

Control of Typhus in Italy 1943-1944 by Use of DDT*

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DURING the winter of 1943-1944 a severe epidemic of typhus fever threatened the population of Naples and Southern Italy. When Allied Forces landed in that country in September, 1943, cases of typhus had been reported dating back as early as March of that year. In December a sharp increase in the number of cases occurred and deep concern was felt for the safety of Allied troops and the Italian civilian population. Consequently immediate steps had to be taken to institute proper control measures.

HISTORY OF TYPHUS FEVER IN ITALY

Italy appears to have repeatedly escaped the ravages of severe typhus epidemics which have periodically swept over eastern and western Europe, Russia, the countries bordering the eastern end of the Mediterranean Sea, Egypt, and North Africa. Records show that the principal rickettsial infection in Italy up to 1915 was attributed to *Rickettsia conori*, the causative organisms of Boutonneuse fever which is transmitted by a dog tick, *Rhipicephalus sanguineus*.

During the 10 year period, 1915-1924, a total of 923 cases of epidemic

louse-borne typhus were reported to have occurred in various parts of the country. The greatest number of cases occurred in the year 1919 following the general resettlement migration of peoples all over Europe after the cessation of hostilities of World War I. The incidence of typhus fever dropped rapidly during the next decade, 1925-1934. A slight outbreak of the disease occurred in 1926 and 1927 but soon disappeared, and for the remaining seven years no cases of louse-borne typhus were recorded.† This apparent absence of typhus in Italy continued for another 8 years broken only by the threatened severe epidemic of 1943-1944. Thus the general population of Italy apparently had not known typhus for a period of 15 years and consequently was most susceptible.

Available records show that the first cases of typhus reported in Italy occurred in the city of Bari in March, and in Aversa in April, 1943, with other scattered cases in several small villages in Southern Italy. In the city of Naples the first authentic case was reported in July, 1943.

Many theories have been formulated concerning the possible source of typhus fever in Italy. None has actually been confirmed but in the absence of final reports, refugees entering Italy from the Balkan countries and Italian Prisoners

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From the United States of America Typhus Commission, War Department, Washington, D. C.

† *Bull. Health Organ. League of Nations*, X, 1, 1943; this bulletin shows 15 deaths due to typhus over a 5 year period, 1930-1934.

of War returning from Tunisia apparently brought the infection with them and undoubtedly introduced the disease at several points in Italy.

TYPHUS IN NAPLES

Following the original introduction of typhus into a practically non-immune population, the incidence of cases in Naples rose rather rapidly during the months of November and December, 1943.

Records indicate that during the late spring and summer months of 1943, typhus had been simmering insidiously in Naples. As colder weather approached reported cases became more frequent. In October, 29 cases occurred; in November, 61 persons had contracted the disease, and by December 5, 26 new cases had been reported. This number, in comparison with only 2 cases reported during the first 5 days of November, gave warning and forecast the outbreak of a severe epidemic as the winter progressed. By December 15, 83 cases had been reported in Naples. From 83 cases by the middle of this month, the number mounted to 288 for the latter half of the month, a total of 371 cases for December.

This was the picture of the case incidence of typhus in Naples shortly before the United States of America Typhus Commission was placed in charge of the control of the epidemic. The picture of conditions in Naples and, in fact, all of Southern Italy, was in complete harmony with descriptions of the classical spread of typhus fever epidemics of former years.

In Naples estimates of the civilian population in December, 1943, varied between 750,000 and 1,000,000 persons. In addition to this huge population were hundreds of Allied soldiers, returning Italian civilians, and refugees from other war-torn parts of Italy and from across the Adriatic. Living conditions in general were congested and unsani-

tary. Telephone, transportation, and other public utilities were disrupted. Medical personnel for the most part were in the army. Food was scarce, "black market" prices exorbitant, and undernourishment of the inhabitants of Naples was striking. The people were confused, frightened, cold and hungry. Leadership had changed so fast in recent weeks that the average individual scarcely knew which way to turn nor just whom to believe. The recent bombings and terrorist activities of the Germans, and then bombings by Allied Forces kept the people in a constant state of fear and anxiety. At the first wail of the air-raid alarm thousands of people would pour from their homes and crowd into the numerous air-raid shelters scattered throughout the city, of which there were 385.

The air-raid shelters (*ricoveri*) were most interesting. The hills of Naples on which the city is built are of a limestone formation honey-combed by huge caverns. Long, dark or dimly lighted winding staircases or sloping tunnels led down into many of these caverns to a depth of as much as 75 to 100 feet. In some of these tremendous underground rooms thousands of people were found living under quite primitive conditions. Some of the inhabitants were living more comfortably than others, having brought along with them some of their household effects, their beds and bedding. One series of caves was particularly impressive. These were arranged in three levels opening onto the face of a limestone cliff. The rooms extended more than 100 yards back into the cliff, with arched ceilings as high as 50 to 75 feet. Along the walls in the lower of the three rooms people had erected small wooden shacks, one to three stories high. As many as 3,000 persons had lived in these 3 caverns at one time or another. The second- and third-level rooms housed fewer persons and the homes here ranged from stone

"mansions" to wood, metal, and bur-lap covered shacks.

Not all of the ricoveri were formed from natural caverns. Many small shelters were constructed of reinforced concrete and located along the railroad yards, dock areas, etc. These shelters were small, poorly lighted, and very poorly ventilated. No sanitary facilities were available in most of them and people lived in their own filth and grime, dirt and disease. In many of these shelters typhus cases and corpses of persons dead from typhus were found, and for each one found several persons as "contacts" were free to leave the shelter and scatter infective lice to other parts of the city.

In Naples one instance of probable wholesale broadcast of infected lice is interesting. In the huge three-level grotto near *Marginella* railroad station two cases of typhus were discovered by the night control crews. The patients, a mother and her son, were in a small, one-room wooden shack deep inside the second-level cavern. Both were seriously ill and were in the only bed in the room; both were fully clothed but disgustingly and pathetically filthy, and heavily infested with lice. The father of the family was able to work during the day but slept at night in this same bed. Upon examination of his clothing he was found to be heavily infested as well. His occupation at the time was driving a horse and cart, delivering various articles to homes in scattered parts of the city. These three persons were isolated in a hospital; and shortly afterward the father also developed the disease. One wonders how many cases of typhus this man may have caused.

Many of the homes visited were nearly as filthy and crowded as the ricoveri. In some instances two and three families were living crowded into two average-size rooms in a dark, damp cold building. Children were dirty and poorly clothed. With no soap, no fuel,

and poor food there was little incentive or interest among many to try to keep clean.

No definite observations were made in the beginning concerning the extent of the louse infestation among the civilian population of the city. Assurance was given that it was widespread and the percentage of infestation high. A few counts made on clothing of persons admitted to the Cotugno hospital early in the epidemic substantiated this assurance.

The following summarizes the reasons for the spread of typhus in Naples:

1. Introduction of typhus into a non-immune population
2. Crowding and overcrowding of people in homes and air-raid shelters
3. Intensive and widespread infestation with body lice
4. Scarcity of proper kinds of food
5. Bathing facilities lacking or out of order
6. Scarcity of fuel
7. Lack of adequate medical care, hospitalization, and medical supplies
8. Little or no soap available
9. Lack of proper warm clothing and sound shoes among the poorer classes
10. Disruption of water, light, and sewer systems
11. Demoralization of transportation and communication systems
12. Confusion of people due to lack of proper leadership in all city civil government branches, including the Health Department

THE TYPHUS CONTROL PROGRAM

The development of three dusting powders lethal to lice (MYL and DDT in the United States, and AL-63 in England); the demonstration in the laboratory and in the field of the effectiveness of these powders in the control of lice; and the arresting of small typhus epidemics in native villages of Mexico, Algeria, and Egypt through the use of these powders were proof that the use of louse powder in the developing typhus emergency in Italy was the control method of choice in the field.

Methods of application of powder had been studied by various groups of

investigators, particularly the Rockefeller Foundation Typhus Team in collaboration with the Office of the Chief Surgeon, North African Theater of Operations. The procedure adopted for the application of powder to the clothing of infested individuals was speedy, economical in the amount of powder used, and eliminated the necessity for the removal of the clothing from the body of the person to be dusted. Essentially the procedure consisted of forcefully blowing powder, by hand-dusters or power-dusters, between the layers of clothing worn by the individual and between the innermost layer of clothing and the skin of the body. This was accomplished by a uniform technique, inserting the nozzle of the duster up the sleeves, down the neck, (both front and back), around the waist-line, and into the crotch area of clothing. Hair and any cap or hat were dusted thoroughly. An infested person properly dusted is no longer a menace to others and will remain so for a period of at least two weeks, at the end of which time he should be redusted. Approximately 1 to 1½ oz. of powder per person is sufficient to insure the thorough dusting of all clothing worn.

Actual dusting operations were instituted on December 15, 1943, by a dusting team previously trained by a member of the Health Commission of the Rockefeller Foundation. This team of workers dusted all outbound passengers boarding a train scheduled to leave Naples for Bari. The following day, December 16, contact dusting teams were organized and sent out to addresses of reported cases of typhus emanating from homes or institutions. On the night of December 27, the first dusting of persons living in air-raid shelters was undertaken. In addition to their regular dusting duties, each team was instructed to report any new cases or suspected cases of typhus. These teams discovered many new

cases which previously had not been reported to nor isolated by civil health authorities. The importance of proper case finding and reporting was so apparent that a special case finding section under Major R. L. Cherry, M.C. (AUS) of the Allied Control Commission was organized. The case finding and dusting operations were severely handicapped for the lack of proper assistants and dependable transportation.

Before the United States of America Typhus Commission was charged with the responsibility for control on January 3, 1944, many plans had to be drawn up and their values discussed. By December 26, 1943, the typhus control program, approved by the War Department, provided for six operational sections. Four of these sections were utilized from the outset, namely:

1. The case finding section
2. The contact delousing section
3. The mass delousing section
4. The immunization section

These four sections were in operation a few days before the fifth section, the flying squadron, became active. Later in the month of January a refugee delousing section was established to complete the table of organization as planned.

THE CASE FINDING SECTION

The case finding section was reorganized by and in charge of Major J. C. Snyder, M.C. (AUS) (now Lt. Col.), assisted by Major R. L. Cherry, M.C. (AUS) and 8 Italian-speaking U. S. Army physicians. Up to January 3, 1944, cases and suspects had been reported to the AMG Health Service for the City of Naples. These reports came in from various sources, with duplications in many instances. It was difficult to be sure that the cases reported were actually authentic cases of typhus fever until diagnoses were confirmed at the Colugno Infectious Dis-

eases Hospital. However, not all cases were brought to this hospital and the problem was to discover whether these reported cases were actually typhus or some other disease easily confused with typhus in the early stages. Such was the job of the case finding section at the very beginning. Through the untiring efforts of Lt. Col. Snyder, this situation was gradually untangled and all parties concerned agreed to the proposition that the official daily list of typhus cases released by the Health Department be made up only from names of actual cases or definite suspects diagnosed either by the Cotugno Hospital staff physicians or by one of the U. S. Army physicians connected with the Typhus Commission. By intensive investigation of the back-log of reported cases by the U.S.A. Typhus Commission doctors, a gradually clearing picture of the situation began to take place, so that by January 10, 1944, this back-log of cases had been checked and case finding was put on a more logical basis.

Higher authorities directed that General Fox and the U.S.A. Typhus Commission be given the responsibility of typhus control and the Allied Military Government be responsible for ambulance, hearse service, isolation, hospitalization, and care of cases, including the steam sterilization of the clothing of cases admitted.

Organization—The work of the case finding section was accomplished through eight case finding teams, each team being in charge of a U. S. Army physician, assisted by an Italian nurse. Later in the work it was found desirable to add two persons to serve as dusters to each team. These people were transferred from the contact delousing section. A weapons carrier and driver served each team. Thus every case finding team was an independent unit.

Duties—The duties of the teams were:

1. Extensive and intensive case finding
2. Dusting of immediate family contacts as well as the patient or corpse
3. Isolation of patient (summoning ambulance)
4. Reporting of corpses found and summoning the hearse

Operation—In order to facilitate the location of addresses of reported cases, by agreement and cooperation with the contact delousing service, the city was arbitrarily divided into zones. These zones were outlined and marked on a large map of the city. Copies of this map were distributed among the other working sections of the Typhus Commission, and other copies sent to the Health Office of the AMG. As cases were reported, names, addresses, and map-reference zones were written on individual case history cards. These cards were then grouped by zones and given to the physician in charge of the team responsible for case finding in the zones assigned to him. At each address, if the case reported was a definite case of typhus or a suspect, this person was immediately dusted with the insecticidal powder by the dusters of the team, ordered to be hospitalized, and an ambulance summoned. In addition the immediate family contacts, living in the same room or house, were similarly dusted. Beds, bedding and extra clothing were also treated. In the meantime the nurse of the team was busy obtaining names of all of the persons of the family. These names were recorded on the case history card. The temperatures of all persons of the family were taken at the time of the visit.

Any person showing an elevation in temperature was placed under observation. If any suspicion of typhus was noted among these persons, they were ordered to be hospitalized at once. Mistakes of diagnosis were certain to occur, but a mistake on the safe side was not detrimental in this program. If a corpse was discovered, the clothes and

the body were dusted and the hearse summoned.

As each team reported back to headquarters, the patients' names, the names of the immediate family of each patient, addresses and map-reference zones were transferred to another card. This second card was given to the contact delousing service for further action.

CONTACT DELOUSING SECTION

Organization—The contact delousing service was reorganized and placed in charge of Major C. M. Wheeler, Sn.C. (AUS). The purpose of this section was to apply lousicidal powder to the bodies, clothing, extra clothing, beds, and bedding of definite or suspected typhus patients and contacts reported by the case finding section. At first no distinction was made between persons termed "contacts." After working with cases and contacts it was soon found that persons as contacts of typhus cases fell into three general classes: (a) contacts found in the *home* or in the immediate neighborhood, (b) contacts of cases discovered in *institutions* (such as prisons, hospitals, etc.), and (c) contacts occurring in the *air-raid shelters*. In order to deal more effectively with these three types of contacts the contact delousing section was organized to include three services; namely, the case-contact service, the "special" service, and the ricoveri service.

Each of these three services was in direct charge of a United States Army Officer assigned to, or a member of, the Typhus Commission. Each officer was assisted by an American (bi-lingual) civilian physician.

THE CASE-CONTACT SERVICE

Organization — The field working units consisted of the following personnel and equipment:

1. Squad—one nurse and two male dusters

2. Team—2-3 squads, depending upon the assignment of work

3. Weapons carrier and an enlisted man as driver

Duties—The duties of the dusting teams were as follows:

1. Continued case-contact dusting within the home or building in which cases had occurred

2. Focal dusting of all persons in dwellings within a prescribed given area in order to effect a clear area around the home

3. Reporting of all new suspects or new cases found

Operation—The cards given to this service daily by the case finding section were sorted as to map-reference zone and distributed among the six team leaders of each of the operating units on the same day or the following morning. The aim was to attempt to dust all contacts of every case on the day the case was reported. Each unit, equipped with a supply of powder and hand dust guns, visited the addresses assigned. Powder was applied in the usual manner to all persons as outlined above. If a unit had several addresses to visit, focal dusting was delayed until every patient and his household contacts were treated. Focal dusting was attempted later in the day or on the following day. In order to speed up the work of dusting the immediate family contacts, 2 dusters from the contact delousing section were assigned to work with each of the 8 case finding teams. These dusters were instructed to dust the cases and the immediate members of the family during the time of the first visit of the case finding team to the addresses in question.

The work of this department was essentially a room-by-room, house-to-house campaign in an attempt to effect a louse-free area around the place from which the case or cases originated.

SPECIAL SERVICES

The working units were made up in essentially the same manner as the units

of the case-contact service. In fact the teams of the two services were interchangeable and could be used for work of either.

Duties—The dusting teams were organized to do special project dusting of prisons, reformatories, religious institutions (if schools, then only the teaching personnel and not the school children were dusted unless typhus had been reported). Nuns and Sisters were instructed in dusting procedures and furnished some dust guns and a supply of powder, with the understanding that they were to train others and in this way accomplish the complete dusting of all the Sisters concerned. The priests were dusted in connection with the program of the immunization section. Homes for the Aged were treated on request. Carabineiri and civilian police were dusted in conjunction with the activities of the immunization section. Hospitals (general, special, mental), clinics, and sanatoria were included in the list of work for this service. Certain industrial organizations (upon request) and miscellaneous other groups of persons came under the activities of this service.

For smoothness of operation a priority list of dusting projects was established. The institutions in which cases of typhus had occurred were given highest priority. The remainder of the list was given priority based on the estimated urgency of the requests submitted to the field office of the Typhus Commission.

This service began operations with two units. The nurse in charge of each dusting team was given a work sheet on which were written the names of the institutions or groups of persons to be visited, addresses and map-reference zones. If a case of typhus had been reported, the patient's name was included on the sheet. Each team was then dispatched to the address or groups of addresses as indicated. Thorough dusting of all inmates, per-

sonnel and beds was accomplished. In some of the larger hospitals and prisons a routine dusting schedule at 14 day intervals was employed. In addition a daily application of powder was given to all new incoming prisoners brought in during the night. These prisoners were isolated in a separate wing of the prison and held until the dusting teams arrived on the following morning. Permanent dusting stations were set up by the mass delousing section to dust all incoming and outgoing patients, as well as any hospital visitors.

The special service teams worked in close coöperation with the flying squadron in assisting in carrying out a program of contact and focal dusting in nearby towns and villages. Assistance was also given to the work of the refugee section at the time of its organization.

THE RICOVERO SERVICE

This service was reorganized and placed in charge of the writer. The teams of this service were composed entirely of men:

1. Squad—An Italian civilian physician in charge, and 3 male dusters
2. Team—Two or three squads depending upon the amount of work to be done
3. Weapons' carrier, and enlisted man as driver

The duties of the teams of this section were chiefly as follows:

1. Dusting of any cases, suspect cases, and corpses found in the shelters
2. Dusting of all persons, transient or permanent, living within these shelters. Dusting of beds and bedding in the shelters in which typhus had occurred or was present, or in cases where extreme lousiness was noted
3. Reporting of any new suspects or new typhus cases to the case finding section for investigation

Operation—The initial work of this service employed the services of six units. Each unit was composed of 3 squads of 4 men each. This number of

units remained the same during the period when case incidence was at its peak and for several weeks following. The number of squads was gradually reduced in proportion to the decreasing number of inhabitants found in the shelters as the epidemic died down and the fear of bombings decreased.

A list of 385 air-raid shelters comprised the work order for the teams of this service. The location of these shelters was marked on the map of the city and a list compiled of the names of these shelters grouped by map-reference zone. Each unit was given the responsibility for a certain number of these shelters in the zones assigned.

Work by necessity had to be done at night in order to be sure the majority of the inhabitants were "at home." An early curfew helped considerably in assuring the workers that the large majority of people frequenting these places would be found by the time the teams arrived. During the day the supervisor, in company with an Italian civilian employee, visited the shelters to be treated during the night. From this visit the amount of equipment and personnel necessary to complete the assignment were ascertained. In case the shelter was one of the larger ones, two units would be detailed to work this one shelter. A schedule was arranged so that each of the inhabited shelters could be visited once every 7 days. Approximately one-fourth of the shelters were inhabited more or less permanently at the time of the epidemic. Repeat check-up visits to many of the uninhabited shelters had to be made from time to time. All of the shelters in the city, as far as could be determined, were visited many times during the course of the work.

The dusting teams, as they entered the shelters, posted one or two men at each of the entrances—some ricoveri had as many as 4 separate entrances. These men were instructed to dust any

stragglers entering after curfew and to prevent anyone from leaving without having been dusted. The remainder of the team members proceeded to dust, one by one, the inhabitants of the shelters. Naturally there was plenty of excitement, but very little trouble was encountered among the people, and after a few visits, the teams were received with general good feeling.

Each person dusted was examined by the doctor in charge, in order to determine if a thorough dusting job had been done. Some were turned back for a repeat dusting. Counts of the number of persons treated were made by the leader of each squad.

During air-raids and air-raid alarms, hundreds of people would swarm into the shelters. Work was then nearly impossible. What effect the numerous air-raids may have had on a rise in the case incidence during the epidemic has not been determined.

MASS DELOUSING SECTION

The mass delousing section was the function of the Typhus Team of The Rockefeller Foundation under the direction of Dr. F. L. Soper, assisted by Drs. W. A. Davis, L. A. Riehl, and F. H. Markam. This section was organized primarily for the purpose of delousing the entire civilian population of the city of Naples.

In order to carry out such a massive program, powdering stations located at strategic points throughout the city were established. Plans were formulated for the installation of 50 such delousing stations equipped to dust as many as 100,000 persons per day. These stations were located in churches, schools, railway stations, hospitals, quarantine stations on roads leading out of the city, and empty buildings. The sites were chosen based on density of population, rate of typhus in the immediate neighborhood, and convenience to homes, factories, and shops.

Each station was in charge of one person who served as foreman. He was directly responsible for the teams under him, which numbered from 4 to 24 persons depending upon the location and size of the station. The work of the stations was supervised by several Italian civilian doctors each of whom was responsible for from four to eight stations.

By January 3, 1944, 10 dusting stations had been established. This number was gradually increased to a total of 40 operating stations by February 8 in which 439 persons were employed. As the severity of the epidemic diminished the number of stations and personnel was gradually reduced.

This section, as the number of typhus cases diminished, turned a share of its attention to a survey of the various zones of the city to determine as nearly as possible the percentage of persons in the city who had been dusted one or more times, and the extent of lousiness still present. In zones where less than 70 per cent of the population reported having been dusted but one time, special house-to-house dusting, using the block as a unit, was organized on February 6. A similar system was in use by the contact delousing section about the same time. On February 14 the block dusting operations of the two sections were coördinated, and placed under the supervision of Drs. Markam and Riehl of the mass delousing section.

THE IMMUNIZATION SECTION

This section was organized by Captain (now Major) R. S. Ecke, M.C. (AUS), and Major R. L. Rogers, M.C. (AUS). Although an important section, its function was entirely apart from the DDT control program and will be discussed in a future more detailed report.

THE FLYING SQUADRON SECTION

In order to cope with the cases ap-

pearing in outlying districts the necessity for a completely mobile, self-contained case finding, immunizing and delousing service was apparent. Such a service was organized and directed by Captain (now Major) T. E. Woodward, M.C. (AUS), a member of the Typhus Commission.

Organization—The flying squadron was organized January 7 to conduct typhus control measures among civilians in towns and villages of Southern Italy.

The original plans submitted to the Field Director of the Typhus Commission called for an investigating team composed of a physician, an interpreter, and a driver. The purpose of this team was to investigate all suspects reported from areas outside Naples proper, diagnose the case, if possible, and, regardless of whether or not the patient was a definite typhus case, the team performed the following work:

1. Powdered all the family members present and the beds, bedding and extra clothing
2. Powdered other persons in the house or building who might have been close contacts
3. Vaccinated the immediate family and certain other possible contacts, using the one-dose method
4. Summoned the ambulance for isolation of the patient

While in the town the team consulted the responsible military and civilian authorities concerning future installation of mass powdering stations if conditions demanded. In areas near Naples these stations were to be organized and the work conducted by the mass delousing section, otherwise the personnel of the flying squadron would operate a temporary mass delousing station. Arrangements were also made for large-scale vaccination of hospital personnel, nurses, doctors, and certain organized civilian groups if necessary.

Up to April 1, 1944, 43 towns were visited by the teams of the flying squadron, including one trip by Major Woodward via plane, to Lecce, a town

TABLE 1

	Cases	Number of Dustings				Total
		Contacts	Special Service	Ricoveri	Station	
Naples	1,404	270,315	56,725	112,294	2,214,122	2,653,456
Outside Naples	510	201,257	411,073	612,330
Total	1,914	471,572	56,725	112,294	2,625,195	3,265,786

(Data in the above table furnished by Dr. F. H. Markam, International Health Commission of the International Health Division, Rockefeller Foundation.)

in the "heel" of Italy. In these towns 257 cases of typhus had occurred and contacts of these cases were dusted. By September, 1944, 510 cases in 68 towns and villages in Southern Italy had occurred.

THE REFUGEE SECTION

As the war progressed the refugee problem became more and more acute. From Yugoslavia refugees came into Italy from across the Adriatic Sea and landed in scattered places along the eastern coast. Attempts by certain agencies were made to collect these refugees and bring them into one central point. At this point attempts were made to collect these people and disinfect them before transferring them to Taranto for subsequent shipment to refugee camps in Syria, Egypt, Palestine, and North Africa.

The original plans of the Typhus Commission provided for the organization of a section to deal with such conditions. Major R. S. Ecke, M.C., was instructed to organize the work on January 27, 1944.

Through the efforts of Major Ecke and under his supervision, facilities for delousing refugees and their effects were provided at all of the refugee collecting points in Southern Italy.

By January 10, 1944, within a month after control operations had been put into effect, the peak of the epidemic had been reached and a sharp decrease in the number of reported cases occurred. By February 20, 1944, the

typhus fever epidemic in Naples appeared to have been definitely broken and, upon direction of Brigadier General L. A. Fox, the majority of the U. S. Typhus Commission members were called back to their headquarters in Cairo. Major Woodward and Major Ecke remained for a few weeks longer working with their respective sections in dealing with typhus outside Naples and with the refugee problem. Responsibility for further control operations was placed in charge of the Allied Control Commission under the direction of Lt. Col. W. C. Williams, M.C. (AUS).

The combined efforts of the sections responsible for the application of the lousicidal powder to the clothing and bedding of typhus patients and their household contacts apparently played the important rôle in arresting the typhus epidemic in Naples and Southern Italy. Mass delousing reduced the louse population density to a low level, and the contact delousing operations eliminated the great percentage of infective lice.

Table 1 summarizes the total number of reported cases together with the total dusting figures of all sections concerned.

At the time of writing this report, 9 delousing stations are still in operation in Naples, which handle an average of 500 persons daily who come in voluntarily to be dusted. At various localities in Southern Italy, supplies of 10 per cent DDT powder and dust guns are furnished to responsible health authori-

ties in order to take care of any local outbreaks that may occur.

In future operations the importance of case finding and contact delousing cannot be over-emphasized. These two sections must work in close coöperation at all times.

Availability of supplies, complete organization of the control program,

intensive and extensive case finding, immediate isolation (hospitalization) of cases, rapid but thorough contact delousing of immediate family contacts, and sufficient and dependable transportation are cardinal points in the successful execution of a typhus control program based on the use of a lousicidal powder such as DDT.

Citizen's Planning Committee for Coördination of Voluntary Health Agencies

The Gunn-Platt report, *Voluntary Health Agencies — An Interpretive Study*, continues to make history. In response to requests from local citizen groups all over the country, the National Health Council has organized a Citizen's Planning Committee. This committee of 25 citizen-leaders in many fields of public service will furnish the leadership for a movement to coördinate the work of the 20,000 voluntary health agencies of the country. In the words of the authors, this is the outstanding need of the voluntary health field of today. "If we are to avoid authoritarian prescriptions or regimentations, we must direct our efforts toward a unified health purpose in the broadest terms, and we must build up this essential unity in service by deliberately federating the independent specialized organization from the ground up."

This committee met in New York on January 16, and organized its work for the coming year. Full details will be reported in a later issue of the *Journal*.

The members of the committee are:

Leroy A. Lincoln, Pres., Metropolitan Life Insurance Co.

Raymond B. Fosdick, Pres., Rockefeller Foundation

Chester I. Barnard, Pres., New Jersey Bell Telephone Co.

Guy Emerson, Vice-Pres., Bankers Trust Co.
Louis I. Dublin, Ph.D., 2nd Vice-Pres. and Statistician of the Metropolitan Life Insurance Co.

Irving Abramson, Chairman, C.I.O. Community Services Committee

Mason Bigelow, President, National Society for the Prevention of Blindness

Morgan B. Brainard, Sr., President, Aetna Life Insurance Company

Senator Thomas C. Desmond of New York

Charles T. Fisher, Jr., President, National Bank of Detroit

Ralph Hayes, Executive Director, New York Community Trust Company

Mrs. Shepard Krech, President, Maternity Center Association

Mrs. Albert Lasker, Secretary, National Committee for Mental Hygiene

Mrs. Oswald B. Lord, National War Fund

Mrs. William Barclay Parsons, former Administrator, Volunteer Special Services, American Red Cross

E. A. Roberts, President, Fidelity Mutual Life Insurance Company

Col. Howard A. Rusk, *New York Times*

A. J. Seymour, General Manager, National War Fund

Tom K. Smith, President, Boatmen's National Bank of St. Louis

Arthur Hays Sulzberger, President, *New York Times*

Gerard Swope, General Electric Company

Ray Lyman Wilbur, M.D., Chancellor, Leland Stanford University

Mathew Woll, 2nd Vice President, American Federation of Labor