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*December 18, 1968*

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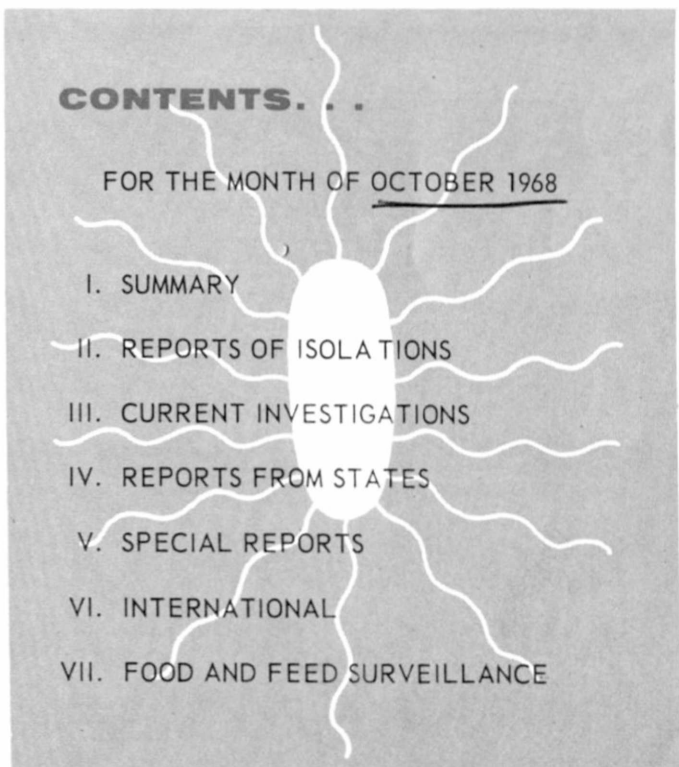
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# SALMONELLA

## SURVEILLANCE

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FOR THE MONTH OF OCTOBER 1968

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE/PUBLIC HEALTH SERVICE  
Health Services and Mental Health Administration

# PREFACE

Summarized in this report is information received from State and City Health Departments, university and hospital laboratories, the National Animal Disease Laboratory (USDA, ARS), Ames, Iowa, and other pertinent sources, domestic and foreign. Much of the information is preliminary. It is intended primarily for the use of those with responsibility for disease control activities. Anyone desiring to quote this report should contact the original investigator for confirmation and interpretation.

Contributions to the Surveillance Report are most welcome. Please address

National Communicable Disease Center, Atlanta, Georgia 30333

Attention: Chief, Salmonellosis Unit, Epidemiology Program

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## I. SUMMARY

This issue of the Salmonella Surveillance Report includes reports of a large outbreak of typhoid fever, 2 foodborne outbreaks of salmonellosis, and 6 outbreaks caused by infected household pets.

In October 1968, 2,292 isolations of salmonellae were reported from humans, an average of 458 isolations per week (Table I, II, and V-A). This number represents a decrease of 65 (12.4 percent) from the weekly average of September 1968 and an increase of 41 (9.8 percent) over the weekly average of October 1967.

Reports of 714 nonhuman isolations of salmonellae were received during October 1968 (Tables III, IV, and V-B).

## II. REPORTS OF ISOLATIONS

The ten most frequently reported serotypes during October:

| HUMAN                               |        |         |                 | NONHUMAN                            |        |         |
|-------------------------------------|--------|---------|-----------------|-------------------------------------|--------|---------|
| Serotype                            | Number | Percent | Rank Last Month | Serotype                            | Number | Percent |
| 1 <u>typhi-murium</u> *             | 579    | 25.3    | 1               | <u>typhi-murium</u> *               | 63     | 8.8     |
| 2 <u>enteritidis</u>                | 194    | 8.5     | 2               | <u>muenchen</u>                     | 46     | 6.4     |
| 3 <u>newport</u>                    | 171    | 7.5     | 3               | <u>anatum</u>                       | 37     | 5.2     |
| 4 <u>saint-paul</u>                 | 147    | 6.4     | 6               | <u>cholerae-suis</u>                | 37     | 5.2     |
|                                     |        |         |                 | <u>var. kuzendorf</u>               |        |         |
| 5 <u>heidelberg</u>                 | 122    | 5.3     | 4               | <u>montevideo</u>                   | 37     | 5.2     |
| 6 <u>infantis</u>                   | 118    | 5.1     | 5               | <u>cubana</u>                       | 34     | 4.8     |
| 7 <u>javiana</u>                    | 93     | 4.1     | 9               | <u>infantis</u>                     | 26     | 3.6     |
| 8 <u>typhi</u>                      | 90     | 3.9     | 8               | <u>bredeney</u>                     | 25     | 3.5     |
| 9 <u>thompson</u>                   | 82     | 3.6     | 7               | <u>newington</u>                    | 24     | 3.4     |
| 10 <u>blockley</u>                  | 70     | 3.1     | 10              | <u>derby</u>                        | 23     | 3.2     |
| Total                               | 1666   | 72.7    |                 | Total                               | 352    | 49.3    |
| TOTAL<br>(all serotypes)            | 2292   |         |                 | TOTAL<br>(all serotypes)            | 714    |         |
| *Includes<br><u>var. copenhagen</u> | 34     | 1.5     |                 | *Includes<br><u>var. copenhagen</u> | 12     | 1.7     |

A large part of the increase in Salmonella saint-paul isolations this month resulted from a foodborne outbreak in Pennsylvania from which 20 positive cultures were obtained.



### III. CURRENT INVESTIGATIONS

#### An Outbreak of Typhoid Fever - Missouri

Reported by E. A. Belden, M.D., M.P.H., State Epidemiologist, Missouri Department of Health and Welfare; Mr. William Johnson, Sanitarian, Audrain County Health Department; D. E. Wilcox, M.D., State Epidemiologist, Kansas State Department of Health; and Andrew Mallory, M.D., EIS Officer, Bacterial Diseases Section, Epidemiology Program, NCDC.

Twenty-six cases of typhoid fever occurred among 189 persons who attended a church camp meeting held from August 1 - 11 in Audrain County, Missouri. The patients ranged in age from 2 years to 76 years with a mean of 24.1 years and a median of 18 years. Thirteen of the patients were males. Onset of symptoms ranged from August 13 to September 1. Symptoms included fever (100 percent), diarrhea (54 percent), headache (42 percent), abdominal pain (31 percent), constipation (27 percent), nausea (15 percent), and vomiting (11 percent). The mean duration of symptoms was 10.6 days. Twelve patients required hospitalization; there were no deaths. All 26 cases were treated with chloramphenicol.

Only one of the 26 cases appeared to be secondary. This was a 35-year-old mother who first developed symptoms on September 1, 14 days after her 3 children had become ill with subsequently proven typhoid and 21 days after her departure from the camp. The possibility that she was also a primary case with a longer incubation period than her 3 children cannot be ruled out with certainty.

Stool cultures were positive for S. typhi phage type C<sub>1</sub> in 18 of the 26 cases. In 5 additional patients serologic evidence of typhoid ("O" titer  $\geq$  1:320 in an unvaccinated person) was present. For the remaining three patients, the diagnosis of typhoid fever was made on clinical grounds alone.

The church camp has been held every summer for the past 14 years on an acre of ground not used by any other group during the rest of the year. Although no formal records of attendance were kept, persons were known to have attended the camp this year from Missouri (106), Illinois (62), Mississippi (10), Kansas (3), Oklahoma (7), and Arizona (1). Six church services were held each day. Many persons came for a single service and left; others camped on the grounds in tents and stayed for as long as 12 days. Attendance at camp at any one time ranged from 40 to 120 persons.

Three meals a day were served at the camp grounds. Most of the food was provided by church members and included fresh vegetables, a freshly slaughtered pig and calf, frozen chicken, and a small quantity of unpasteurized milk. Staples were obtained from a local grocery store. No formal menu was kept. A large number of persons helped in food preparation, food serving and dishwashing.

All water was obtained from a well located on the camp grounds. This well was drilled through bed rock at 50 feet to a water level at 65 feet. It was cased but not grouted. A hand pump was present all year round; an electric pump with additional pipes was added for the 11 days of the camp meeting. Water could be obtained directly from the well (a common cup was used) or from a 15-gallon wooden keg filled from the well and partially filled with ice obtained from a local service station. Paper cups were provided but were frequently reused.

Two latrines were located 60 and 95 feet from the well. The pits measured 4 feet wide x 6 feet long x 4 feet deep and were freshly dug during the week prior to the camp. The latrines and well were located on level ground and no evidence of drainage or pooling could be found in the area.

On the evening of the second day of the camp, approximately 4 - 5 inches of rain fell flooding the campsite for about 24 hours. There were no subsequent complaints of foul tasting water, and no unusual increase in the incidence of diarrheal illness was noted. However, all persons subsequently ill with typhoid fever were at camp during the 2 days following the flood.

To define the vehicle of infection and the human carrier responsible for this outbreak, interviews and stool cultures were obtained from 180 of the 189 persons who attended the camp. Twenty-five of the 26 patients had consumed food while at the camp but more detailed food histories could not be obtained. The one patient who denied food consumption was at the camp for a 2-hour period only and did have several glasses of water from the keg.

Of 141 persons who definitely drank water, 26 subsequently developed typhoid fever (i.e. all of the cases had drunk water at the camp). In contrast, none of the 33 persons who denied water consumption became ill. However, this latter group was at the camp for a significantly shorter average stay and was therefore less subject to any of the possible sources of contamination.

Samples of well water obtained for culture 2 and 4 weeks after closing of the camp revealed no bacterial growth. Cultures of the latrines and water keg revealed no salmonella. Two fluorescein dye tests failed to demonstrate contamination of the well from the latrines. Investigation of the ice-making plants did not suggest that the ice was a source of contamination. No leftover food was available for culture.

From the stool culture survey 4 asymptomatic individuals were found to be excreting S. typhi. Three of these were young siblings of ill patients. The fourth was a 65-year-old male. Three subsequent cultures from this individual have been positive for S. typhi phage type C<sub>1</sub>, the last one 3½ months after the camp meeting. His serologic studies revealed a Vi antibody titer of 1:80, a typhoid O titer of 1:20 and a typhoid H titer of zero. He gave no history of illness during or subsequent to the camp meeting. However, he reported that he had had a clinical illness diagnosed as typhoid fever 30 years earlier. He gave no history suggestive of gallbladder disease or recent typhoid immunization. He is currently undergoing high dosage ampicillin therapy in an attempt to abolish his infection.

This gentleman was present for the entire camp meeting, assisted in preparing the campsite prior to August 1, and visited several homes prior to August 1 (including the home of the patient who attended the camp meeting for only 2 hours). Among other duties, he assisted in inserting the electric pump and pipes into the well on the day before the camp opened. During the camp meeting, he helped shuck corn, dry dishes, and on one occasion, chip ice for the water keg.

In summary, 26 cases of typhoid fever occurred among 189 persons who had attended a church camp meeting in Missouri in August 1968. The probable source of the outbreak was a 65-year-old male chronic carrier who had ample opportunity to contaminate either water or food supplies. The vehicle of transmission remains uncertain. Although epidemiologic evidence favors the camp water as the common source, contaminated food cannot be ruled out.

EDITOR'S COMMENT: In 1942, the number of cases of typhoid fever reported in the U.S. was almost 5 per 100,000 population. In 1967, the incidence had dropped to less than 0.4/100,000 despite an improved reporting system. Concurrent with this overall decrease, there has been a decrease in the number of reported outbreaks involving more than 10 persons. In 1967, only 2 such outbreaks were reported to the NCDC. The first took place in Colorado in February (see Salmonella Surveillance Report No. 63) and involved 11 persons who had attended a family dinner. The second occurred

in California in May (see Salmonella Surveillance Report No. 63) and involved a cook and 30 members of a college fraternity. These episodes emphasize the continuing potential for large scale outbreaks despite a declining overall incidence of typhoid fever.

#### IV. REPORTS FROM THE STATES

##### A. An Outbreak of Salmonellosis - Shelby County, Tennessee

Reported by Dr. Cecil B. Tucker, Director, Division of Preventable Diseases, Tennessee Department of Public Health; Dr. Eugene Fowinkle, Director, Memphis-Shelby County Health Department; Donald R. Daffron, Sanitation Division, Memphis-Shelby County Health Department; Dr. Eugene Page, Jr., EIS Officer located at the Memphis-Shelby County Health Department; and Dr. Lawrence A. Busch, EIS Officer, Epidemiology Program, NCDC.

An outbreak of salmonellosis involving 130 persons who had attended a church supper occurred on October 16, 1968, in Shelby County, Tennessee. Of 116 people contacted following the dinner, 98 (84.5 percent) had been ill. Onset of illness occurred from 2 to 118 hours after the dinner, with a median onset of 23 hours. The mean duration of illness was greater than 3 days; one third of the cases were still ill when contacted 5 days after the supper. Symptoms included diarrhea (90 percent), abdominal cramps (89 percent), fever (80 percent), prostration (76 percent), nausea (73 percent), and vomiting (37 percent). None of those ill required hospitalization, and no deaths were reported. Stool cultures were obtained from 25 of those ill, and 22 were positive for Salmonella saint-paul.

Food histories implicated sliced turkey as the vehicle of infection. Cultures of 2 samples of turkey frozen after the dinner were positive for S. saint-paul. This turkey had been prepared from frozen turkeys purchased on October 14. The turkeys were thawed overnight in a refrigerator, unwrapped, and held on flat metal trays prior to cooking. They were cooked in a large steamer for 5½ hours at 400°F. and returned to the same metal trays. The turkeys were deboned and refrigerated until 3 hours before the meal. They were then sliced and held at room temperature until served. Two food handlers were involved in the preparation of the meal. Neither ate the turkey and neither reported illness. Stool cultures from both were negative for salmonella. Further investigation of the food handling practices revealed that the refrigerator in which the meat had been stored was not functioning properly. In addition the supply of hot water was inadequate for dishwashing, and the bottles of sanitizing compound attached to the sink water supply had insufficient solution present in the bottles to allow for any to be in the sink water supply. Swabs from the metal trays on which the turkeys were placed after thawing as well as after cooking were positive for S. saint-paul. These trays had been washed twice prior to culture, first, after holding the raw turkey and second, after holding the cooked turkey.

Two turkeys from the same lot as those purchased for the church dinner were obtained from the distributor. Swabs cultured from these were also positive for S. saint-paul. In addition, S. newington and S. infantis were isolated from the environment of the turkey processing plant from which this lot had originated. S. saint-paul, S. montevidео, S. anatum, S. san diego, S. reading, and S. schwarzengrund were isolated in an environmental culture survey on the farms from which the flocks originated. Samples of feed concentrate fed to the flock yielded S. kentucky and S. cerro. This feed contained rendered animal by-products. Further study to trace the source of contamination in the feed is in progress.

EDITOR'S COMMENT: Poultry and poultry products are the most important sources of epidemic salmonellosis in the United States. Of 25 foodborne outbreaks of salmonellosis reported in the NCDC Salmonella Surveillance Reports in 1967, 5 involving 2,195 persons were traced to contaminated turkey and 7 involving 2,101 persons were traced to contaminated eggs. The outbreak reported above from Tennessee is characteristic of salmonella outbreaks traced to contaminated poultry. Turkeys fed on feed made from contaminated animal by-products become infected with salmonellae. During processing, organisms from infected birds spread through the environment of the processing plant to other birds processed at the same time. Contaminated by-products are then returned to the renderer to make a new batch of contaminated feed, thus completing the cycle.

Outbreaks occur when the contaminated processed turkey is not handled properly. In the outbreak reported above, the turkeys were cooked adequately but became recontaminated by the kitchen environment after cooking. Although the level of recontamination may have been low, the meat was inadequately refrigerated prior to serving, permitting the initial inoculum to multiply. As has been seen many times in the past, the use of contaminated raw poultry and the existence of improper food handling combined to produce an outbreak. Only by interrupting the cycle of contamination in the flocks and improving education of food handlers can similar outbreaks be prevented in the future.

#### B. An Outbreak of Salmonellosis - Jersey City, New Jersey

Reported by Ronald Altman, M.D., Acting Director, Division of Preventable Diseases, Martin Goldfield, M.D., Director of Laboratories, and Harold Rosenfeld, D.V.M., Division of Preventable Diseases, New Jersey Department of Health; Walter Lezynski, Health Officer, Jersey City Health Department, Dominic Mauriello, M.D., Physician-in-Charge, Infectious Diseases Ward, Jersey City Medical Center; and Charles Janeway, M.D., EIS Officer located at the New Jersey Department of Health.

An outbreak of salmonellosis involving 17 of 18 persons who attended a family Thanksgiving dinner in Jersey City, New Jersey occurred on November 28 and 29, 1968. The persons ranged in age from 7 months to 56 years. Onset of illness was 3 to 17 hours after the meal, with a median onset of 7 hours. Symptoms included vomiting (100 percent), diarrhea (100 percent), fever (94 percent), and abdominal pain (82.3 percent). As a result of the outbreak, 15 persons were hospitalized; the mean duration of hospitalization was greater than 6 days (two patients are still in the hospital). Two individuals died as a result of the outbreak. The first, a 17-year-old male, died without hospitalization 37 hours after onset of illness; the second, a 56-year-old female, died in the hospital 3 days after onset of illness. Neither patient had any known underlying medical illness and neither was receiving any medication prior to the illness. At autopsy the only abnormal finding was enterocolitis in both cases. Cultures from all those involved as well as from the asymptomatic person who consumed the meal were positive for Salmonella enteritidis.

The suspect meal was a traditional Thanksgiving dinner including turkey and stuffing. Because all foods were consumed by nearly everyone at the meal, food histories did not implicate a single vehicle. Cultures of leftover turkey, stuffing and gravy yielded S. enteritidis in the following concentrations: from the turkey (100,000 salmonella per gram), the stuffing ( $1.2 \times 10^9$  salmonella per gram) and the gravy (29,000 salmonella per gram). No other pathogens were identified.

The turkey served was a 23-pound frozen turkey purchased on November 23 and kept in a freezer. It was thawed by placing it in the bottom of the refrigerator on the night prior to Thanksgiving. It was cooked at 300°F. for 7 hours and consumed immediately after cooking. The stuffing consisted of grade A eggs, bacon, a locally processed fresh Italian sweet sausage, bread, and giblets from the turkey. The gravy was a commercial product heated just prior to dinner. Following the outbreak, the partially consumed turkey was examined and was noted to be markedly undercooked.

Although contaminated turkey was most likely the vehicle causing this outbreak, the possibility that the sausage was actually the vehicle cannot be excluded. Further investigation is now in progress. Additional samples of sausage have been obtained for culture and the processing plant environment will be surveyed for the presence of salmonella. Attempts are being made to trace the turkeys to the processor and then back to the farms on which they were raised.

EDITOR'S COMMENT: Salmonella gastroenteritis is usually a mild, self-limited illness, with fatal cases usually confined to young infants, the elderly, and persons with severe underlying medical problems. The severity of this outbreak presumably reflects both a very large inoculum of salmonellae and an extremely virulent strain. A large inoculum as revealed by the quantitative studies of the contaminated foods is also indicated by both the short median incubation period of 7 hours and the high attack rate. Although virulence cannot be assessed, S. enteritidis is a salmonella serotype more likely to cause illness. Of 1,277 isolations of this serotype reported in 1967, 19.5 percent were non-fecal isolations (blood, urine, etc.) in contrast with 14.2 percent from these sources for all salmonella serotypes.

C. Recently Reported Outbreaks of Salmonellosis Traced to Household Pets - Washington, Louisiana, and the District of Columbia

Reported by Herbert W. Anderson, B.S., R.S., Environmental Epidemiologist, and Donald R. Peterson, M.D., Director, Division of Epidemiology, Seattle-King County Department of Public Health; William E. Long, M.D., Epidemiologist, Bureau of Communicable Disease Control, and Jeffrey B. Riker, M.D., EIS Officer located at the District of Columbia Department of Public Health; and Charles P. Caraway, D.V.M., Chief, Section of Epidemiology, Division of Preventive Medicine, Louisiana State Department of Health.

The following are summaries of recently reported outbreaks of salmonellosis traced to household pets. Three outbreaks were due to infected dogs, two to infected turtles, and one to an infected kitten.

Three separate family outbreaks of salmonellosis were traced to pet dogs in Seattle, Washington. In each, a diarrheal illness occurred in the dog prior to the outbreak, and in each, identical strains of salmonella were isolated from the patient and the dog.

In the first outbreak 5 children in a family developed gastroenteritis over a two-week period, and one of the children required hospitalization for two days. Salmonella san diego was isolated from stool specimens from 2 of the 5 children involved, S. infantis from a third, and S. typhi-murium from a fourth. (Cultures were not obtained from the fifth child.) Three weeks before the onset of illness, the family had acquired a four-week-old puppy. The animal had diarrhea and was treated for intestinal worms. Following the outbreak, a fecal sample from the puppy was positive for S. san diego. It has been fed raw meats and three different brands of dog food.



The second outbreak involved a 2½-year-old girl. The child developed febrile gastroenteritis after spending a day at her grandmother's house, and required hospitalization for 11 days. Stool culture was positive for S. typhi-murium. While at her grandmother's house, the child had played with her grandmother's dog. Ten days earlier the dog had developed diarrhea for which it was treated by a veterinarian. Stool cultures from the dog were positive for S. typhi-murium. The S. typhi-murium isolates from both the dog and the child were not lysed by any of the available phages. The dog had been fed dried and canned dog food, table food, and raw deboned chicken.

The third outbreak involved a 2-year-old boy, who developed febrile gastroenteritis and was hospitalized for 2 days. Stool cultures from the boy were positive for S. typhi-murium. Three weeks prior to the child's illness, a pet dog had developed vomiting and diarrhea lasting several days. The dog was hospitalized for nine days. A stool specimen obtained from the dog was positive for S. typhi-murium. Isolates from both the human and the dog were not lysed by any of the available phages. The dog consumed only commercial dog food which was cultured and was negative for salmonella.

Two outbreaks of salmonellosis related to pet turtles have also been recently reported. The first, reported from the District of Columbia Department of Public Health, involved a 3-year-old female who was hospitalized with fever, bloody diarrhea and prostration. Stool cultures were positive for S. typhi-murium. The child's sibling and her parents were asymptomatic; however, an 8-month-old cousin visiting the household at the time of onset of illness subsequently became ill with fever and diarrhea. No stool culture was obtained. The child kept three pet turtles, 2 of which had been in the house for 2 months and the third for 10 months prior to onset of illness. Cultures from the water of the turtle bowl were positive for S. typhi-murium. Phage typing was not done.

The second outbreak, reported by the Louisiana State Department of Health, involved a 1½-year-old child. Shortly after acquiring a pet turtle the child became ill with salmonellosis and was hospitalized for 7 days. S. typhi-murium was isolated from the child and from the turtle as well.

A single outbreak traced to a pet kitten was reported by the Seattle-King County Department of Public Health. A 4-year-old girl was hospitalized with salmonellosis, and stool cultures were positive for S. typhi-murium. There was no other illness in the household. However, in a culture survey, the child's 7-year-old brother and the family's housekeeper were found to be positive for S. typhi-murium. Nine days prior to the girl's illness, the family's pet kitten had been taken to the animal hospital because of falling fur and fever. The animal was hospitalized for 3 days, then returned home where it received special attention from the children and housekeeper. Stool cultures obtained from the kitten were positive for S. typhi-murium. The isolates from the kitten and the three household members were phage typed; none was typable by available phages. The kitten was usually fed canned commercial cat food. Occasionally it received cooked table foods and raw ground meat as well.

## V. SPECIAL REPORTS

### A. U.S. Food and Drug Administration Recall of Products Contaminated with Salmonellae, September 3, 1968 to November 19, 1968.

From September 3, 1968 to November 19, 1968, 5 products were recalled by the U.S. Food and Drug Administration because of salmonella contamination. These products are listed in the table on the following page.

U.S. Food and Drug Administration Weekly Recall List  
 Summary of Products Contaminated with Salmonellae  
 Week Ending September 3 through Week Ending November 19, 1968

| Week Ending | Name, Label, Form   | Manufacturer, Distributor                                | Lot No.                           | Use  | Depth of Recall      | Product Distribution | Serotype   |
|-------------|---|--|-----------------------------------|------|----------------------|----------------------|--|
| 9/30        | Smoked fish (chubs) in 5-20 lb. cardboard cartons (Montrose Smoked Fish Co., Inc., Brooklyn, N. Y.)               | (Mfr) Montrose Smoked Fish Company, Brooklyn, N. Y.      | None                              | Food | Wholesale            | N. Y., Ga.           | <u>S. muenchen</u>   |
|             | Spray Dry Whole Milk in 100 lb. paper-ply bags (O-At-Ka Milk Products Co-op, Inc., Batavia, N. Y.)                | (Mfr) O-At-Ka Milk Products Co-op, Inc. Batavia, N. Y.)  | 23781<br>23782<br>23782B<br>23783 | Food | Wholesale            | Local                | <u>S. cubana</u>   |
|             | Spray Dried Non-Fat Milk in 50 lb. and 100 lb. paper-ply bags (O-At-Ka Milk Products Co-op, Inc., Batavia, N. Y.) | (Mfr) O-At-Ka Milk Products Co-op, Inc., Batavia, N. Y.) | Many                              | Food | Wholesale            | Local                | <u>S. cubana</u>   |
| 10/15       | Frozen eggs, "Pasteurized whole eggs" in 30 lb. cans (Packed by Rosenberg & Son, Gaylord, Minn.)                  | (Mfr) Rosenberg & Son Gaylord, Minn.                     | 256-8                             | Food | Retail or restaurant | Minn.                | <u>S. poona</u><br><u>S. braenderup</u><br><u>S. montevideo</u><br><u>S. oranienburg</u> |
| 10/29       | Continental Swiss Style Instant Vending Cocoa Mix. 2 lb. (Continental Coffee Co., Chicago, Ill.)                  | (Mfr) Continental Coffee Co., Chicago, Ill.              | 268-9                             | Food | Retail               | National             | <u>S. alachua</u>  |

B. Recent Articles on Salmonellosis

The following articles on salmonellosis of interest to public health workers have been published in recent months.

1. Anderson, E. S.: The ecology of transferable drug resistance in the Enterobacteria. *Ann. Rev. Microbiol.* 22:131, 1968.
2. Harvey, R. W. S., et al.: Elevated temperature incubation of enrichment media for the isolation of salmonellas from heavily contaminated material. *J. Hyg.* 66:377, 1968.
3. Kaye, Donald, et al.: Comparison of parenteral ampicillin and parenteral chloramphenicol in the treatment of typhoid fever. *Ann. N. Y. Acad. Sci.* 145:423, 1968.
4. Kaye, Donald, et al.: Treatment of chronic enteric carriers of Salmonella typhosa with ampicillin. *Ann. N. Y. Acad. Sci.* 145:429, 1968.
5. Richardson, N. J., et al.: A bacteriological assessment of meat, offal, and other possible sources of human enteric infections in a Bantu township. *J. Hyg.* 66:365, 1968.
6. Schnurrenberger, P. R., et al.: Prevalence of Salmonella species in domestic animals and wildlife on selected Illinois farms. *J. Amer. Vet. Med. Ass.* 153:442, 1968.
7. Schroeder, S. A., et al.: Antibiotic resistance and transfer factor in salmonella, U.S., 1967. *J.A.M.A.* 205:903, 1968.
8. Schroeder, S. A.: Interpretation of serologic tests for typhoid fever. *J.A.M.A.* 206:839, 1968.
9. Williams, L. P., Jr., et al.: Sources of salmonellas in market swine. *J. Hyg. (Camb.)* 66:281, 1968.



VI. INTERNATIONAL

Salmonellosis in Israel - 1967

Reported by Ch. B. Gerichter, M.D., Ph.D., Director, Government Central Laboratories, Ministry of Health, State of Israel.

In Israel in 1967, 2,936 salmonella isolations were submitted to the National Salmonella Center for serotyping. The ten most common serotypes isolated from human and nonhuman sources are listed below. That seven serotypes appear on both lists demonstrates the close relationship between nonhuman sources of salmonellosis and human illness. A similar relationship has been demonstrated for the United States.

| HUMAN  |        |         | NONHUMAN   |        |         |
|--|--------|---------|--|--------|---------|
| Serotype   | Number | Percent | Serotype   | Number | Percent |
| <u>S. typhi-murium</u>                           | 783    | 26.7    | <u>S. typhi-murium</u>                           | 185    | 18.9    |
| <u>S. blockley</u>                               | 313    | 10.7    | <u>S. emek</u>                                   | 106    | 10.9    |
| <u>S. typhi-murium</u><br><u>var. copenhagen</u> | 250    | 8.5     | <u>S. blockley</u>                               | 105    | 10.8    |
| <u>S. enteritidis</u>                            | 189    | 6.5     | <u>S. sofia</u>                                  | 103    | 10.6    |
| <u>S. emek</u>                                   | 152    | 5.3     | <u>S. typhi-murium</u><br><u>var. copenhagen</u> | 91     | 9.4     |
| <u>S. newport</u>                                | 144    | 4.9     | <u>S. newport</u>                                | 79     | 8.1     |
| <u>S. sofia</u>                                  | 130    | 4.4     | <u>S. dublin</u>                                 | 51     | 5.2     |
| <u>S. braenderup</u>                             | 115    | 3.9     | <u>S. infantis</u>                               | 40     | 4.1     |
| <u>S. haifa</u>                                  | 106    | 3.6     | <u>S. montevideo</u>                             | 35     | 3.6     |
| <u>S. infantis</u>                               | 106    | 3.6     | <u>S. lille</u>                                  | 33     | 3.4     |
| Total  | 2288   | 78.1    | Total  | 828    | 84.9    |
| TOTAL<br>(all serotypes)                         | 2936   |         | TOTAL<br>(all serotypes)                         | 976    |         |

VII. FOOD AND FEED SURVEILLANCE

NONE

TABLE I. COMMON SALMONELLAE REPORTED FROM HUMAN SOURCES, OCTOBER 1968

| SERO TYPE                  | GEOGRAPHIC DIVISION AND REPORTING CENTER |          |          |            |          |                 |           |           |            |           |                    |           |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          |            |            |
|----------------------------|--|----------|----------|------------|----------|-----------------|-----------|-----------|------------|-----------|--------------------|-----------|-----------|------------|-----------|--------------------|-----------|-----------|-----------|----------|----------------|----------|-----------|----------|-----------|-----------|-----------|----------|-----------|----------|------------|------------|
|                            | NEW ENGLAND                              |          |          |            |          | MIDDLE ATLANTIC |           |           |            |           | EAST NORTH CENTRAL |           |           |            |           | WEST NORTH CENTRAL |           |           |           |          | SOUTH ATLANTIC |          |           |          |           |           |           |          |           |          |            |            |
|                            | ME                                       | NH       | VT       | MAS        | RI       | CON             | NYA       | NYB       | NYC        | NJ        | PA                 | OH        | IND       | ILL        | MIC       | WIS                | MIN       | IOW       | MO        | ND       | SD             | NEB      | KAN       | DEL      | MD        | DC        | VA        | WVA      | NC        | SC       | GA         | FLA        |
| <i>anatum</i>              |  |          |          |            |          |                 |           | 2         |            | 1         |                    |           |           | 1          |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          | 2          |            |
| <i>bareilly</i>            |  |          |          |            | 2        |                 |           | 1         | 1          |           |                    |           |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          |            | 1          |
| <i>blockley</i>            |  |          |          | 4          |          | 3               |           | 1         | 6          | 3         | 6                  |           | 8         | 4          | 3         | 3                  |           |           |           |          |                |          |           | 1        |           | 3         |           |          |           | 1        | 2          |            |
| <i>braenderup</i>          |  |          |          | 1          |          | 4               |           |           |            |           |                    |           |           |            |           |                    |           |           |           |          |                | 1        |           |          |           |           |           |          |           | 1        |            |            |
| <i>bredeney</i>            |  |          |          |            |          |                 |           |           |            | 2         |                    |           | 1         |            |           | 1                  |           |           |           |          |                |          |           | 1        |           |           |           |          |           | 1        |            |            |
| <i>chester</i>             |  |          |          |            |          |                 |           |           |            |           |                    |           |           | 1          | 1         |                    |           |           | 1         |          |                |          |           |          |           |           |           |          |           |          |            |            |
| <i>cholerae-suis v kun</i> |  |          |          |            |          |                 |           |           |            |           |                    |           | 1         |            |           |                    |           |           |           |          |                |          |           |          |           | 1         |           |          |           |          | 1          |            |
| <i>cubana</i>              |  |          |          |            |          | 1               |           |           | 1          |           |                    | 2         |           | 1          |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          |            |            |
| <i>derby</i>               |  |          |          | 1          |          |                 |           |           | 3          | 2         | 5                  |           | 2         |            | 1         |                    |           |           | 1         |          |                |          |           | 1        | 1         |           |           |          | 2         | 6        |            |            |
| <i>enteritidis</i>         | 3  |          | 3        | 45         |          | 4               | 1         | 3         | 5          | 3         | 15                 | 14        | 2         | 25         | 10        | 3                  | 7         | 3         | 1         |          |                |          |           | 5        | 1         | 2         |           | 2        | 2         | 9        | 6          |            |
| <i>give</i>                |  |          |          |            |          |                 |           |           |            | 2         |                    |           |           |            |           | 1                  |           |           |           |          |                |          |           |          | 1         |           |           |          |           |          |            |            |
| <i>heidelberg</i>          |  |          |          | 10         |          | 2               | 1         | 2         | 3          |           | 15                 | 2         | 1         | 6          | 4         | 1                  | 1         |           | 3         |          |                |          |           | 4        | 1         | 4         |           | 7        | 7         | 4        |            |            |
| <i>indiana</i>             |  |          |          |            |          |                 |           |           |            |           | 1                  |           |           | 2          |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           | 2        |            |            |
| <i>infantis</i>            |  |          |          | 11         |          | 3               |           | 1         | 6          | 4         | 5                  | 2         | 1         | 4          | 4         | 3                  | 1         | 1         | 1         |          |                | 5        |           | 1        | 2         |           | 1         | 13       | 8         |          |            |            |
| <i>java</i>                |  |          |          | 1          |          | 1               |           | 1         | 2          | 3         |                    |           |           | 1          | 2         |                    |           |           |           |          |                |          |           |          |           |           |           |          |           | 2        |            |            |
| <i>javiana</i>             |  |          |          |            |          | 1               |           |           | 1          |           |                    | 1         |           |            |           |                    |           |           | 2         |          |                |          |           | 1        |           |           |           |          | 12        | 20       |            |            |
| <i>litchfield</i>          |  |          |          |            |          |                 |           |           |            |           |                    |           |           |            |           |                    |           |           |           |          |                |          |           |          |           | 1         |           | 2        | 1         | 1        |            |            |
| <i>livingstone</i>         |  |          |          | 1          |          |                 |           |           |            | 1         |                    |           |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           | 1        |            |            |
| <i>manhattan</i>           |  |          |          | 1          |          |                 |           |           | 3          | 1         |                    |           |           | 2          |           |                    |           |           |           |          |                |          |           | 2        |           |           |           |          | 1         | 5        |            |            |
| <i>miami</i>               |  |          |          |            |          |                 |           |           |            |           | 1                  |           |           | 1          |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           | 9        |            |            |
| <i>mississippi</i>         |  |          |          |            |          |                 |           |           |            |           |                    |           |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           | 1        |            |            |
| <i>montevideo</i>          |  |          |          | 3          |          |                 |           | 2         | 2          |           | 3                  | 3         | 2         | 3          |           |                    |           | 1         |           |          |                |          |           |          |           | 5         |           |          | 1         | 5        |            |            |
| <i>muenchen</i>            |  |          |          | 6          |          |                 |           | 1         | 2          | 2         |                    | 1         |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          | 3         | 8        |            |            |
| <i>newington</i>           |  |          |          |            |          | 1               |           |           |            |           |                    |           |           |            | 3         |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          |            |            |
| <i>newport</i>             |  |          |          | 4          |          | 3               | 2         | 2         | 3          | 1         |                    | 1         | 1         | 7          | 2         | 1                  | 1         |           |           |          |                |          | 6         |          |           |           | 3         | 10       | 38        |          |            |            |
| <i>oranienburg</i>         |  |          |          |            |          |                 |           |           | 1          | 3         |                    | 4         |           | 1          | 1         | 1                  |           | 1         | 3         |          |                |          |           |          |           | 1         | 1         | 2        | 2         |          |            |            |
| <i>panama</i>              |  |          |          | 2          |          |                 |           |           | 2          |           |                    |           |           |            | 4         | 1                  |           | 1         |           |          |                |          |           | 3        |           |           |           |          |           |          |            |            |
| <i>paratyphi B</i>         |  |          |          | 10         |          |                 |           |           |            |           |                    | 4         |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          |            |            |
| <i>reading</i>             |  |          |          |            |          |                 |           |           | 1          |           |                    |           |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          |            |            |
| <i>saint-paul</i>          |  |          | 2        | 12         |          | 4               |           | 1         | 3          | 5         | 28                 | 7         | 2         | 6          | 3         | 1                  | 1         |           |           |          |                |          |           | 3        | 1         | 4         |           | 4        | 8         | 18       |            |            |
| <i>san-diego</i>           |  |          |          |            |          |                 |           |           |            | 1         |                    |           |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           | 1        |            |            |
| <i>schwarzengrund</i>      |  |          |          |            |          |                 |           |           |            |           |                    |           |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           | 2        | 5          |            |
| <i>sentenberg</i>          |  |          |          |            |          | 1               |           |           |            | 1         |                    |           |           |            | 3         |                    |           |           |           |          |                |          |           |          |           |           |           |          | 1         | 2        |            |            |
| <i>tennessee</i>           |  |          |          |            |          |                 |           |           |            |           | 1                  | 1         | 1         |            |           |                    |           |           |           |          |                |          |           |          | 1         |           |           |          |           |          |            |            |
| <i>thompson</i>            |  |          |          | 6          |          | 1               |           | 3         | 4          |           | 6                  | 1         |           | 8          | 3         |                    | 1         | 1         |           |          |                |          | 1         |          | 3         | 2         | 1         | 1        | 3         | 4        | 2          |            |
| <i>typhi</i>               | 1  |          |          | 1          |          |                 |           |           | 2          | 1         | 3                  | 4         | 4         |            |           |                    | 2         |           | 6         |          |                |          | 1         |          | 2         |           | 6         | 1        | 1         | 5        |            |            |
| <i>typhimurium</i>         | 1  |          | 1        | 45         |          | 12              | 2         | 31        | 50         | 7         | 40                 | 4         | 14        | 33         | 19        | 17                 | 5         | 7         | 5         | 2        | 1              |          | 19        | 13       | 1         | 16        | 1         | 9        | 29        | 23       |            |            |
| <i>typhimurium v cop</i>   | 1  |          |          | 6          |          | 13              |           |           | 1          |           |                    |           |           |            | 2         |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          |            |            |
| <i>weltevreden</i>         |  |          |          |            |          |                 |           |           |            |           |                    |           |           |            |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          |            |            |
| <i>worthington</i>         |  |          |          |            |          |                 |           |           |            |           |                    |           |           | 1          |           |                    |           |           |           |          |                |          |           |          |           |           |           |          |           |          |            |            |
| <b>TOTAL</b>               | <b>6</b>                                 | <b>—</b> | <b>6</b> | <b>172</b> | <b>—</b> | <b>54</b>       | <b>6</b>  | <b>52</b> | <b>102</b> | <b>35</b> | <b>130</b>         | <b>57</b> | <b>28</b> | <b>117</b> | <b>53</b> | <b>41</b>          | <b>26</b> | <b>13</b> | <b>25</b> | <b>2</b> | <b>1</b>       | <b>—</b> | <b>33</b> | <b>—</b> | <b>42</b> | <b>6</b>  | <b>41</b> | <b>2</b> | <b>38</b> | <b>3</b> | <b>117</b> | <b>172</b> |
| <b>ALL OTHER*</b>          | <b>—</b>                                 | <b>4</b> | <b>—</b> | <b>6</b>   | <b>—</b> | <b>1</b>        | <b>35</b> | <b>3</b>  | <b>1</b>   | <b>1</b>  | <b>4</b>           | <b>1</b>  | <b>—</b>  | <b>5</b>   | <b>3</b>  | <b>3</b>           | <b>—</b>  | <b>2</b>  | <b>3</b>  | <b>1</b> | <b>—</b>       | <b>3</b> | <b>1</b>  | <b>—</b> | <b>1</b>  | <b>8</b>  | <b>1</b>  | <b>—</b> | <b>2</b>  | <b>2</b> | <b>5</b>   | <b>12</b>  |
| <b>TOTAL</b>               | <b>6</b>                                 | <b>4</b> | <b>6</b> | <b>178</b> | <b>—</b> | <b>55</b>       | <b>41</b> | <b>55</b> | <b>103</b> | <b>36</b> | <b>134</b>         | <b>58</b> | <b>28</b> | <b>122</b> | <b>56</b> | <b>44</b>          | <b>26</b> | <b>15</b> | <b>28</b> | <b>3</b> | <b>1</b>       | <b>3</b> | <b>34</b> | <b>—</b> | <b>43</b> | <b>14</b> | <b>42</b> | <b>2</b> | <b>40</b> | <b>5</b> | <b>122</b> | <b>184</b> |

Note: NYA — New York, Albany; NYB — Beth Israel Hospital; NYC — New York City.  
Beth Israel Hospital laboratory is a reference laboratory and this month serotyped a total of 127 cultures.

\* See Table II.

TABLE I - Continued

| GEOGRAPHIC DIVISION AND REPORTING CENTER |     |     |     |                 |     |     |     |          |     |     |     |    |     |         |     |     |     |     |     | TOTAL | % OF TOTAL | CUMU-<br>LATIVE<br>TOTAL | % OF CUMU-<br>LATIVE<br>TOTAL | SERO TYPE |                            |                   |
|--|-----|-----|-----|-----------------|-----|-----|-----|----------|-----|-----|-----|----|-----|---------|-----|-----|-----|-----|-----|-------|------------|--------------------------|-------------------------------|-----------|----------------------------|-------------------|
| EAST S. CENTRAL                          |     |     |     | WEST S. CENTRAL |     |     |     | MOUNTAIN |     |     |     |    |     | PACIFIC |     |     |     |     |     |       |            |                          |                               |           |                            |                   |
| KY                                       | TEN | ALA | MIS | ARK             | LA  | OKL | TEX | MON      | IDA | WYO | COL | NM | ARI | UTA     | NEV | WAS | ORE | CAL | ALK | HAW   |            |                          |                               |           |                            |                   |
|  |     |     |     | 1               | 2   |     |     |          |     |     |     |    |     |         |     |     |     | 3   |     | 1     | 14         | 0.6                      | 179                           | 1.1       | <i>anatum</i>              |                   |
|  |     |     |     | 1               | 1   |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 7          | 0.3                      | 50                            | 0.3       | <i>bareilly</i>            |                   |
|  |     |     |     |                 | 4   | 3   | 4   |          |     |     | 1   |    | 4   |         |     |     |     | 6   |     |       | 70         | 3.1                      | 429                           | 2.6       | <i>blockley</i>            |                   |
|  |     |     |     |                 |     |     |     |          |     |     |     |    |     |         |     |     |     | 1   |     |       | 11         | 0.5                      | 127                           | 0.8       | <i>braenderup</i>          |                   |
|  |     | 1   | 1   |                 |     |     |     |          | 1   |     |     |    |     |         |     |     | 1   | 1   |     |       | 12         | 0.5                      | 155                           | 0.9       | <i>bredeney</i>            |                   |
| 1  |     |     |     |                 |     | 1   |     |          |     |     |     |    |     |         |     |     |     | 1   |     |       | 6          | 0.3                      | 49                            | 0.3       | <i>chester</i>             |                   |
|  |     |     |     |                 |     |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 3          | 0.1                      | 23                            | 0.1       | <i>cholerae-suis v kun</i> |                   |
|  |     | 1   |     |                 |     |     |     |          |     |     |     |    |     |         |     |     |     | 1   |     |       | 7          | 0.3                      | 45                            | 0.3       | <i>cubana</i>              |                   |
|  | 1   |     |     | 1               | 1   |     | 2   |          |     |     | 1   | 1  |     |         |     |     | 1   | 8   |     |       | 44         | 1.9                      | 353                           | 2.1       | <i>derby</i>               |                   |
| 1  | 3   | 1   |     |                 | 1   |     | 1   |          | 2   |     |     | 1  |     |         |     | 3   | 1   | 6   |     |       | 194        | 8.5                      | 1,410                         | 8.5       | <i>enteritidis</i>         |                   |
|  |     |     |     |                 | 6   |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 2          | 12                       | 0.5                           | 56        | 0.3                        | <i>give</i>       |
|  | 8   | 2   |     |                 | 9   | 2   | 6   |          |     |     | 1   |    | 4   |         |     | 1   | 3   | 8   |     |       | 122        | 5.3                      | 1,143                         | 6.9       | <i>heidelberg</i>          |                   |
|  |     |     |     |                 | 1   |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 6          | 0.3                      | 81                            | 0.5       | <i>indiana</i>             |                   |
| 1  | 2   | 2   |     | 2               | 4   | 1   | 1   |          |     | 1   | 2   | 1  |     |         |     | 1   |     | 16  |     |       | 118        | 5.1                      | 825                           | 4.9       | <i>infantis</i>            |                   |
|  |     |     |     |                 |     |     |     |          | 1   |     |     |    |     |         |     |     |     | 12  |     |       | 26         | 1.1                      | 167                           | 1.0       | <i>java</i>                |                   |
|  |     |     |     | 4               | 16  | 3   | 28  |          |     |     | 1   |    |     |         |     |     |     |     |     |       | 2          | 93                       | 4.1                           | 418       | 2.5                        | <i>javana</i>     |
|  |     |     |     |                 |     |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 1          | 6                        | 0.3                           | 81        | 0.5                        | <i>litchfield</i> |
|  |     |     |     |                 |     |     |     |          |     |     |     |    | 1   | 1       |     |     |     |     |     |       | 6          | 0.3                      | 31                            | 0.2       | <i>livingstone</i>         |                   |
|  |     | 2   |     |                 | 1   |     |     |          |     |     |     |    |     |         |     |     |     | 5   |     |       | 23         | 1.0                      | 167                           | 1.0       | <i>manhattan</i>           |                   |
|  |     |     |     |                 |     |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 11         | 0.5                      | 86                            | 0.5       | <i>miami</i>               |                   |
|  |     | 1   |     |                 | 3   |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 6          | 0.3                      | 47                            | 0.3       | <i>mississippi</i>         |                   |
|  |     |     |     |                 | 3   | 2   | 6   |          |     |     |     |    |     |         |     |     |     |     |     |       | 44         | 1.9                      | 239                           | 1.4       | <i>montevideo</i>          |                   |
|  |     |     |     |                 | 3   |     | 7   |          |     |     |     |    | 1   |         |     |     | 1   | 1   |     |       | 36         | 1.6                      | 172                           | 1.0       | <i>muenchen</i>            |                   |
|  |     |     |     |                 |     |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 1          | 6                        | 0.3                           | 33        | 0.2                        | <i>newington</i>  |
| 1  | 1   |     |     | 4               | 15  | 1   | 45  |          |     |     | 1   | 2  |     |         |     |     |     | 15  |     |       | 171        | 7.5                      | 1,017                         | 6.1       | <i>newport</i>             |                   |
|  |     |     |     | 1               | 1   | 1   | 1   |          |     |     | 1   | 1  | 3   |         |     |     |     |     |     |       | 3          | 1.5                      | 260                           | 1.6       | <i>oranienburg</i>         |                   |
|  |     |     |     |                 |     | 1   |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 5          | 1.6                      | 196                           | 1.2       | <i>panama</i>              |                   |
|  |     |     |     |                 |     |     |     |          |     |     | 1   |    |     |         |     |     |     |     |     |       | 16         | 0.7                      | 104                           | 0.6       | <i>paratyphi B</i>         |                   |
|  |     |     |     |                 |     |     |     | 1        |     |     |     |    |     |         |     |     |     |     |     |       | 10         | 0.4                      | 38                            | 0.2       | <i>reading</i>             |                   |
| 1  |     |     |     | 1               | 1   |     | 2   |          |     |     | 2   | 1  |     | 1       |     | 5   | 3   | 16  |     |       | 4          | 147                      | 6.4                           | 983       | 5.9                        | <i>saint-paul</i> |
|  |     |     |     |                 | 2   |     |     |          |     |     | 1   |    |     | 1       |     |     |     |     |     |       | 7          | 0.3                      | 96                            | 0.6       | <i>san-diego</i>           |                   |
|  |     |     |     |                 |     |     |     |          |     |     |     |    |     |         |     |     | 1   | 2   |     |       | 10         | 0.4                      | 46                            | 0.3       | <i>schwarzengrund</i>      |                   |
|  |     |     |     |                 |     |     |     |          |     |     | 1   |    |     |         |     |     |     |     |     |       | 11         | 0.5                      | 54                            | 0.3       | <i>senftenberg</i>         |                   |
| 1  | 1   | 3   |     | 1               |     |     | 2   |          |     |     |     |    |     |         |     |     |     |     |     |       | 8          | 0.3                      | 76                            | 0.5       | <i>tennessee</i>           |                   |
| 2  | 2   | 3   |     | 1               | 5   |     | 8   |          |     |     | 1   | 1  |     |         |     | 1   |     | 6   |     |       | 82         | 3.6                      | 552                           | 3.3       | <i>thompson</i>            |                   |
| 3  | 1   |     |     | 4               | 12  | 3   | 9   |          |     |     |     |    | 1   |         |     |     | 2   | 13  | 2   |       | 90         | 3.9                      | 539                           | 3.2       | <i>typhi</i>               |                   |
| 1  | 1   | 3   | 1   | 4               | 13  | 10  | 24  |          | 3   |     | 2   | 2  | 1   | 4       |     | 8   |     | 48  |     |       | 545        | 23.8                     | 4,263                         | 25.6      | <i>typhimurium</i>         |                   |
|  |     | 2   |     |                 | 4   |     |     |          |     |     |     | 1  | 2   |         |     |     |     |     |     |       | 34         | 1.5                      | 270                           | 1.6       | <i>typhimurium v cop</i>   |                   |
|  |     |     |     |                 |     |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 5          | 0.2                      | 63                            | 0.4       | <i>weltevreden</i>         |                   |
|  |     |     |     |                 | 2   |     |     |          |     |     |     |    |     |         |     |     |     |     |     |       | 7          | 0.3                      | 20                            | 0.1       | <i>worthington</i>         |                   |
| 9  | 23  | 18  | 2   | 24              | 110 | 28  | 146 | 1        | 7   | -   | 14  | 11 | 22  | 6       | -   | 22  | 15  | 195 | 2   | 62    | 2,097      | 91.5                     | 14,943                        | 89.6      | TOTAL                      |                   |
| -  | 1   | 1   | 7   | 8               | 7   | 1   | 40  | -        | 1   | -   | 4   | 7  | 1   | -       | -   | 1   | 2   | 3   | 2   | 1     | 195        |                          | 1,736                         |           | ALL OTHER*                 |                   |
| 9  | 24  | 19  | 9   | 32              | 117 | 29  | 186 | 1        | 8   | -   | 18  | 18 | 23  | 6       | -   | 23  | 17  | 198 | 4   | 63    | 2,292      |                          | 16,679                        |           | TOTAL                      |                   |

TABLE II. OTHER SALMONELLAE REPORTED FROM HUMAN SOURCES, OCTOBER 1968

| SEROTYPE                         | REPORTING CENTER |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
|----------------------------------|------------------|-----|-----|-----|-----|-----|-----|----|-----|----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|----|-----|----|----|---|
|                                  | ALA              | ALK | ARI | ARK | CAL | COL | CON | DC | FLA | GA | HAW | IDA | ILL | IOW | KAN | LA | MD | MAS | MIC | MIS | MO | NEB | NH | NJ |   |
| <i>alachua</i>                   |                  |     |     |     |     |     |     |    |     |    |     |     | 3   |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>albany</i>                    | 1                |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>atlanta</i>                   |                  |     |     |     |     |     |     |    |     | 1  |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>berlin</i>                    |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>berta</i>                     |                  |     |     |     |     |     |     |    | 1   |    |     | 1   |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>binza</i>                     |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>blegdam</i>                   |                  |     |     |     |     | 1   |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>california</i>                |                  |     |     |     |     |     |     |    |     | 1  |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>cerro</i>                     |                  |     |     |     |     |     |     |    | 1   |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>coeln</i>                     |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>coleypark</i>                 |                  |     |     |     | 1   |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>duesseldorf</i>               |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>gaminara</i>                  |                  |     |     |     |     |     |     |    | 1   |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>gatuni</i>                    |                  |     |     |     |     |     |     |    |     | 1  |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>georgia</i>                   |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     | 1  |    |     |     |     |    |     |    |    |   |
| <i>hagenbeck</i>                 |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    | 1   |    |    |   |
| <i>ibadan</i>                    |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    | 1   |    |    |   |
| <i>kaapstad</i>                  |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     | 1  |    |     |     |     |    |     |    |    |   |
| <i>loma-linda</i>                |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>madelia</i>                   |                  |     |     | 1   |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>meleagridis</i>               |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    | 1  |     |     |     |    |     |    |    |   |
| <i>minnesota</i>                 |                  |     |     |     |     |     |     |    | 1   |    |     |     |     |     |     | 2  |    | 1   |     |     |    |     |    |    |   |
| <i>missouri</i>                  |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>muenster</i>                  |                  |     |     | 1   |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    | 1 |
| <i>norwich</i>                   |                  |     |     | 1   |     |     |     |    | 2   | 1  |     |     |     |     |     | 2  |    |     |     |     |    | 1   |    |    |   |
| <i>orion</i>                     |                  |     |     |     |     | 3   |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>oslo</i>                      |                  |     |     |     |     |     |     |    |     |    | 1   |     |     |     |     |    |    | 1   |     |     |    |     |    |    |   |
| <i>paratyphi-A</i>               |                  |     |     |     | 1   |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>paratyphi B</i> <i>odense</i> |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     | 2   |    |     |    |    |   |
| <i>pensacola</i>                 |                  |     |     |     |     |     | 1   |    |     |    |     |     |     |     |     |    |    | 1   |     |     |    |     |    |    |   |
| <i>poona</i>                     |                  |     | 1   |     |     |     |     |    | 1   | 1  |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>rubislaw</i>                  |                  |     |     | 1   |     |     |     |    | 1   |    |     |     |     |     |     | 2  |    |     |     |     |    |     |    |    |   |
| <i>saphra</i>                    |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>stanley</i>                   |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     |     |     |    |     |    |    |   |
| <i>urbana</i>                    |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     |    |    |     | 1   |     |    |     |    |    |   |
| <i>zanzibar</i>                  |                  |     |     |     |     |     |     |    |     |    |     |     |     |     |     | 1  |    |     |     |     |    |     |    |    |   |
| TOTAL                            | 1                | —   | 1   | 4   | 2   | 4   | 1   | —  | 8   | 5  | 1   | 1   | 3   | 1   | 1   | 7  | 1  | 3   | 3   | —   | 3  | —   | —  | 1  |   |
| NOT TYPED*                       | —                | 2   | —   | 4   | 1   | —   | —   | 8  | 4   | —  | —   | —   | 2   | 1   | —   | —  | —  | 3   | —   | 7   | —  | 3   | 4  | —  |   |
| TOTAL                            | 1                | 2   | 1   | 8   | 3   | 4   | 1   | 8  | 12  | 5  | 1   | 1   | 5   | 2   | 1   | 7  | 1  | 6   | 3   | 7   | 3  | 3   | 4  | 1  |   |

\* See Table V-A

TABLE II - Continued

| REPORTING CENTER |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | TOTAL | CUMULATIVE TOTAL | SEROTYPE                    |
|------------------|-----|-----|-----|----|----|-----|-----|-----|----|----|-----|-----|----|-----|-----|-------|------------------|-----------------------------|
| NM               | NYA | NYB | NYC | NC | ND | OHI | OKL | ORE | PA | SC | TEN | TEX | VA | WAS | WIS |       |                  |                             |
|                  |     |     |     | 1  |    |     |     |     |    |    |     |     |    |     |     | 3     | 20               | <i>alachua</i>              |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 2     | 17               | <i>albany</i>               |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 9                | <i>atlanta</i>              |
|                  |     |     |     |    |    |     |     |     | 2  |    |     |     |    |     |     | 2     | 5                | <i>berlin</i>               |
|                  |     |     |     |    |    |     |     | 1   |    |    |     |     |    |     |     | 3     | 26               | <i>berta</i>                |
|                  |     |     |     |    |    | 1   |     |     | 1  |    |     |     |    |     |     | 2     | 6                | <i>binza</i>                |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 1                | <i>blegdam</i>              |
| 1                |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 19               | <i>california</i>           |
|                  |     | 2   |     |    |    |     |     |     |    |    |     |     |    |     |     | 2     | 8                | <i>cerro</i>                |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 2     | 2                | <i>coeln</i>                |
|                  |     |     |     | 1  |    |     |     |     |    |    |     |     |    |     |     | 1     | 1                | <i>coleypark</i>            |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 3                | <i>duesseldorf</i>          |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 15               | <i>gaminara</i>             |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 1                | <i>gatuni</i>               |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 1                | <i>georgia</i>              |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 1                | <i>hagenbeck</i>            |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 1                | <i>ibadan</i>               |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 4                | <i>kaapstad</i>             |
|                  |     |     |     |    |    |     |     |     | 1  |    |     |     |    |     |     | 1     | 2                | <i>loma-linda</i>           |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 3                | <i>medelia</i>              |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 4                | <i>meleagridis</i>          |
|                  |     |     |     |    |    |     |     |     |    |    |     | 3   |    |     |     | 7     | 16               | <i>minnesota</i>            |
|                  | 1   |     |     | 1  |    |     |     |     |    |    |     |     |    | 1   |     | 1     | 1                | <i>missouri</i>             |
|                  |     |     |     |    |    |     |     |     |    |    |     |     | 1  |     |     | 5     | 31               | <i>muenster</i>             |
|                  |     |     |     |    |    |     | 1   |     |    |    | 1   | 1   |    |     |     | 10    | 35               | <i>norwich</i>              |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 3     | 4                | <i>orion</i>                |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 2     | 12               | <i>oslo</i>                 |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 12               | <i>paratyphi-A</i>          |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 2     | 2                | <i>paratyphi B v odense</i> |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 2     | 9                | <i>pensacola</i>            |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 3     | 66               | <i>poona</i>                |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 8     | 30               | <i>rubislaw</i>             |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 7     | 17               | <i>saphra</i>               |
|                  |     |     |     |    |    |     |     |     | 1  |    |     |     |    |     |     | 1     | 7                | <i>stanley</i>              |
|                  |     | 1   |     |    |    |     |     |     |    |    |     |     |    |     |     | 2     | 19               | <i>urbana</i>               |
|                  |     |     |     |    |    |     |     |     |    |    |     |     |    |     |     | 1     | 1                | <i>zanzibar</i>             |
| 1                | 1   | 3   | 1   | 2  | -  | 1   | 1   | 2   | 4  | -  | 1   | 15  | 1  | 1   | -   | 85    | 593              | TOTAL                       |
| 6                | 34  | -   | -   | -  | 1  | -   | -   | -   | -  | 2  | -   | 25  | -  | -   | 3   | 110   | 1,143            | NOT TYPED*                  |
| 7                | 35  | 3   | 1   | 2  | 1  | 1   | 1   | 2   | 4  | 2  | 1   | 40  | 1  | 1   | 3   | 195   | 1,736            | TOTAL                       |

Cumulative Totals include isolations of all serotypes (except those listed in Table I) reported this year.

TABLE III. COMMON SALMONELLAE REPORTED FROM NONHUMAN SOURCES, OCTOBER 1968

| SEROTYPE                   | DOMESTIC ANIMALS AND THEIR ENVIRONMENT |         |       |        |        |       |          | ANIMAL FEEDS |                   |       |          |
|----------------------------|--|---------|-------|--------|--------|-------|----------|--------------|-------------------|-------|----------|
|                            | CHICKENS                               | TURKEYS | SWINE | CATTLE | HORSES | OTHER | SUBTOTAL | TANKAGE      | VEGETABLE PROTEIN | OTHER | SUBTOTAL |
| <i>anatum</i>              |  | 8       | 7     | 1      |        | 1     | 17       | 11           |                   | 4     | 15       |
| <i>bareilly</i>            |  |         | 3     |        |        |       | 3        | 1            |                   |       | 1        |
| <i>blockley</i>            | 7                                      | 2       |       |        |        | 6     | 15       | 3            |                   |       | 3        |
| <i>braenderup</i>          |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>bredeney</i>            | 1                                      |         |       |        |        |       | 1        | 4            |                   |       | 4        |
| <i>chester</i>             |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>cholerae-suis v kun</i> |  |         | 37    |        |        |       | 37       |              |                   |       | —        |
| <i>cubana</i>              |  |         |       |        |        |       | —        | 4            |                   | 4     | 8        |
| <i>derby</i>               | 1                                      |         | 3     | 2      |        |       | 6        | 4            |                   | 2     | 6        |
| <i>enteritidis</i>         | 3                                      |         |       | 1      |        | 3     | 7        |              |                   |       | —        |
| <i>give</i>                |  |         |       |        |        |       | —        | 1            |                   |       | 1        |
| <i>heidelberg</i>          | 4                                      | 8       | 1     |        |        | 1     | 14       |              |                   |       | —        |
| <i>indiana</i>             |  |         |       |        |        |       | —        |              |                   | 1     | 1        |
| <i>infantis</i>            | 7                                      | 1       | 2     |        |        | 1     | 11       | 1            |                   | 2     | 3        |
| <i>java</i>                |  |         | 4     |        |        |       | 4        |              |                   |       | —        |
| <i>javiana</i>             |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>litchfield</i>          |  |         |       |        |        |       | —        |              |                   | 1     | 1        |
| <i>livingstone</i>         |  |         |       |        |        |       | —        | 8            |                   | 5     | 13       |
| <i>manhattan</i>           |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>miami</i>               |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>mississippi</i>         |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>montevideo</i>          | 4                                      |         | 1     | 1      |        | 5     | 11       | 9            |                   | 5     | 14       |
| <i>muenchen</i>            |  | 1       |       | 1      |        |       | 2        |              |                   | 1     | 1        |
| <i>newington</i>           |  |         | 1     |        |        |       | 1        |              |                   | 4     | 4        |
| <i>newport</i>             |  | 1       | 3     | 2      |        |       | 6        |              |                   |       | —        |
| <i>oranienburg</i>         | 1                                      |         |       |        |        |       | 1        | 11           |                   | 6     | 17       |
| <i>panama</i>              |  | 4       | 1     |        |        |       | 5        |              |                   |       | —        |
| <i>paratyphi B</i>         |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>reading</i>             |  | 4       |       |        |        |       | 4        |              |                   |       | —        |
| <i>saint-paul</i>          | 1                                      | 4       | 1     | 4      |        |       | 10       | 5            |                   | 2     | 7        |
| <i>san-diego</i>           |  | 6       |       |        |        |       | 6        |              |                   |       | —        |
| <i>schwarzengrund</i>      |  |         |       |        |        |       | —        | 1            |                   |       | 1        |
| <i>senftenberg</i>         |  | 3       |       | 3      |        |       | 6        | 4            |                   | 5     | 9        |
| <i>tennessee</i>           |  | 1       |       | 1      |        |       | 2        | 3            |                   | 2     | 5        |
| <i>thompson</i>            | 5                                      |         |       |        |        | 3     | 8        |              |                   | 1     | 1        |
| <i>typhi</i>               |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>typhimurium</i>         | 1                                      | 7       | 9     | 16     | 6      | 7     | 46       | 1            |                   |       | 1        |
| <i>typhimurium v cop</i>   | 3                                      |         | 1     | 5      |        | 2     | 11       |              |                   |       | —        |
| <i>weltevreden</i>         |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>worthington</i>         |  | 1       |       |        |        | 1     | 2        | 1            |                   | 3     | 4        |
| TOTAL                      | 38                                     | 51      | 74    | 37     | 6      | 30    | 236      | 72           | —                 | 48    | 120      |
| ALL OTHER*                 | 6                                      | 1       | 7     | 16     | 1      | 5     | 36       | 44           | —                 | 35    | 79       |
| TOTAL                      | 44                                     | 52      | 81    | 53     | 7      | 35    | 272      | 116          | —                 | 83    | 199      |

\* See Table IV

TABLE III - Continued

| WILD ANIMALS AND BIRDS | REPTILES AND ENVIRONMENT | HUMAN DIETARY ITEMS |         |          |                |       |                | MISCELLANEOUS | TOTAL | CUMULATIVE TOTAL | SEROTYPE   |     |                     |
|------------------------|--------------------------|---------------------|---------|----------|----------------|-------|----------------|---------------|-------|------------------|------------|-----|---------------------|
|                        |                          | EGGS AND PRODUCTS   | POULTRY | RED MEAT | DAIRY PRODUCTS | OTHER | TOTAL SUBTOTAL |               |       |                  |            |     |                     |
| 2                      |                          | 1                   |         |          | 1              |       | 17             |               | 2     | 3                | 37         | 470 | anatum              |
| 2                      |                          | 2                   |         |          |                |       | 2              |               | —     | 4                | 4          | 28  | bareilly            |
| 2                      |                          | 2                   |         |          |                |       | 2              |               | 2     | 22               | 22         | 202 | blockley            |
|                        |                          |                     |         |          |                |       | 2              |               | 2     | 2                | 2          | 25  | braenderup          |
|                        |                          |                     |         |          |                |       | 17             |               | 17    | 1                | 25         | 126 | bredeny             |
|                        |                          |                     |         |          |                |       |                |               | —     | 1                | 1          | 44  | chester             |
|                        |                          |                     |         |          |                |       |                |               | —     | 37               | 37         | 131 | cholerae-suis v kum |
|                        |                          |                     |         |          |                |       | 17             |               | 21    | 5                | 34         | 299 | cubana              |
|                        |                          |                     |         |          |                |       | 11             |               | 11    | 23               | 23         | 242 | derby               |
|                        |                          |                     |         |          |                |       | 1              |               | 1     | 9                | 9          | 123 | enteritidis         |
|                        |                          |                     |         |          |                |       |                |               | —     | 3                | 4          | 46  | give                |
|                        |                          |                     |         |          |                |       | 4              |               | 4     | 1                | 19         | 554 | heidelberg          |
| 2                      |                          | 1                   |         |          |                |       | 1              |               | 1     | 2                | 2          | 17  | indiana             |
|                        |                          |                     |         |          |                |       | 5              |               | 5     | 5                | 26         | 368 | infantis            |
|                        |                          |                     |         |          |                |       | 1              |               | 1     | 6                | 6          | 23  | java                |
|                        |                          |                     |         |          |                |       |                |               | —     | —                | —          | 12  | javana              |
|                        |                          |                     |         |          |                |       |                |               | —     | 1                | 1          | 3   | litchfield          |
| 1                      |                          |                     |         |          |                |       |                |               | —     | 13               | 13         | 113 | livingstone         |
|                        |                          |                     |         |          |                |       |                |               | —     | 1                | 1          | 22  | manhattan           |
|                        |                          |                     |         |          |                |       |                |               | —     | —                | —          | 10  | miami               |
|                        |                          |                     |         |          |                |       |                |               | —     | 2                | —          | 1   | mississippi         |
| 1                      |                          | 8                   |         | 1        |                |       | 42             |               | 9     | 2                | 37         | 419 | montevideo          |
|                        |                          |                     |         |          |                |       | 15             |               | 15    | 4                | 46         | 90  | muenchen            |
| 1                      |                          | 2                   |         |          |                |       |                |               | —     | 24               | 24         | 107 | newington           |
|                        |                          |                     |         |          |                |       |                |               | —     | 9                | 9          | 188 | newport             |
|                        |                          | 1                   |         |          |                |       |                |               | 1     | 19               | 19         | 156 | oranienburg         |
|                        |                          |                     |         |          |                |       | 1              |               | 1     | 7                | 7          | 56  | panama              |
|                        |                          | 1                   |         |          |                |       |                |               | —     | 1                | 1          | 7   | paratyphi B         |
|                        |                          | 1                   |         |          |                |       |                |               | —     | 5                | 5          | 24  | reading             |
|                        |                          | 1                   |         |          |                |       |                |               | —     | 18               | 18         | 338 | saint-paul          |
|                        |                          |                     |         |          |                |       |                |               | —     | 6                | 6          | 43  | san-diego           |
| 1                      |                          |                     |         |          |                |       |                |               | —     | 2                | 2          | 69  | schwarzengrund      |
|                        |                          |                     |         |          |                |       | 3              |               | 3     | 18               | 18         | 281 | sentenberg          |
|                        |                          |                     |         |          |                |       | 2              |               | 2     | 12               | 12         | 161 | tennessee           |
|                        |                          | 1                   |         |          |                |       |                |               | 1     | 11               | 11         | 233 | thompson            |
|                        |                          |                     |         |          |                |       |                |               | —     | —                | —          | —   | typhi               |
|                        |                          | 1                   |         |          |                |       |                |               | 2     | 2                | 51         | 941 | typhimurium         |
|                        |                          | 1                   |         |          |                |       |                |               | 1     | 12               | 12         | 226 | typhimurium v cop   |
|                        |                          | 1                   |         |          |                |       |                |               | —     | —                | —          | 10  | welfevreden         |
|                        |                          |                     |         |          |                |       |                |               | 2     | 8                | 8          | 106 | worthington         |
| 10                     | 7                        | 24                  | —       | 2        | 65             | 55    | 146            | 33            | 552   | 6,314            | TOTAL      |     |                     |
| 6                      | 9                        | 10                  | —       | 6        | 3              | 8     | 27             | 5             | 162   | 1,506            | ALL OTHER* |     |                     |
| 16                     | 16                       | 34                  | —       | 8        | 68             | 63    | 173            | 38            | 714   | 7,820            | TOTAL      |     |                     |





TABLE IV - Continued

| WILD ANIMALS AND BIRDS | REPTILES AND ENVIRONMENT | HUMAN DIETARY ITEMS |         |          |                |       |          | MISCELLANEOUS | TOTAL | CUMULATIVE TOTAL   | SEROTYPE |
|------------------------|--------------------------|---------------------|---------|----------|----------------|-------|----------|---------------|-------|--|----------|
|                        |                          | EGGS AND PRODUCTS   | POULTRY | RED MEAT | DAIRY PRODUCTS | OTHER | SUBTOTAL |               |       |  |          |
| 1                      | 4                        | 2                   |         | 1        | 1              | 2     | 1        | 3             | 8     | alachuata<br>binza<br>california<br>cerro<br>cholerae-suis |          |
|                        |                          |                     |         |          |                |       |          | 6             | 42    | drypool  |          |
|                        |                          |                     |         |          |                |       |          | 11            | 57    | dublin   |          |
|                        |                          |                     |         |          |                |       |          | 13            | 243   | eimsbuettel  |          |
| 1                      |                          |                     |         |          | 1              | 1     |          | 2             | 4     | gaminara   |          |
|                        |                          |                     |         |          |                |       |          | 1             | 1     | good   |          |
|                        |                          |                     |         |          | 4              |       |          | 4             | 7     | habana   |          |
|                        |                          |                     |         |          |                |       |          | 1             | 3     | halmstad   |          |
|                        |                          |                     |         |          |                |       |          | 3             | 12    | illinois   |          |
| 1                      |                          |                     |         | 2        | 1              | 3     |          | 10            | 15    | johannesburg   |          |
|                        |                          |                     |         |          |                |       |          |               | 101   | kentucky   |          |
|                        |                          |                     |         |          |                |       |          | 1             | 9     | kottbus  |          |
|                        |                          |                     |         |          |                |       |          | 3             | 14    | manila   |          |
|                        |                          |                     |         |          | 2              | 1     |          | 6             | 33    | melegridis   |          |
|                        |                          |                     |         | 1        |                |       |          | 1             | 11    | munster  |          |
|                        | 1                        |                     |         |          |                |       |          | 1             | 1     | narashino  |          |
|                        |                          |                     |         |          |                |       |          | 1             | 4     | norwich  |          |
|                        |                          |                     |         |          |                |       |          | 1             | 11    | ohio   |          |
|                        |                          |                     |         |          |                |       |          | 18            | 30    | orion  |          |
| 1                      | 1                        |                     |         |          |                |       |          | 1             | 4     | oslo   |          |
|                        |                          |                     |         |          |                |       |          | 3             | 12    | pomona   |          |
|                        |                          | 7                   |         |          |                |       |          | 7             | 21    | poona  |          |
| 1                      | 1                        |                     |         |          |                |       |          | 2             | 50    | pullorum   |          |
|                        |                          |                     |         |          |                |       |          | 1             | 20    | rubislaw   |          |
|                        |                          | 1                   |         |          |                |       |          | 1             | 1     | sappora  |          |
|                        |                          |                     |         | 2        |                |       |          | 15            | 64    | stegburg   |          |
|                        |                          |                     |         |          |                |       |          | 1             | 12    | stimsbury  |          |
| 1                      |                          |                     |         |          |                |       |          | 1             | 2     | stanley  |          |
|                        |                          |                     |         |          |                |       |          | 1             | 15    | takony   |          |
|                        |                          |                     |         |          |                |       |          | 4             | 47    | thomassville   |          |
|                        | 2                        |                     |         |          |                |       |          | 3             | 15    | urbana   |          |
|                        |                          |                     |         |          |                |       |          | 1             | 12    | westhampton  |          |
|                        |                          |                     |         |          |                |       |          |               |       |  |          |
|                        |                          |                     |         |          |                |       |          |               |       |  |          |
| 6                      | 9                        | 10                  | -       | 6        | 3              | 8     | 27       | 156           | 1,433 | TOTAL  |          |
| -                      | -                        | -                   | -       | -        | -              | -     | -        | 6             | 73    | NOT TYPED *  |          |
| 6                      | 9                        | 10                  | -       | 6        | 3              | 8     | 27       | 162           | 1,506 | TOTAL  |          |

TABLE V. SALMONELLAE REPORTED BY GROUP IDENTIFICATION ONLY, OCTOBER 1968

## A. HUMAN SOURCES

| REPORTING CENTER     | GROUP |   |                |  |  |                |   |   |  |  |   |   |     | TOTAL |     |
|----------------------|-------|---|----------------|--|--|----------------|---|---|--|--|---|---|-----|-------|-----|
|                      | B     | C | C <sub>1</sub> |  |  | C <sub>2</sub> | D | E |  |  | F | O | UNK |       |     |
| ALASKA               |       |   |                |  |  | 2              |   |   |  |  |   |   |     |       | 2   |
| ARKANSAS             | 1     |   | 3              |  |  |                |   |   |  |  |   |   |     |       | 4   |
| CALIFORNIA           | 1     |   |                |  |  |                |   |   |  |  |   |   |     |       | 1   |
| DISTRICT OF COLUMBIA | 5     |   | 1              |  |  |                |   | 1 |  |  |   |   | 1   |       | 8   |
| FLORIDA              | 3     |   |                |  |  |                |   |   |  |  |   | 1 |     |       | 4   |
| ILLINOIS             | 1     |   | 1              |  |  |                |   |   |  |  |   |   |     |       | 2   |
| IOWA                 | 1     |   |                |  |  |                |   |   |  |  |   |   |     |       | 1   |
| MASSACHUSETTS        | 3     |   |                |  |  |                |   |   |  |  |   |   |     |       | 3   |
| MISSISSIPPI          | 5     | 2 |                |  |  |                |   |   |  |  |   |   |     |       | 7   |
| NEBRASKA             |       |   |                |  |  |                |   |   |  |  |   |   | 3   |       | 3   |
| NEW HAMPSHIRE        | 3     |   |                |  |  |                | 1 |   |  |  |   |   |     |       | 4   |
| NEW MEXICO           | 2     |   | 3              |  |  |                | 1 |   |  |  |   |   |     |       | 6   |
| NEW YORK - A         |       |   |                |  |  |                |   |   |  |  |   |   | 34  |       | 34  |
| NORTH DAKOTA         |       |   |                |  |  |                |   |   |  |  |   |   | 1   |       | 1   |
| SOUTH CAROLINA       |       |   |                |  |  | 2              |   |   |  |  |   |   |     |       | 2   |
| TEXAS                | 1     |   | 1              |  |  | 5              | 5 |   |  |  | 1 |   | 12  |       | 25  |
| WISCONSIN            |       |   |                |  |  |                |   |   |  |  |   |   | 3   |       | 3   |
| TOTAL                | 26    | 2 | 9              |  |  | 9              | 7 | 1 |  |  | 1 | 1 | 54  |       | 110 |

## B. NONHUMAN SOURCES

| SOURCES                                | GROUP |   |                |  |  |                |   |   |  |  |   |   |     | TOTAL |   |
|--|-------|---|----------------|--|--|----------------|---|---|--|--|---|---|-----|-------|---|
|  | B     | C | C <sub>1</sub> |  |  | C <sub>2</sub> | D | E |  |  | F | O | UNK |       |   |
| DOMESTIC ANIMALS AND THEIR ENVIRONMENT | 4     |   |                |  |  |                |   |   |  |  |   |   |     |       | 4 |
| ANIMAL FEEDS                           |       |   |                |  |  |                |   |   |  |  |   |   | 1   |       | 1 |
| WILD ANIMALS AND BIRDS                 |       |   |                |  |  |                |   |   |  |  |   |   |     |       | - |
| REPTILES AND ENVIRONMENT               |       |   |                |  |  |                |   |   |  |  |   |   |     |       | - |
| HUMAN DIETARY ITEMS                    |       |   |                |  |  |                |   |   |  |  |   |   |     |       | - |
| MISCELLANEOUS                          |       |   |                |  |  |                |   |   |  |  |   |   | 1   |       | 1 |
| TOTAL                                  | 4     | - | -              |  |  | -              | - | - |  |  | - | - | 2   |       | 6 |