigned to each state, and the states, in turn, were responsible for direct operations. The extent to which malaria was a problem could not always be determined. A shortage of medical epidemiologists and the constraints of time prevented the use of conventional methods of measuring malaria prevalence. Eventually, the MCWA staff decided that the

presence of anopheles posed a potential hazard even though there were no malaria cases in an area. Malaria control came to mean mosquito control. Vectors should become so scarce that the chance of their transmitting malaria became infinitesimal.¹²

Killing mosquitoes was a labor-intensive task. The WPA provided much of the work force until December 1942, when President Roosevelt ended that program, but malaria control was so important that 3,000 men continued on the job, paid for with other federal funds. They dug 1,274 miles of ditches the first year, using 448,000 pounds of dynamite to speed the job. Still the major emphasis was on larviciding. They used 152,000 pounds of Paris green, a bright green insecticide made from arsenic trioxide and copper acetate, but diesel oil quickly became the larvicide of choice. While Paris green killed only anopheline larvae, diesel oil killed the larvae and pupae of both culicine and anopheline mosquitoes. Oil was readily visible on the water, so its application could be checked. Most of the work was done by men using knapsack and compressed-air sprayers, but large power units on trucks and boats were quickly introduced. In the dense water chestnut-infested areas along the Potomac River, power dusting from airplanes was first used in August 1942. The experiment was so successful that within a year four airplane dusting projects were in operation.¹³

In Puerto Rico, where the principal vector is the *Anopheles albimanus*, the control problem was more complex. This mosquito breeds anywhere there is water—even in hoof prints and car tracks—and transmits malaria year round. It has a flight range of up to three miles, greatly increasing the size of areas to be controlled, some of which were so inaccessible they could be reached only by ox cart. Paris green was used almost exclusively because it would have required the full time use of a tanker to take enough oil to the island. Even so, there were problems of delivery. When German submarines sank cargoes of MCWA's equipment and chemicals, Harry Pratt was certain it was to counter MCWA's efforts in Puerto Rico.¹⁴

Malaria control also involved education on many levels. Few of the nation's medical schools were then equipped for laboratory study of parasitological diseases, and malaria materials in particular were in short supply. To meet this need quickly, MCWA sent personnel and supplies to the Malaria Investigations Laboratory in Columbia, South Carolina, an adjunct of the National Institute of Health, to make thousands of malaria plasmodium slides for distribution to medical schools.¹⁵

Not all of MCWA's battles were against the mosquito. As a new-

comer, MCWA challenged other segments of the public health hierarchy, not the least of which were the existing district offices of PHS, each of which expected to do malaria-control work. There were seven or eight of these in the South, and Williams thought this was too much division of authority. As it happened, his brother, Dr. Charles L. Williams, was head of one of the most important of these, the office in New Orleans, so Williams and Hollis decided to appeal to him. Bess Furman, historian of PHS, recounts what happened:

I had Charles and his staff come over and talk with Mark and me. We came to no conclusion. The next week, Mark and I went to New Orleans and called on Charles. There came a point in our discussion when I said to him, "Visualize your office running this colossal job." He mulled that over—and at last answered:

"You know, if we take over a job of this size, this office will be a little tail with a big malaria dog wagging it—and when this war is over all we do here will be forgotten and we will have to grow into an office again."

The District officers expected a fight when they soon met in Washington with Surgeon General Parran. Charles was called upon to open the discussion. He said to them just what he said to me. That ended the meeting.¹⁶

Other problems were more difficult. A staff of nearly 4,000 people, ranging from unskilled labor to professional specialists, had to be recruited and trained, a task complicated by draft quotas and high-paying industrial jobs. The first year there was a 60 percent turnover. To keep the operation from shutting down, MCWA began in-service training, making much use of audiovisual materials. This educational program would have great impact in years to come.

The lack of transportation posed the most serious threat to MCWA's efficiency. It had 400 bicycles in use the first year, but two-wheeled transportation was hardly the answer. MCWA needed trucks, and permission to buy them was nearly impossible to obtain. Appropriations acts prohibited the purchase of new or used passenger-carrying vehicles without special authorization. There was no prohibition, however, against interdepartmental transfer of vehicles on a reimbursable basis, if only they could be found.

The problem was solved serendipitously. On a trip to Washington in 1942, Executive Officer Mark Hollis was having lunch at the Naval Air Station when he overheard a conversation about the availability of 200 surplus trucks, 60 percent paid for, at Camp Blanding, Florida. Seeing an opportunity to solve MCWA's transportation problem, Hollis called Mountin, and together they went to see the surgeon general. Parran wanted to follow the book and go through the War Department, but

Hollis persuaded him that the direct approach was better. Mountin told him to get two dozen trucks; Parran told him to get as many as he could.

Hollis went immediately to Florida and soon was in touch with the engineer at Camp Blanding, who happened to be an alumnus of Georgia Tech. He and Hollis, who was a graduate of the University of Georgia, swapped Georgia–Georgia Tech stories for a while and soon reached an agreement on the trucks. There were 250 of them, and the engineer promised to go through, mark the ones Hollis was not to take with an X, and instruct the civilian in charge to let him have the rest. When Hollis arrived at the site, he noted happily that the Xs were there; all he had to do was get the unmarked vehicles off the property that day. A parade of state troopers, many of them off duty, came to help. In a few hours they moved off 123 trucks.

Mountin was astounded when he heard the news and wondered how MCWA would pay for them, but Parran had said to get all he could, and Hollis had simply done his bidding. “It saved us,” he later recalled with pride.

A shortage of equipment posed another major problem. MCWA needed tools and shovels. Again Hollis came to the rescue. He had a colleague in Washington who at one time had been with the WPA. Through him he learned that the WPA was unloading its warehouses all over the country. Many government agencies were using the list to order specific items, but Hollis found this process too slow. Why not take a whole warehouse, which was certain to contain thousands of shovels and hand tools? Mountin agreed, and it was done. MCWA thus got its shovels and tools, as well as bonuses like air compressors. With the trucks it already had, MCWA was in business within ten months.¹⁷

The rather unorthodox way in which MCWA got its trucks and shovels was symbolic of the degree of freedom that existed in the organization. The geographic scope of its operations and the urgency of its mission set MCWA apart from the rest of the PHS. Officials in Washington at the Bureau and Division levels recognized that the Atlanta institution had to have a degree of autonomy and freedom. The immediate result was to eliminate much governmental red tape. This doubtless played a part in the notable esprit that marked the organization from the start. All the emphasis was on getting the job done. Mountin was MCWA’s “defense line” in Washington and protected the staff when they did not follow the book.¹⁸ Sib Simmons, who had a long and distinguished career in public health, remembers the freedom of those days during the war, when the “red tape” people were all in the

Army. If Simmons wanted something, he bought it on the market. (Once he found pontoons for a plane on Long Island. “Ship them today,” he said. “I’ll send you an order.”) But as soon as the war was over, Simmons complained, the offices filled up with clerks, and things bogged down.¹⁹ MCWA’s distance from Washington—both geographic and administrative—born of wartime necessity, was a legacy long cherished by its much larger successor.

MCWA was but a few months old when the scope of its activities was expanded to include control of the *Aedes aegypti* mosquito, vector of yellow fever and dengue. Although there had been no cases of yellow fever in the United States since 1905, the fear that it might be imported through international air travel was very real, and the nation could expect an epidemic of dengue or “breakbone” fever about once a decade. Before the war, many cities in South America had eradicated *A. aegypti*, and, to protect its investment, Bolivia proposed to the Pan American Sanitary Conference in 1942 that the eradication program be extended to all the Americas.

The United States had to cooperate, at least to the extent of controlling the mosquito, not only to protect the nation’s health, but to ensure that South American countries would not quarantine aircraft arriving from infested U.S. cities. The effort to control this most domesticated of mosquitoes was primarily one of education: teaching the public to eliminate the mosquitoes’ breeding places around their own homes, like tin cans and old tires. It also involved spraying airplanes on intercontinental flights.²⁰

It was Mountin who asked Hollis one day what MCWA would do if dengue broke out in the Pacific:

I said, “I haven’t thought of it.”

He said, “You damn well better think of it! I don’t want to know how you do it, or what you do, but do it. Be ready.”

We began to set up some mobile teams. Well, we had a little dengue outbreak at the Key West Base, and . . . had just gotten it done when the Hawaiian epidemic broke. In a matter of 48 hours we had crews, equipment on army transports being flown to Hawaii. . . . We put [Wesley] Gilbertson in charge, gave him a field promotion because . . . the military detachment would be under a captain. He got the job done.

Mountin never took credit for success of the Hawaiian campaign. He answered all queries, “Well, we’ve got a good team down there.”²¹

The 1943 appearance of dengue fever in Hawaii after an absence of thirty years underscored the danger of imported diseases in wartime, so MCWA redoubled its efforts. Working with scientists from the

National Institute of Health, MCWA learned that foreign malarials adapted readily to native anopheline vectors. To keep the situation under control, it extended its control measures from areas adjacent to strategic installations to any place malaria was endemic. It organized mobile units consisting of an entomologist and an engineer with a truck full of supplies and equipment; they roamed the countryside looking for danger.²²

Just as MCWA expanded its concerns to protection of the civilian population, Louis Williams was ordered to Algeria to prepare for the invasion of Italy. There he renewed his friendship with Dr. Justin Andrews, the Army's chief malariologist and architect of the highly successful anti-malaria programs in Georgia in the 1930s. Andrews spent the war years traveling from one theater of war to the other devising plans of malaria control. In North Africa, Andrews and Williams sat under a palm tree one day and talked about the future. When the war was over, they decided, MCWA should be converted into a permanent agency dedicated to the control of communicable diseases, with headquarters in Atlanta. Andrews had lived in the city and he had close ties to people at Emory University. The combination of talent at Emory and MCWA, they believed, would provide a good foundation for a new kind of health institution.²³

Williams did not play a major role in bringing these dreams to life. A heart attack kept him from returning to his duties in Atlanta. His older brother, Charles, assumed the responsibility of serving as MCWA director for about six months, but on the first day of the new year, January 1, 1944, Mark Hollis, the procurement genius who had finessed MCWA's acquisition of so many trucks and shovels, became MCWA's director.

Within a few months, MCWA's direction changed entirely. It was not Hollis but the coming of the miracle insecticide DDT in 1943 that was responsible for the shift. DDT (shorthand for dichloro-diphenyl-trichloro-ethane) was surely one of the things Williams and Andrews discussed under the North African palm. Andrews had just heard about it and could hardly believe the incredible stories. The British touted its ability to kill mosquitoes at any stage of the life cycle and to inhibit their reproduction for long periods of time. This seemed too fantastic to be true, and Andrews had his doubts until he tested DDT himself. He used it with great success in barracks and tents as a residual spray, and in Algiers and Naples he used it as a dusting powder to avert a possibly devastating epidemic of typhus (like malaria, a nemesis of war).

Williams became a DDT enthusiast. He believed that if you put DDT on young migratory birds, they would spread the chemical when they stopped at lakes and marshes on their way South.

DDT totally changed the approach to malaria control. From killing mosquito larvae or draining the areas where they bred, the emphasis shifted to residual spraying. It was to test residual-spray formulas and design equipment to apply it that Sib Simmons was recruited to head the Carter Laboratory in Savannah. If mosquitoes could be killed over a period of several months by spraying the walls and ceilings of houses, the attack could be narrowed to a very small segment of the mosquito population.²⁴

Early reports were encouraging. At the end of three months, the Carter Laboratory reported that DDT worked. A house could be kept virtually free of mosquitoes for ten weeks or more at a cost of about \$2.25. There were problems, however. Two of the solvents used, kerosene and pine oil, smelled bad, and kerosene was a fire hazard. A third solvent, Triton-Xylene, was more effective but was very irritating to the operator. The report noted briefly that DDT was an effective, cheap larvicide costing only one-fifth as much per acre as fuel oil. It was not until much later that it became obvious that there was more than one way to measure cost.²⁵

DDT made possible MCWA's most dramatic project, the national malaria-control program that Louis Williams proposed and Congress funded in 1945. State and local health agencies actively participated in this program, designed to protect the general civilian population from returning military carriers of the disease. The first year, sixty-eight counties in nine states participated, and 600,000 homes were sprayed. In the second, there were more than a million.

Residual spraying with DDT was an entirely new approach to malaria control for civilians, one complicated by shortages of transportation, equipment, and trained personnel. District and state supervisory personnel went to Savannah for instruction and, in the tradition of each-one-teach-one, passed along what they had learned. Within two months, 1,200 men were in the field. Word of the magical properties of DDT preceded them. Most people were eager to have their homes sprayed; DDT fought off anything—flies, mosquitoes, bedbugs, fleas, cockroaches. When the program began, the incidence of malaria was at its lowest point in history, so it was difficult to measure the impact of extended malaria control, but those working in the program believed it to be significant.²⁶

Two months after the program began, Mountin met with the staff in Atlanta. He listened as they reported on the popularity of DDT. It was so popular, in fact, that state and local health departments were pressured to the point of embarrassment. MCWA depended on the states to select the areas for control, and some awkward situations arose. Mountin issued a timely warning: unless the states were pinned down on their criteria for selecting counties to participate, MCWA would find itself guarding against gnats and cockroaches.

The extended malaria-control program provided MCWA with more money than it had equipment to do the job. Hollis hated to return the money, so he proposed that MCWA furnish the DDT, the chemicals to mix it with, and half the labor if localities would furnish trucks, spraying equipment, and supervision. While the work would not be done as well, it would educate people about DDT, control mosquitoes (and, indirectly, malaria), and buy a lot of goodwill.

Again Mountin issued a warning, reminding Hollis that MCWA had to satisfy Congress, and that Congress hated arbitrary judgment. Whenever demand for a program exceeded the supply, Congress demanded criteria that could be spelled out. Distribute the money among the states, Mountin advised, but have a good reason for it.²⁷

Not long after DDT became an important part of insect control, Hollis had a telephone call from Surgeon General Parran. The Public Health Service had been given the responsibility for controlling murine typhus fever at all airfields, and Parran wanted MCWA to handle it. It was a logical expansion of MCWA's activities, and Parran believed that malaria and typhus could be eliminated at once. Hollis had experience in murine typhus control, and he knew a good bit about rats. He knew, for example, that they followed runs, like the coons he had trapped as a boy. From his work in the 1931 typhus epidemic in Dothan, Alabama, he had learned that fleas hitchhike along the runs, jumping from one rat to another. It was only when the flea could not find a rodent that it finally bit a human. He decided that the best approach was to forget the rat and concentrate on the fleas. So MCWA concentrated on rat runs, dusting them with DDT. Typhus miraculously disappeared; Hollis thought it was fantastic.²⁸

Operating out of a field station in Thomasville, Georgia, MCWA moved cautiously into a broader typhus-control program, combining it with the spraying of houses for mosquitoes. While Congress approved its efforts, the Bureau of the Budget did not, so MCWA operated in a gray area. Mountin talked about it at the same staff meeting in which

he had warned that malaria control could get out of hand and become a campaign against cockroaches. He estimated the cost of the DDT typhus-control program at between \$600,000 and \$700,000, but the Bureau of Budget refused to approve it on the grounds that the program would be operating in advance of knowledge. When the subject came up at a congressional committee hearing, however, several congressmen thought the malaria and typhus programs were complementary, and urged that work begin at once. Mountin thought they should wait at least until the congressional committee reported. "If it is acted on favorably by the House," Mountin told the MCWA staff, "perhaps next week we can reconcile our position with the Budget Bureau, be willing to be spanked and told not to do it again." Meanwhile, he suggested that they start using some of the malaria money and go to work. "We should study with a vengeance," he said. "We will have to cast out in many directions using a variety of techniques and improve our knowledge very quickly. . . . it is a matter of conscience and . . . I am sure the [Bureau of the] Budget and Congress will be quite insistent on that score."²⁹

The House did approve an appropriation for the typhus-control program, and Mountin was ready to recommend that the PHS typhus control unit be moved to MCWA. It meant a transfer of equipment, supplies, and personnel, everything except the chief, Dr. C. R. Eskey, and his administrative staff. Still nothing official came from the Bureau of the Budget, and until it did, the impending transfer was to be kept secret. Within a week, however, it was old news that MCWA had taken over typhus control. George Tremmell, MCWA's administrative officer, announced that the typhus control unit had scooped MCWA on the news. Nearly all the men in the unit knew they were moving to Atlanta.³⁰

At the time MCWA took over typhus work, it also moved into the control of other tropical diseases. This was another gray area insofar as the budget was concerned, and Hollis was not convinced that the agency had anything remotely resembling budget clearance for it. All he could get out of Washington was very vague: "We are taking over a program that was started down here anyway." It was a curious state of affairs, stemming from a 1944 resolution of the American Society of Tropical Medicine. With U.S. troops serving in tropical regions, the danger that tropical parasitic diseases would be introduced into the United States was very real. Because most American physicians knew little or nothing about many of these diseases, the society recommended

that the Public Health Service develop a program to deal with the problem. Louis Williams, recovering from his heart attack, was assigned this task. An aide, Dr. Paul Weinstein, relieved him of as many duties as possible.

The most immediate concern was to improve the diagnostic capabilities of the nation's laboratories so that tropical diseases seldom seen in the United States would be recognized. At first, the plan was to train returning veterans at university centers, but this scheme was so impractical it was soon abandoned. Weinstein visited several of these centers, from Harvard to the University of California, and found that the pressures of war made the addition of new duties impossible. He approached the National Institute of Health, but it was too oriented toward basic research to take over such an "operational" program. Williams then suggested that MCWA could do the job. It already had a training program in place for its malaria-control workers, and this could be expanded. MCWA was willing, and a tropical diseases education program began. Instead of limiting the program to veterans, however, laboratory directors and technicians already employed by state and local health departments were to be trained.³¹

Weinstein moved to Atlanta to set up the program, and just a month before V-J Day, Dr. Marion Brooke, a member of the faculty of the University of Tennessee Medical School, became program director. By then MCWA had spread into several Atlanta buildings. Brooke's lab was set up in the old Baptist Bookstore at the corner of Baker and Peachtree Streets, where laboratory scientists shared the space with artists and physicians, all of whom were part of the training program. Also in the building were Harry Pratt's insect museum and, in the basement, in a room that must have been a vault at one time, the first library. It consisted of a few bookshelves and a modest selection of books and journals.

Brooke had reservations about moving to Atlanta, even though he was offered a commission in the Public Health Service as senior assistant sanitarian. Only when the Emory University Medical School promised him a job if he did not like it at MCWA did he decide the move was worthwhile. He never regretted the decision. Like the other officers in the commissioned corps who constituted a majority in the Atlanta offices, he proudly wore his uniform to work every day.³²

All those uniforms awed young Mae Melvin, who joined the staff that summer, a newly minted master's degree in parasitology in hand. She was hired by Weinstein, and the two of them, with Brooke, who

arrived shortly, had a “frenzied” time of it setting up the lab and getting ready for the first course.

The new training program amplified work already under way. Dr. Trawick Stubbs, a physician at MCWA, whom Brooke recalls as “a real thinker” and the nearest thing MCWA had to an epidemiologist, had already begun to send out stained slides to state health offices for study. It seemed quite logical to bring laboratory workers from these same offices to Atlanta for formal training.

The first course was held in October 1945. The class was to begin on Monday, and the microscopes did not arrive until Friday. Over the weekend, the microscopes had to be unpacked and assembled, and the last one was barely in place by Monday morning. Twenty-four students from nineteen states and British Columbia attended the six-week course, which had a favorable student-teacher ratio of about four to one. The course was so successful it became a legacy to the permanent agency that replaced MCWA and was repeated over and over again.³³

Another legacy to the new institution was a ready response to calls for help from the states. The first of these came from Alabama, where there was an outbreak of amoebic dysentery in a mental institution. Brooke joined experts from the National Institute of Health, which had a long history of investigating epidemics, on the investigatory team. They found the source of the problem and recommended a solution. In later years when these kinds of investigations were inseparably linked to the epidemiology branch of CDC, old-timers from MCWA would remind the epidemiologists that these services began in the laboratory. It was obvious that the work of the laboratory would be concerned with more than training, so in March 1946, the laboratory was separated from MCWA’s Training and Education Division and set on its own path. This was an important step in the transition of MCWA to a new institution.

Expansion into new areas did not mean that MCWA forgot about malaria. As the war came to a close, the incidence of malaria was so low that it seemed quite feasible to think in terms of eradicating it altogether. Louis Williams first suggested an eradication program in 1943; the next year the National Malaria Society endorsed the concept, and in 1946 the Public Health Service proposed a five-year eradication plan. It was about that time that Justin Andrews was mustered out of the Army and joined the Atlanta group. For Andrews, it was more than a homecoming. It was his North African dream come true. He knew that MCWA was about to be given a greatly broadened mandate.