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June 6, 1969

NATIONAL
COMMUNICABLE DISEASE CENTER

SALMONELLA

SURVEILLANCE

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FOR THE MONTH OF APRIL 1969

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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
Attn: Chief, Salmonellosis Unit, Epidemiology Program
Atlanta, Georgia 30333

| | |
|---|--|
| National Communicable Disease Center | David J. Sencer, M.D., Director |
| Epidemiology Program | Alexander D. Langmuir, M.D., Director |
| Bacterial Diseases Branch | Philip S. Brachman, M.D., Chief John V. Bennett, M.D., Deputy Chief |
| Enteric Diseases Section | Eugene J. Gangarosa, M.D., Chief |
| Salmonellosis Unit | Bernard Aserkoff, M.D., Chief Andrew Mallory, M.D. |
| Statistics Section | Stanley M. Martin, M.S. Theodore P. Feury, Jr., M.S. |
| Veterinary Public Health Section | James H. Steele, D.V.M., Chief |
| Epidemiological Services Laboratory Section | Philip S. Brachman, M.D., Acting Chief |
| Salmonella Laboratory Unit | George K. Morris, Ph.D., Chief |

Collaborators

| | |
|---------------------------------|---|
| Laboratory Division | |
| Bacteriology Section | |
| Enteric Bacteriology Unit | William H. Ewing, Ph.D., Chief William J. Martin, Ph.D., Asst. Chief |

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I. SUMMARY

In April 1969, 1,604 isolations of salmonellae were reported from humans, an average of 321 isolations per week (Tables I, II, and V-A). This number represents an increase of 30 (10.3 percent) over the weekly average of March 1969 and an increase of 23 (7.7 percent) over the weekly average of April 1968.

Reports of 837 nonhuman isolations of salmonellae were received during April 1969 (Tables II, IV, and V-B).

II. REPORTS OF ISOLATIONS

The ten most frequently reported serotypes during April:

| HUMAN | | | | NONHUMAN | | |
|--|--------|---------|-----------------|--|--------|---------|
| Serotype | Number | Percent | Rank Last Month | Serotype | Number | Percent |
| 1 <u>typhi-murium*</u> | 448 | 27.9 | 1 | <u>typhi-murium*</u> | 107 | 12.8 |
| 2 <u>enteritidis</u> | 143 | 8.9 | 2 | <u>heidelberg</u> | 97 | 11.6 |
| 3 <u>heidelberg</u> | 131 | 8.2 | 3 | <u>kentucky</u> | 61 | 7.3 |
| 4 <u>infantis</u> | 109 | 6.8 | 4 | <u>cholerae-suis var.</u> | 57 | 6.8 |
| 5 <u>newport</u> | 96 | 6.0 | 5 | <u>kunzensdorf</u> | | |
| 6 <u>thompson</u> | 78 | 4.9 | 7 | <u>infantis</u> | 39 | 4.7 |
| 7 <u>saint-paul</u> | 67 | 4.2 | 6 | <u>anatum</u> | 31 | 3.7 |
| 8 <u>typhi</u> | 53 | 3.3 | 9 | <u>thompson</u> | 31 | 3.7 |
| 9 <u>blockley</u> | 35 | 2.2 | 8 | <u>saint-paul</u> | 28 | 3.3 |
| 10 <u>derby</u> | 31 | 1.9 | 10 | <u>minnesota</u> | 22 | 2.6 |
| | | | | <u>senftenberg</u> | 21 | 2.5 |
| Total | 1,191 | 74.3 | | Total | 494 | 59.0 |
| TOTAL (all serotypes) | 1,604 | | | TOTAL (all serotypes) | 837 | |
| *Includes <u>var.</u> <u>copenhagen</u> | 29 | 1.8 | | *Includes <u>var.</u> <u>copenhagen</u> | 18 | 2.2 |

III. CURRENT INVESTIGATIONS

NONE

IV. REPORTS FROM THE STATES

A. Tennessee - An Outbreak of Salmonellosis Due to Smoked Turkey

Reported by Cecil B. Tucker, M.D., M.P.H., Director, Division of Preventable Diseases, W. M. Arnold, Director, Memphis Branch Laboratory, and J. H. Barrick, Ph.D., Director, Division of Laboratories, Tennessee Department of Public Health; Eugene Fowinkle, M.D., Director, R. C. Rendtorff, Director, Communicable Disease Division, and Donald R. Daffron, Sanitation Division, Memphis-Shelby County Health Department; John E. Spaulding, D.V.M., Head, Toxicology Group, Agricultural Research Center, USDA; Epidemiologic Services Laboratory Section, Epidemiology Program, NCDC; and a team of EIS Officers.

Of 17 dental students and their families who attended a New Year's Day party in Memphis, 11 (65 percent) developed gastroenteritis 23 to 43 hours after the party (mean 29 hours). Two persons were hospitalized. Symptoms included diarrhea (100 percent), fever (91 percent), abdominal cramps (73 percent), and vomiting (27 percent). The average duration of illness was greater than 3 days and two persons were still ill when interviewed 5 days after the outbreak. Stool cultures from six patients were positive for Salmonella infantis.

Food histories from all persons at the party suggested smoked turkey as the vehicle of infection. Of 12 who consumed the smoked turkey, 11 became ill, whereas all five who did not eat this food remained well. A sample of leftover smoked turkey was positive for S. infantis; a sample of fresh baked turkey also served at the party was negative.

The turkey was purchased from a smoke house in Texas and delivered by mail to Louisiana on December 20 to a relative of the host. The turkey was refrigerated until December 30 when it was transported by car from Louisiana to Memphis, a 9-hour trip. In Memphis, the turkey was refrigerated until January 1 when it was warmed briefly and served. The turkey was labeled "ready-to-eat." It had been at room temperature during its transportation through the mails and during the automobile trip.

The smoke house in Texas is a federally inspected plant. The smoked turkeys are prepared from frozen, grade A, USDA inspected turkeys. They are thawed, soaked in brine for 3 days, and smoked overnight to an internal temperature of 160°F as measured by a USDA inspector using a meat thermometer. The turkeys are then held at this temperature for an additional 2 hours and cooled at room temperature for approximately 9 hours before being packed in plastic bags, boxed, and frozen. Although the temperature reached in smoking is adequate to eliminate salmonella from the turkeys, opportunity for cross-contamination of the finished product by the raw product was present. Raw turkeys were defrosted in the room in which the smoked turkeys were left to cool, and the same employees handled both raw and finished products. Environmental swabs in the plant and samples of turkey at each step in the process were obtained for culture. A swab from a raw turkey was positive for group B salmonella (not further identified), but no salmonella was isolated from any finished product samples.

EDITOR'S COMMENT: The smoke house implicated as the source of this outbreak distributes its products by mail mainly to Texas, Oklahoma, and Louisiana. The distribution of smoked turkeys is seasonal and most are purchased for the Christmas season. Last Christmas approximately 9,000 turkeys were sold. The state health departments in

Texas, Oklahoma, and Louisiana reinvestigated persons from whom S. infantis was isolated during November, December, and January with regard to the possibility of contact with this product. No other associated cases were identified.

This outbreak apparently resulted from the cross-contamination of finished, ready-to-eat product by raw product. In a recent outbreak in the State of Washington due to precooked turkey roast (Salmonella Surveillance Report Number 81), similar conditions in the processing plant were present. Subsequent to the investigation of these two outbreaks, the USDA has revised its guidelines for the handling of such ready-to-eat products (Salmonella Surveillance Report Number 84). Elimination of potential sources of cross-contamination within processing plants should reduce greatly the potential not only for salmonella contamination of these products but for contamination by other organisms as well.

B. Texas - An Outbreak of Salmonellosis Due to "Chicken" Tetrazzini

Reported by M. S. Dickerson, M.D., State Epidemiologist, Texas State Department of Health, Austin; and Mr. James L. Conner, Laboratory Director, State Regional Laboratory, Tyler, Texas

On March 25, 1969, an outbreak of salmonellosis due to Salmonella infantis occurred among 70 men attending a luncheon in a hotel in Tyler, Texas. Of 52 persons attending the meal who were subsequently interviewed, 28 reported a history of febrile gastroenteritis. Onset of illness ranged from 4.5 hours to 24 hours after the suspect meal with a median of 11 hours. Predominant symptoms included diarrhea, fever and nausea. Four patients required hospitalization; no deaths occurred. Stool culture from four of those ill were positive for S. infantis.

The suspect meal consisted of beef stroganoff, "chicken" tetrazzini, short ribs, roast beef, fried shrimp, cold cuts, black-eyed peas, potato salad, jello, potatoes o'brien, cream pie, milk, tea and coffee. Food histories from the 52 persons interviewed implicated the tetrazzini as the vehicle of infection. Of 28 who had been ill, 26 had consumed the tetrazzini. A portion of the tetrazzini served at the luncheon had been put aside in a refrigerator to be served at a later date. This was cultured and was positive for S. infantis.

An investigation of the manner of preparation of the "chicken" tetrazzini was then undertaken. The tetrazzini actually contained turkey as the source of poultry meat. The day before the meal a whole frozen turkey was cooked by boiling in water for 6 hours and was then deboned on a wooden cutting block. The turkey meat, boiled spaghetti and a spaghetti sauce containing whole milk, butter, flour, bell peppers, mushrooms and tomato juice were mixed together in a dish, covered with cheddar and Parmesan cheese, and browned in the oven. The tetrazzini was then refrigerated until the next day when it was served at the luncheon. An inspection of the environment of the kitchen was undertaken. The refrigerator in which the tetrazzini had been stored maintained a temperature of only 50°F. The wooden block on which the turkey had been deboned was also used to cut raw chicken. Pieces of chicken meat were observed on the cutting block at the time of the investigation. Culture of swabs taken from the cutting block were negative for salmonella. Food handlers working in the kitchen were also cultured. Two food handlers were positive for S. infantis. Both denied any symptoms of gastrointestinal illness, and neither admitted consuming the tetrazzini. One of these food handlers had prepared the spaghetti and spaghetti sauce; the other was not directly involved in preparation of the meal. The head chef who also had a positive stool culture had become ill after intentionally consuming several food items after the outbreak in an attempt to demonstrate their wholesomeness.

In summary, an outbreak of salmonellosis occurred involving at least 28 persons attending a luncheon and three food handlers at a hotel in Tyler, Texas. Food histories incriminated "chicken" tetrazzini made with turkey. Although it is likely that the outbreak was caused by contaminated turkey meat, the possibility that a human carrier was involved or that the turkey had become contaminated by the environment of the kitchen could not be excluded.

C. Georgia - A Protracted Outbreak of Salmonellosis on a Hospital Pediatric Ward

Reported by Andre J. Nahmias, M.D., Associate Professor of Pediatrics and Preventive Medicine, John R. Boring, III, Ph.D., Assistant Professor of Preventive Medicine, Emory University School of Medicine, John E. McCroan, Ph.D., Epidemiology Branch, Georgia Department of Public Health, and Jonathan L. Adler, M.D., Microbiologic Control Section, Bacterial Diseases Branch, Epidemiology Program, NCDC, Atlanta.

In the *Salmonella* Surveillance Report Number 75 for June 1968, an outbreak of salmonellosis due to *Salmonella indiana* on the pediatric ward of a large municipal hospital in Georgia was reported. The outbreak involved 22 infants, with the mode of spread of infection presumably being person-to-person via the hands of personnel. However, widespread environmental contamination was demonstrated and spread via the use of common fomites could not be ruled out. Improvement in handwashing technique, the elimination of a common weighing scale and a common tube of lubricating jelly for thermometers, restriction of all infants to their rooms, and thorough terminal cleaning of rooms prior to admission of new cases halted the outbreak.

Between June 1968 and February 1969, there was at least one infant carrier of *S. indiana* on the ward at all times but very few symptomatic cases occurred. However, from February 10, 1969, to March 10, 1969, there was a cluster of five new cases of hospital associated salmonellosis due to *S. indiana*. Strict isolation and reinforcement of handwashing procedures were again effective in checking further spread.

On March 31, 1969, two infants, sharing one room, became ill with diarrhea and fever, and stool cultures from both yielded *S. indiana*. Nine other infants subsequently became infected with *S. indiana*. The attack rate for infants admitted to the ward between March 18 and April 30, 1969, was 18 percent. All but two cases developed before April 7; the last case was documented on May 1, 1969. All of the isolates were resistant to ampicillin, cephalothin, Gantrisin, streptomycin, and nafcillin.

Patients ranged in age from 3 months to 2½ years. They had been on the ward from 4 to 25 days before onset of diarrhea, with a median of 9 days. Nine of the 11 patients were admitted to the hospital with a bacterial infection and were being treated with ampicillin or nafcillin or both when *S. indiana* was isolated from their stool. Four patients were admitted with meningitis; three patients had skin infections; two patients had pneumonia. One patient was receiving antibiotics prophylactically. The only patient not receiving antimicrobials had congestive heart failure secondary to endocardial fibroelastosis. Symptoms of salmonellosis were mild and included non-bloody diarrhea and fever, in some cases as high as 106°F. One infant had a bacteremia. There were no deaths.

The two index cases occupied the same hospital room that had been occupied by a patient with *S. indiana* infection one month before their admission. Another infant, who developed diarrhea on April 6, shared this room with the two index cases until March 31. Five of the cases were roommates of this infant at one time during their hospitalization. One infant developed salmonella infection despite being placed in isolation for severe pyoderma. However, this patient was admitted on April 1 to the room previously occupied by the two index cases.

Inspection of the ward during the first week of April revealed that foot dispensers containing liquid soap were not in use in isolation and contact rooms, that isolation procedures were not being strictly enforced, and that a tube of jelly for lubricating thermometers was present in some rooms. It was recommended that foot dispensers filled with an iodine-containing solution for handwashing be placed in all rooms, gloves be used for feeding, diapering, and bathing infants in isolation rooms, the common tube of lubricating jelly be discontinued, and that rooms which housed infants with salmonella infection be more thoroughly cleaned when emptied. When these recommendations were implemented, the epidemic was again halted.

Person-to-person transmission via hands of personnel was thought to be the major mode of spread. No common source could be documented, and a stool culture survey of the ward's personnel did not uncover a stool carrier. The lubricating jelly could not be ruled out as a source of infection. Although the jelly was not cultured during the outbreak, attempts to recover salmonella organisms 48 and 72 hours following artificial inoculation of the jelly with S. indiana were not successful.

Organisms persisting in the hospital environment appear to have been responsible for these repeated outbreaks. It has been demonstrated that salmonella organisms can persist in the inanimate environment for as long as 6 months. During the investigation last year, S. indiana was recovered from the inanimate environment of patient rooms following terminal cleaning. This year, the index cases shared a room previously occupied by a patient with salmonella infection, and an infant isolated in this room also became infected.

In summary, a protracted hospital-acquired outbreak of salmonellosis due to S. indiana occurred on a pediatric ward of a large municipal hospital from March 31, 1968, to May 1, 1969. The first cluster of 22 cases occurred in a 5-week period, April-May 1968, and was terminated by measures designed to reduce person-to-person transmission of infection. A small number of cases continued to occur related to the presence of a patient on the ward excreting S. indiana. In April 1969, a second cluster of 11 cases occurred. No stool carrier among the staff was discovered and no common vehicle was identified. As before, transmission most likely occurred via hands of personnel.

D. Salmonellosis from Pet Turtles - A Continuing Problem

Reported by John D. Moroney, M.D., Pediatrician, Tampa; Charles Hartwig, Sc.D., Director, Regional Laboratory, Florida State Board of Health; Lawrence P. Levitt, M.D., EIS Officer located at the Florida State Board of Health; Gordon C. Edwards, M.D., State Epidemiologist, Monroe Holmes, D.V.M., M.P.H., Public Health Veterinarian, Epidemiology Section, and Roger Rochat, M.D., EIS Officer located at the Oregon State Board of Health.

On November 19, 1968, a 2-year-old boy was hospitalized in Tampa, Florida, with a 5-day history of diarrhea and fever. A stool culture on admission was positive for Salmonella java monophasic b. The patient was treated with one gram of ampicillin per day for 4 days, after which time he became asymptomatic and was discharged. Epidemiologic investigation revealed that the child was in the habit of eating with one hand while holding his pet turtle in the other. Culture of the turtle tank water yielded S. java monophasic b. Follow-up cultures from the patient and from five asymptomatic family members were all negative for salmonella.

On February 25, 1969, a 4-year-old girl from Lake Oswego, Oregon, developed febrile gastroenteritis which promptly responded to symptomatic medication. On March 1, 1969, her 2½-year-old sister developed severe febrile gastroenteritis with bloody diarrhea requiring hospitalization on March 6. A stool culture taken at the time of admission was negative for enteric pathogens. However, a blood culture was positive for S. java.

When results of the blood culture were reported on March 9, the patient was given one gram of chloramphenicol per day for 10 days after which she was discharged. Epidemiologic investigation revealed that a pet turtle had been purchased 4 days prior to the older child's illness. Both children played with the turtle and little effort was made to enforce handwashing after handling it. The turtle and turtle water were cultured and were positive for S. java. It is interesting to note that the commercial supplier maintained an extremely clean aquarium for holding his turtles. The water was changed bi-weekly and a sulfa powder was added for "bacteriological control."

EDITOR'S COMMENT: Since the inception of the Salmonella Surveillance Program in 1963, seven separate reports of single or multiple outbreaks of salmonellosis traced to pet turtles have been published in the Salmonella Surveillance Reports. Cases of turtle-related salmonellosis continue to be reported. In 1968, 129 isolations of salmonella were reported from pet turtles. Most of these cultures were performed in conjunction with investigation of cases of human salmonellosis. The above recently reported cases are summarized to reemphasize the importance of turtles in the dissemination of salmonellosis.

V. SPECIAL REPORTS

A. Recent Articles on Salmonellosis

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

1. Bryan, F. L., et al.: Destruction of salmonellae and indicator organisms during thermal processing of turkey rolls. Poultry Science 47:1966, 1968.
2. de Fiebre, C. W., et al.: Elimination of salmonellae from animal glandular products. Appl. Microbiol. 17:344, 1969.
3. Feeley, J. C., et al.: Penetration of turtle eggs by Salmonella braenderup. Public Health Reports 84:156, 1969.
4. Goepfert, J. M., et al.: Effect of volatile fatty acids on Salmonella typhi-murium. J. Bact. 97:956, 1969.
5. Hobbs, B. C., et al.: Epidemiological studies on Salmonella senftenberg. I. Relations between animal foodstuff, animal and human isolations. J. Hyg. 67:81, 1969.
6. Hugh-Jones, M. E.: Epidemiological studies on Salmonella senftenberg. II. Infections in farm animals. J. Hyg. 67:89, 1969.
7. Laramore, C. R., et al.: Fluorescent-antibody technique in detection of salmonellae in animal feed and feed ingredients. Appl. Microbiol. 17:352, 1969.
8. Marth, E. H.: Salmonellae and salmonellosis associated with milk and milk products. J. Dairy Science 52:283, 1969.
9. Shilkin, K. B.: Salmonella typhi-murium pancarditis. Postgrad. Med. J. 45:40, 1969.
10. Zindel, H. C., et al.: Salmonella in poultry feeds. Poultry Science 47:1925, 1968.

B. Recalls of Products Contaminated with Salmonellae for Period March 31 to May 5 (reported by the U.S. Food and Drug Administration).

From March 31 to May 5, 1969, four products were recalled by manufacturers and distributors because of salmonella contamination. These products as reported by the U.S. Food and Drug Administration are summarized in the table below.

| Week Ending | Name, Label, Form | Manufacturer, Distributor | Lot Number | Use | Depth of Recall | Product Distribution | Serotype |
|-------------|---|---|------------|------|-----------------------------|----------------------|----------------------|
| 4/7 | Spray Nonfat Dry Milk High Heat Powder in 50 lb. pkgs. | Dairymen, Inc., Plant No. 9, Brookhaven, Miss. | All lots | food | user | Mississippi | <u>S. alban</u> |
| 4/14 | Nonfat dry milk in 50-lb. multi-wall paper bags | Milk Producers Inc. Kansas Division Arkansas City, Kan. (manufacturer) | 8192 | food | wholesale | Arizona | <u>S. cubana</u> |
| 5/5 | Darimate No. 10 Cocoa Powder in 50-lb. bags | U.S. Cocoa Corp., Camden, N. J. (manufacturer) | None | food | wholesale | Georgia | Not serotyped |
| | Natural Brewer's Dried Yeast Flakes with Cobalamin in 1-lb. Cardboard Canisters | Yeast Products, Inc., Paterson, N. J. (bulk manufacturer) Lanotine Products, Inc. New York, N. Y. (repacker) | 112568 81 | food | retail, physician, consumer | National | <u>S. montevideo</u> |

VI. INTERNATIONAL

Salmonellosis in the Netherlands - 1968

Reported by the National Salmonella Center, the Netherlands.

During 1968 a total 5,030 isolations of salmonella from human sources and 3,633 isolations from nonhuman sources were reported by the National Salmonella Center, the Netherlands. This represents a decrease of 18.6 percent from the 6,179 isolations reported from human sources in 1967 and a decrease of 18.2 percent from the 4,441 isolations from nonhuman sources in 1967. Isolations from human sources showed a marked seasonal variation with the greatest number of isolations reported from July through October and the lowest number of isolations from December to March. The five most frequently isolated serotypes from human sources are listed in the table below. As in 1967, Salmonella typhi-murium and S. typhi-murium var. copenhagen were the most common serotypes isolated, accounting for 62.7 percent of total isolations. In table 2, the nonhuman sources of salmonella isolations are presented. As in 1967, cattle and swine were the most commonly documented nonhuman sources.

Table 1

The Five Most Frequently Isolated Serotypes from
Human Sources, The Netherlands 1968

| <u>Serotype</u> | <u>Number</u> | <u>Percent</u> |
|----------------------------------|---------------|----------------|
| 1 <u>typhi-murium</u> * | 3,155 | 62.7 |
| 2 <u>panama</u> | 585 | 11.6 |
| 3 <u>stanley</u> | 329 | 6.5 |
| 4 <u>heidelberg</u> | 154 | 3.1 |
| 5 <u>infantis</u> | <u>117</u> | <u>2.3</u> |
| Total | 4,340 | 86.3 |
| TOTAL (all serotypes) | 5,030 | |
| *Includes <u>var. copenhagen</u> | 328 | |

Table 2

Salmonella Isolations from Nonhuman Sources by Source of Isolation

| <u>Source</u> | <u>Number</u> | <u>Percent</u> |
|------------------------|---------------|----------------|
| Cattle | 985 | 27.1 |
| Swine | 696 | 19.2 |
| Doves | 292 | 8.0 |
| Chickens | 113 | 3.1 |
| Other domestic animals | 353 | 9.7 |
| Animal feeds | 266 | 7.3 |
| Wild animals | 218 | 6.0 |
| Human foods | 369 | 10.1 |
| Other | <u>341</u> | <u>9.4</u> |
| TOTAL | 3,633 | |

TABLE I. COMMON SALMONELLAE REPORTED FROM HUMAN SOURCES, APRIL, 1969

| SEROTYPE | 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> | | | | | | | | | | 1 | | | | | 4 | | | | | | | | 1 | | | | | | | 1 | 2 | |
| <i>bareilly</i> | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 | 1 | | | | 3 | | | |
| <i>blockley</i> | | | | 3 | | | | | 1 | 1 | 1 | 2 | 1 | 5 | 1 | 1 | | | | | 1 | | | | 2 | | | | 1 | 3 | 3 | |
| <i>braenderup</i> | | | | 2 | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | 1 | |
| <i>bredeney</i> | | | | | | | | | 1 | 1 | | | | 1 | | | | | | | | | | | | | | | | | | |
| <i>chester</i> | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | 1 | |
| <i>cholerae-suis v kun</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>cubana</i> | | | | | | | 1 | 1 | | | 1 | | 3 | | 1 | | 1 | | | | | | | | | | | | | | 1 | |
| <i>derby</i> | | | | 1 | | 1 | | | 1 | | 5 | 2 | 2 | 2 | | 1 | | | | 1 | | | | 1 | | | | | | 1 | 1 | |
| <i>enteritidis</i> | | | | 8 | | 4 | 1 | 10 | 10 | 9 | 14 | 6 | 2 | 12 | 3 | 3 | 3 | | | 2 | 2 | | | 1 | | 11 | 2 | | 2 | 8 | 3 | |
| <i>give</i> | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | 1 | | | |
| <i>heidelberg</i> | | | | 5 | 4 | 2 | | 4 | 6 | 9 | 15 | 6 | 3 | 5 | 15 | 2 | | | 4 | 2 | | | 1 | 1 | 1 | 2 | 6 | | 3 | 6 | | |
| <i>indiana</i> | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | 4 | | 12 | 1 | | |
| <i>infantis</i> | | | | 4 | 1 | 7 | | 3 | 3 | 2 | 4 | 3 | 5 | 9 | 2 | 4 | 1 | | | | | | 2 | 1 | 7 | 8 | 1 | | 4 | 4 | | |
| <i>java</i> | | | | | | | | | | | | | | 2 | | 1 | 2 | | | | | | 2 | | | | | | | | 1 | |
| <i>javiana</i> | | | | | | 1 | | | | | | 2 | | 1 | | | | | 1 | | | | 1 | | | | | | | | 1 | |
| <i>litchfield</i> | | | | | | | | | | | | | | | 2 | | | | | | | | | | 1 | | 1 | 1 | 1 | 1 | 1 | |
| <i>livingstone</i> | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| <i>manhattan</i> | | | | | | 1 | | | | | 3 | 1 | | 3 | | | | | 1 | | | | | | | 1 | 1 | | 2 | | | |
| <i>miami</i> | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 3 | |
| <i>mississippi</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| <i>montevideo</i> | | | | | | | | 1 | | 2 | 1 | | | | | 1 | | | | | | | 2 | | | | | | | 3 | | |
| <i>muenchen</i> | | | | 2 | | | | 1 | | | | 4 | | 1 | 1 | 1 | | | | | 1 | | | | | 1 | | | 1 | 1 | | |
| <i>newington</i> | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | 1 | | | | | | |
| <i>newport</i> | | | | | | 3 | | 3 | 1 | 1 | 7 | 1 | 1 | 7 | | 6 | 2 | | 1 | | | | | | | 1 | 1 | 1 | 1 | 4 | | |
| <i>oranienburg</i> | | | | 2 | | | | | | | | | | | | 1 | | | 2 | | | | | | | | | | | 2 | 1 | |
| <i>panama</i> | | | | | | | 1 | | 1 | | 7 | | | | | | | | | | | | | | | | | | | | | |
| <i>paratyphi B</i> | | | | 6 | | | | | 1 | | | | 1 | 2 | 5 | | | | | | | | | | 1 | 1 | 1 | 1 | | 1 | | |
| <i>reading</i> | | | | 2 | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| <i>saint-paul</i> | | | | 1 | | 1 | | 5 | 2 | 2 | 4 | 4 | | 4 | 2 | 1 | | | | | | | | 2 | 5 | 1 | 2 | 2 | 2 | 13 | | |
| <i>san-diego</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| <i>schwarzengrund</i> | | | | | | | | 1 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | |
| <i>senftenberg</i> | | | | 1 | 7 | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| <i>tennessee</i> | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | 1 | |
| <i>thompson</i> | | | | 16 | | | | 1 | 2 | 2 | 1 | 5 | 1 | 5 | 1 | 9 | 1 | | | | | | | 4 | 6 | 1 | 2 | 1 | 2 | 2 | 10 | |
| <i>typhi</i> | | | | 1 | | | | 2 | 1 | 1 | 3 | 2 | 1 | 1 | 3 | | | | | | | | 1 | 5 | 1 | 2 | 2 | 4 | 4 | 4 | | |
| <i>typhimurium</i> | 1 | | 1 | 24 | 3 | 3 | | 26 | 20 | 10 | 41 | 8 | 11 | 29 | 15 | 17 | 4 | 3 | 7 | | | 1 | 4 | 1 | 16 | 4 | 8 | 4 | 15 | 15 | | |
| <i>typhimurium v cop</i> | | | | 3 | | 5 | | | | 1 | | | | | 8 | | | 1 | | | | | | | | | | | | | | |
| <i>weltevreden</i> | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| <i>worthington</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | |
| TOTAL | 1 | — | 2 | 87 | 8 | 29 | 3 | 58 | 52 | 43 | 110 | 46 | 32 | 90 | 63 | 49 | 16 | 4 | 24 | 5 | 1 | 1 | 22 | 9 | 56 | 10 | 35 | 1 | 22 | — | 66 | 77 |
| ALL OTHER* | — | 2 | 1 | 7 | — | 1 | 40 | — | 5 | — | 3 | 1 | — | — | — | 1 | 1 | 2 | 1 | — | — | — | 2 | — | 2 | 9 | 2 | — | 1 | — | 4 | 8 |
| TOTAL | 1 | 2 | 3 | 94 | 8 | 30 | 43 | 58 | 57 | 43 | 113 | 47 | 32 | 90 | 63 | 50 | 17 | 6 | 25 | 5 | 1 | 1 | 24 | 9 | 58 | 19 | 37 | 1 | 23 | — | 70 | 85 |

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 155 cultures.

* See Table II.

TABLE I - Continued

| GEOGRAPHIC DIVISION AND REPORTING CENTER | | | | | | | | | | | | | | | | | | | | TOTAL | % OF TOTAL | CUMULATIVE TOTAL | % OF CUMULATIVE TOTAL | SEROTYPE | |
|--|-----|-----|-----|-----------------|----|-----|-----|----------|-----|-----|-----|----|-----|---------|-----|-----|-----|-----|-----|-------|------------|------------------|-----------------------|----------|----------------------------|
| 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 | | | | | |
| | | | | | | | | | | | | | | | | | | 2 | | | 11 | 0.7 | 51 | 0.9 | <i>anatum</i> |
| | | | | | | | | | | | | | | | | | | | | | 6 | 0.4 | 22 | 0.4 | <i>bareilly</i> |
| | | | | | | | 1 | | | | | 1 | | | | | | 7 | | | 35 | 2.2 | 151 | 2.8 | <i>blockley</i> |
| | | | | | 1 | | | | | | | | | | | | | 2 | | | 7 | 0.4 | 33 | 0.6 | <i>braenderup</i> |
| | | | | | 1 | | | | | | | | | | | | | 3 | | 1 | 8 | 0.5 | 38 | 0.7 | <i>bredeney</i> |
| | | | | | | | | | | | | | | 1 | | | | | | | 3 | 0.2 | 13 | 0.2 | <i>chester</i> |
| | | | | | | | | | | | | | | | | | | | | | — | — | 4 | 0.1 | <i>cholerae-suis v kun</i> |
| | | | | | | | 2 | | | | | | | | | | | 1 | | | 12 | 0.7 | 47 | 0.9 | <i>cubana</i> |
| | | | | | 1 | | | | | | | | | | | | | 7 | | 4 | 31 | 1.9 | 101 | 1.8 | <i>derby</i> |
| | 4 | | | | | 1 | 2 | 2 | 1 | | | | | | | 1 | 2 | 11 | | 3 | 143 | 8.9 | 469 | 8.6 | <i>enteritidis</i> |
| 1 | | | | | | | | | | | | | | | | | | | | | 2 | 0.1 | 24 | 0.4 | <i>give</i> |
| | | | | | | | | | | | | 1 | | 15 | | | | | | | 131 | 8.2 | 394 | 7.2 | <i>heidelberg</i> |
| | | | | | | | | | | | | | | | | | | | | | 19 | 1.2 | 30 | 0.5 | <i>indiana</i> |
| | 1 | 2 | | | 4 | | 7 | | | | 4 | | 1 | | | | | | | 3 | 109 | 6.8 | 353 | 6.5 | <i>infantis</i> |
| | | | | | | | | | | | | | | | | | | | | | 10 | 0.6 | 40 | 0.7 | <i>java</i> |
| | | | | 1 | | | | | | | | | | | | | | | | | 14 | 0.9 | 77 | 1.4 | <i>javiana</i> |
| | | | | | 1 | | | | | | | | | | | | | | | | 7 | 0.4 | 24 | 0.4 | <i>litchfield</i> |
| | 1 | | | | | | | | | | | | | | | | | | | | 1 | 0.1 | 7 | 0.1 | <i>livingstone</i> |
| | | | | | | | | | | | | | | | | 1 | | 2 | | 1 | 18 | 1.1 | 63 | 1.2 | <i>manhattan</i> |
| | | | | | | | | | | | | | | | | | | | | | 4 | 0.2 | 31 | 0.6 | <i>miami</i> |
| | | | | | | | | | | | | | | | | | | | | | 1 | 0.1 | 3 | 0.1 | <i>mississippi</i> |
| | | | | | 2 | 2 | 5 | | | | | | | | | | | 1 | 2 | | 22 | 1.4 | 75 | 1.4 | <i>montevideo</i> |
| | | | | | 1 | | | | | | | | | | | | | 1 | 1 | | 16 | 1.0 | 55 | 1.0 | <i>muenchen</i> |
| | 1 | | | 1 | 2 | 1 | 6 | | 1 | | | | | | | | | | | | 3 | 0.2 | 6 | 0.1 | <i>newington</i> |
| | | | | | | | | | | | | | | | | 1 | | 43 | | | 96 | 6.0 | 337 | 6.2 | <i>newport</i> |
| | | | | | 2 | 1 | 1 | | 1 | | | | 1 | | | | | | | | 16 | 1.0 | 64 | 1.2 | <i>oranienburg</i> |
| | 1 | | | | | | | | | | | | | | | | | | | 3 | 14 | 0.9 | 72 | 1.3 | <i>panama</i> |
| | | | | | | | | | | | | | | | | | | | | | 21 | 1.3 | 52 | 1.0 | <i>paratyphi B</i> |
| | | | | | | | | | | | | | | | | | | | | | 3 | 0.2 | 13 | 0.2 | <i>reading</i> |
| | 1 | 3 | | | 1 | | | | | | 2 | | 1 | | 2 | 1 | 5 | | | | 67 | 4.2 | 267 | 4.9 | <i>saint-paul</i> |
| | | | | 1 | | | | | | | | | | | | | | | | | 2 | 0.1 | 11 | 0.2 | <i>san-diego</i> |
| | | | | | | | | | | | | | | | | | | 1 | 2 | | 7 | 0.4 | 22 | 0.4 | <i>schwarzengrund</i> |
| | | | | | 1 | | | | | | | 1 | | | | 1 | | | | | 12 | 0.7 | 24 | 0.4 | <i>senftenberg</i> |
| | | | | | 1 | | | | | | | | | | | | | | | | 4 | 0.2 | 15 | 0.3 | <i>tennessee</i> |
| | | | | | | | | | | | | 1 | | | | 2 | | 5 | | | 78 | 4.9 | 233 | 4.3 | <i>thompson</i> |
| 4 | 1 | | | 1 | | | | | | | | | | | | 1 | 3 | 12 | | | 53 | 3.3 | 150 | 2.7 | <i>typhi</i> |
| 4 | 4 | 4 | | 2 | 7 | 4 | 17 | 1 | 4 | | 4 | | | | 2 | 6 | 9 | 60 | | | 419 | 26.1 | 1513 | 27.7 | <i>typhimurium</i> |
| | 6 | | 1 | 2 | 1 | | | | | | | | | | 1 | | | | | | 29 | 1.8 | 68 | 1.2 | <i>typhimurium v cop</i> |
| | | | | | | | | | | | | | | | | | | | | 1 | 1 | 0.1 | 12 | 0.2 | <i>weltevreden</i> |
| | | | | | | | | | | | | | | | | 1 | | | | | 4 | 0.2 | 9 | 0.2 | <i>worthington</i> |
| 5 | 20 | 9 | 1 | 8 | 26 | 9 | 49 | 3 | 7 | — | 14 | — | 17 | 2 | 3 | 18 | 18 | 192 | — | 16 | 1439 | 89.7 | 4973 | 90.9 | TOTAL |
| — | 2 | 4 | 4 | 3 | 4 | — | 12 | 1 | 1 | — | — | 20 | — | — | — | 6 | 2 | 9 | 2 | 2 | 165 | | 496 | | ALL OTHER* |
| 5 | 22 | 13 | 5 | 11 | 30 | 9 | 61 | 4 | 8 | — | 14 | 20 | 17 | 2 | 3 | 24 | 20 | 201 | 2 | 18 | 1604 | | 5469 | | TOTAL |

TABLE II. OTHER SALMONELLAE REPORTED FROM HUMAN SOURCES, APRIL 1969

| SEROTYPE | REPORTING CENTER | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|------------------|-----|-----|-----|-----|----|-----|----|-----|-----|-----|-----|----|----|-----|-----|-----|----|-----|----|--|--|
| | ALA | ALK | ARK | CAL | CON | DC | FLA | GA | HAW | IDA | IOW | KAN | LA | MD | MAS | MIN | MIS | MO | MON | NH | | |
| <i>albany</i> | | | | | | | 1 | | | | | | | | | | | | | | | |
| <i>albuquerque</i> | | | | | | | | | | | | | | | | | | | | | | |
| <i>amafer</i> | | | | | | | | | 1 | | | | | | | | | | | | | |
| <i>atlanta</i> | | | | | | | | 1 | | | | | | | | | | | | | | |
| <i>berta</i> | | | | | | | | | | | | | 1 | | | | | | | | | |
| <i>businga</i> | | | | | | | | | | | | | | | | | | | | | | |
| <i>cerro</i> | | | | | 1 | | | | | | | 1 | | | | | | | | | | |
| <i>cholerae-suis</i> | | | | | | | | | | | | | | | | | | | | | | |
| <i>drypool</i> | | | | | | | | 1 | | | | | | | | | | | | | | |
| <i>eimsbuettel</i> | | | | | | | | | | | | | | | | | | | | | | |
| <i>garoli</i> | | | | | | | | | | | | | | | | | | | | 1 | | |
| <i>gatuni</i> | | | | | | | | | | | | | | | | | | | | | | |
| <i>grumpensis</i> | | | | | | | | | | | | | | | | | 1 | | | | | |
| <i>habana</i> | | | | | | | | 1 | | | | | | | | | | | | | | |
| <i>hartford</i> | | | | | | | | 2 | | | | | | | | | | | | | | |
| <i>london</i> | | | | | | | | | | | | | | | | | | | | | | |
| <i>madelia</i> | | | | | | | | | | | | | | 1 | | | | | | | | |
| <i>maracaibo</i> | 1 | | | | | | | | | | | | | | | | | | | | | |
| <i>meleagridis</i> | | | | | | | | 2 | 1 | | | | | | | | | | | | | |
| <i>new-brunswick</i> | 1 | | | | | | | | | | | | | | | | | | | | | |
| <i>norwich</i> | | | | | | | | | | | | | | 1 | | | | | | | | |
| <i>ohio</i> | | | | | | | | | | | | | | 2 | | | | | | | | |
| <i>oslo</i> | | | | 1 | | | | | 1 | | | | | | | | | | | | | |
| <i>paratyphi A</i> | | | | | | | | | | | | | | | | | | | | | | |
| <i>paratyphi B v odense</i> | | | | | | | | | | | | | | 1 | | | | | | | | |
| <i>poona</i> | | | | | | | | 1 | | | | | | | | | | | | | | |
| <i>siegburg</i> | | | | | | | | | 1 | | | | | | | | | | | | | |
| <i>simsbury</i> | | | | | | | | | | | | | | | 7 | | | | | | | |
| <i>singapore</i> | | | | 1 | | | | | | | | | | | | | | | | | | |
| <i>stanley</i> | | | | 3 | | | | | | | | | | | | | | | | | | |
| <i>tallahassee</i> | | | | | | | | | | | | | | | | | | | | | | |
| <i>tel-el-kebir</i> | | | | | | | | | | | | | | | | | | | 1 | | | |
| <i>thomasville</i> | | | | | | | | | | | | | | | | | | | | | | |
| <i>urbana</i> | | | | | | | | 1 | | | | | | | | | | | | | | |
| <i>westhampton</i> | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL | 2 | - | - | 5 | 1 | - | 8 | 3 | 2 | 1 | - | 2 | 4 | 2 | 7 | 1 | - | 1 | - | 1 | | |
| NOT TYPED* | 2 | 2 | 3 | 4 | - | 9 | - | 1 | - | - | 2 | - | - | - | - | - | 4 | - | 1 | 1 | | |
| TOTAL | 4 | 2 | 3 | 9 | 1 | 9 | 8 | 4 | 2 | 1 | 2 | 2 | 4 | 2 | 7 | 1 | 4 | 1 | 1 | 2 | | |

* See Table V-A

TABLE III. COMMON SALMONELLAE REPORTED FROM NONHUMAN SOURCES, APRIL 1969

| SEROTYPE | DOMESTIC ANIMALS AND THEIR ENVIRONMENT | | | | | | | ANIMAL FEEDS | | | |
|----------------------------|--|---------|-------|--------|--------|-------|----------|--------------|-------------------|-------|----------|
| | CHICKENS | TURKEYS | SWINE | CATTLE | HORSES | OTHER | SUBTOTAL | TANKAGE | VEGETABLE PROTEIN | OTHER | SUBTOTAL |
| <i>anatum</i> | 1 | 12 | 1 | | 1 | 4 | 19 | 9 | | | 9 |
| <i>bareilly</i> | | | 1 | | | 3 | 4 | 3 | | | 3 |
| <i>blockley</i> | 9 | 3 | 1 | | | | 13 | | | | 1 |
| <i>braenderup</i> | | | | | | | — | | | | — |
| <i>bredeney</i> | | | | | | 3 | 3 | 4 | | | 4 |
| <i>chester</i> | | 2 | | | | | 2 | | | | — |
| <i>cholerae-suis v kun</i> | | | 57 | | | | 57 | | | | — |
| <i>cubana</i> | | 1 | | | | 1 | 2 | 5 | | | 5 |
| <i>derby</i> | | 1 | 3 | | | 1 | 5 | 4 | | | 4 |
| <i>enteritidis</i> | 4 | | | | | 7 | 11 | 1 | | | 1 |
| <i>give</i> | | 1 | 1 | | | 1 | 3 | | | | — |
| <i>heidelberg</i> | 28 | 42 | | | | 3 | 73 | 3 | | | 3 |
| <i>indiana</i> | 1 | | | | | | 1 | 5 | | | 5 |
| <i>infantis</i> | 15 | 11 | | | | 1 | 27 | 2 | | 1 | 3 |
| <i>java</i> | | | | | | | — | | | | — |
| <i>javiana</i> | | | | | | | — | | | | — |
| <i>litchfield</i> | | | | | | | — | | | | — |
| <i>livingstone</i> | | | | | | 1 | 1 | 4 | | | 4 |
| <i>manhattan</i> | 3 | | | | | | 3 | 1 | | | 1 |
| <i>miami</i> | | | | | | | — | | | | — |
| <i>mississippi</i> | | | | | | | — | | | | — |
| <i>montevideo</i> | 1 | 1 | | | | 1 | 3 | 6 | | | 6 |
| <i>muenchen</i> | | | 1 | | | | 1 | | | | — |
| <i>newington</i> | | | | | 2 | 1 | 3 | | | | — |
| <i>newport</i> | 1 | 2 | 1 | 1 | | 2 | 7 | | | | — |
| <i>oranienburg</i> | 1 | | | | 2 | | 3 | 3 | | | 3 |
| <i>panama</i> | | | | | | | — | | | | — |
| <i>paratyphi B</i> | | | | | | | — | | | | — |
| <i>reading</i> | | 1 | | | | | 1 | | | | — |
| <i>saint-paul</i> | 3 | 17 | 2 | 1 | | 1 | 24 | 1 | | | 1 |
| <i>san-diego</i> | | 8 | | | | | 8 | | | | — |
| <i>schwarzengrund</i> | | 3 | 1 | | | | 4 | 1 | | | 1 |
| <i>senftenberg</i> | | 10 | 1 | | | | 11 | 9 | | | 9 |
| <i>tennessee</i> | 1 | 2 | | | | | 3 | 14 | | | 14 |
| <i>thompson</i> | 25 | 5 | | | | | 30 | | | | — |
| <i>typhi</i> | | | | | | | — | | | | — |
| <i>typhimurium</i> | 18 | 3 | 9 | 23 | 8 | 7 | 68 | 2 | | | 2 |
| <i>typhimurium v cop</i> | 12 | | | 2 | 2 | 1 | 17 | | | | — |
| <i>weltevreden</i> | | | | | | 1 | 1 | | | | — |
| <i>worthington</i> | 2 | 1 | 2 | | | | 5 | 5 | | 2 | 7 |
| TOTAL | 125 | 126 | 81 | 27 | 15 | 39 | 413 | 82 | — | 3 | 85 |
| ALL OTHER * | 20 | 11 | 6 | 5 | — | 5 | 47 | 124 | 1 | 16 | 141 |
| TOTAL | 145 | 137 | 87 | 32 | 15 | 44 | 460 | 206 | 1 | 19 | 226 |

* 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 | SUBTOTAL | | | | |
| 1 | | | | | | | — | 2 | 31 | 101 | <i>anatum</i> |
| | | | | | | | — | | 7 | 15 | <i>bareilly</i> |
| | | 2 | | | | | 3 | 1 | 17 | 50 | <i>blockley</i> |
| | | | | | | | 2 | | 2 | 2 | <i>braenderup</i> |
| | | | | | | | — | | 7 | 46 | <i>bredeney</i> |
| | | | | | | | — | | 2 | 9 | <i>chester</i> |
| | | | | | | | — | | 57 | 167 | <i>cholerae-suis v kun</i> |
| | | | | | 5 | | 3 | | 15 | 64 | <i>cubana</i> |
| | | | | | | | 1 | 1 | 11 | 58 | <i>derby</i> |
| | | | | | | | — | | 12 | 62 | <i>enteritidis</i> |
| 3 | | | | | | | — | | 6 | 16 | <i>give</i> |
| 1 | 2 | 9 | | | | | 9 | 9 | 97 | 328 | <i>heidelberg</i> |
| | | | | | | | — | | 6 | 8 | <i>indiana</i> |
| 1 | | 2 | 1 | | | | 1 | 4 | 39 | 87 | <i>infantis</i> |
| | 1 | | | | | | — | | 1 | 5 | <i>java</i> |
| | | | | | | | — | | — | 2 | <i>javana</i> |
| | | | | | | | — | | — | 2 | <i>litchfield</i> |
| | | | | | | | — | | 5 | 34 | <i>livingstone</i> |
| | | | | | | | — | | 4 | 17 | <i>manhattan</i> |
| | | | | | | | — | | — | 3 | <i>miami</i> |
| 1 | 2 | | 1 | | | | — | 1 | — | — | <i>mississippi</i> |
| | | | | | | | 3 | 4 | 17 | 97 | <i>montevideo</i> |
| | | | | | | | — | | 1 | 19 | <i>muenchen</i> |
| | 1 | 1 | | | 1 | | 1 | 1 | 4 | 15 | <i>newington</i> |
| | | | | | | | 1 | 1 | 10 | 52 | <i>newport</i> |
| | | 3 | | | | | 11 | 14 | 20 | 42 | <i>oranienburg</i> |
| | | | | | | | — | | — | 5 | <i>panama</i> |
| | | | | | | | — | 1 | 1 | 1 | <i>paratyphi B</i> |
| | | | | | | | — | | 1 | 18 | <i>reading</i> |
| 1 | 1 | | 1 | | | | 1 | 1 | 28 | 133 | <i>saint-paul</i> |
| | | | | | | | — | | 8 | 50 | <i>san-diego</i> |
| | | | | | | | — | 2 | 7 | 19 | <i>schwarzengrund</i> |
| | | | | | | | — | 1 | 21 | 65 | <i>senftenberg</i> |
| | 1 | 1 | | | | | — | 1 | 19 | 54 | <i>tennessee</i> |
| | | | | | | | — | | 31 | 118 | <i>thompson</i> |
| 14 | 1 | | | | | | — | 4 | — | — | <i>typhi</i> |
| | | | | | | | — | | 89 | 401 | <i>typhimurium</i> |
| 1 | | | | | | | — | | 18 | 72 | <i>typhimurium v cop</i> |
| | | | | | | | — | | 1 | 1 | <i>weltevreden</i> |
| | | | | | | | — | | 12 | 51 | <i>worthington</i> |
| 23 | 9 | 18 | 3 | — | 6 | 22 | 49 | 28 | 607 | 2289 | TOTAL |
| 6 | 3 | 7 | 1 | — | 2 | 17 | 27 | 6 | 230 | 702 | ALL OTHER* |
| 29 | 12 | 25 | 4 | — | 8 | 39 | 76 | 34 | 837 | 2991 | TOTAL |

TABLE IV. OTHER SALMONELLAE REPORTED FROM NONHUMAN SOURCES, APRIL 1969

| SERO TYPE | DOMESTIC ANIMALS AND THEIR ENVIRONMENT | | | | | | | ANIMAL FEEDS | | | |
|-----------------------------|--|---------|-------|--------|--------|-------|----------|--------------|-------------------|-------|----------|
| | CHICKENS | TURKEYS | SWINE | CATTLE | HORSES | OTHER | SUBTOTAL | TANKAGE | VEGETABLE PROTEIN | OTHER | SUBTOTAL |
| <i>alachua</i> | | | | | | | 1 | 3 | | | 3 |
| <i>albany</i> | | | | | | | 1 | | | | 1 |
| <i>amafer</i> | | | 1 | | | | 1 | | | | 1 |
| <i>bere</i> | 2 | | | | | | 2 | | | | 2 |
| <i>berta</i> | 1 | | | | | | 1 | | | | 1 |
| <i>binza</i> | | | | | | | — | 8 | | | 8 |
| <i>bornum</i> | | | | | | | — | 3 | | | 3 |
| <i>california</i> | 3 | 1 | | | | | 4 | 3 | | 1 | 4 |
| <i>cerro</i> | | | 1 | | | | 1 | 3 | | 1 | 4 |
| <i>drypool</i> | | 1 | | | | | 1 | 3 | | | 3 |
| <i>dublin</i> | | | | 4 | | | 4 | | | | — |
| <i>eimsbuettel</i> | 2 | 1 | 1 | | | | 4 | 3 | | 2 | 5 |
| <i>godesberg</i> | | | | | | | — | 4 | | | 4 |
| <i>habana</i> | 1 | | | | | | 1 | 3 | | | 3 |
| <i>harmelen</i> | | | | | | | — | | | 2 | 2 |
| <i>heilbron</i> | | | | | | | — | | | | — |
| <i>johannesburg</i> | | | | | | | — | 2 | | | 2 |
| <i>kasenyi</i> | | 1 | | | | | 1 | | | | — |
| <i>kentucky</i> | 2 | 4 | | | | 2 | 8 | 53 | | | 53 |
| <i>kentucky v jerusalem</i> | | | | | | | — | 1 | | | 1 |
| <i>lille</i> | | | | | | | — | 3 | 1 | | 4 |
| <i>london</i> | | | | | | | — | | | 1 | 1 |
| <i>marina</i> | | | | | | | — | | | | — |
| <i>meleagridis</i> | | | 1 | | | | 1 | | | | — |
| <i>minnesota</i> | | | | | | 2 | 2 | 20 | | | 20 |
| <i>molade</i> | | | | | | | — | 3 | | | 3 |
| <i>muenster</i> | 2 | | | | | | 2 | 2 | | | 2 |
| <i>new-brunswick</i> | | | | | | | — | | | | — |
| <i>pullorum</i> | 1 | | | | | | 1 | | | | — |
| <i>rubislaw</i> | 2 | | | | | | 2 | | | | — |
| <i>siegburg</i> | | | | | | | — | 3 | | 5 | 8 |
| <i>simsbury</i> | 3 | | | | | | 3 | 1 | | | 1 |
| <i>sinstorf</i> | | 1 | | | | | 1 | | | | — |
| <i>taksony</i> | | 1 | | | | | 1 | | | | — |
| <i>thomasville</i> | | | 1 | | | | 1 | | | 2 | 2 |
| <i>typhi-suis</i> | | | 1 | | | | 1 | | | | — |
| <i>weslaco</i> | | | | | | | — | | | | — |
| <i>westhampton</i> | | | | | | | — | 1 | | | 1 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| TOTAL | 19 | 10 | 6 | 4 | — | 4 | 43 | 122 | 1 | 14 | 137 |
| NOT TYPED* | 1 | 1 | — | 1 | — | 1 | 4 | 2 | — | 2 | 4 |
| TOTAL | 20 | 11 | 6 | 5 | — | 5 | 47 | 124 | 1 | 16 | 141 |

* See Table V-B

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 | | | | 2 | 6 | 8 | 2 | 3 | 18 | <i>atachua</i> |
| | | | | | | | | | 10 | 21 | <i>albany</i> |
| | | | | | | | | | 1 | 2 | <i>amager</i> |
| | | | | | | | | | 2 | 2 | <i>bere</i> |
| | | | | | | | | | 2 | 3 | <i>berta</i> |
| | | | | | | | | | 3 | 27 | <i>binza</i> |
| | | | | | | | | | 8 | 8 | <i>bornum</i> |
| | | | | | | | | | 11 | 22 | <i>california</i> |
| | | | | | | | | | 12 | 34 | <i>cerro</i> |
| | | | | | | | | | 4 | 12 | <i>cerro</i> |
| | | | | | | | | | 4 | 12 | <i>drypool</i> |
| 2 | | | | | | | | | 4 | 31 | <i>dublin</i> |
| 1 | | 1 | | | | 2 | 3 | | 12 | 65 | <i>eimsbuetel</i> |
| | | | | | | | | | 4 | 4 | <i>godesberg</i> |
| | | | | | | | | | 4 | 5 | <i>habana</i> |
| | | | | | | | | | 2 | 2 | <i>harmelen</i> |
| | | 6 | | | | 1 | 7 | | 7 | 7 | <i>heilbron</i> |
| | | | | | | | | | 2 | 8 | <i>johannesburg</i> |
| | | | | | | | | | 1 | 1 | <i>kasenyi</i> |
| | | | | | | | | | 61 | 91 | <i>kentucky</i> |
| | | | | | | | | | 1 | 1 | <i>kentucky v jerusalem</i> |
| | | | | | | | | | 4 | 4 | <i>lille</i> |
| | | | | | | | | | 1 | 4 | <i>london</i> |
| | 1 | | | | | | | | 1 | 1 | <i>marina</i> |
| | | | | | | | | | 2 | 35 | <i>meleagridis</i> |
| | | | | | | | | | 22 | 63 | <i>minnesota</i> |
| | | | | | | | | | 3 | 3 | <i>molade</i> |
| | | | | | | | | | 4 | 5 | <i>muenster</i> |
| | | | | | | | | | 1 | 5 | <i>new-brunswick</i> |
| | | | | | | 1 | 1 | | 1 | 9 | <i>pullorum</i> |
| | | | | | | | | | 4 | 4 | <i>rubislaw</i> |
| 2 | | | | | | 4 | 4 | | 12 | 30 | <i>siegburg</i> |
| | | | | | | | | | 4 | 21 | <i>simsbury</i> |
| | | | | | | | | | 1 | 1 | <i>sinstorf</i> |
| | | | | | | | | | 1 | 8 | <i>taksony</i> |
| | | | | | | | | | 3 | 10 | <i>thomasville</i> |
| | 1 | | | | | | | | 1 | 3 | <i>typhi-suis</i> |
| | | | | | | | | | 1 | 1 | <i>westlaco</i> |
| | | | | | | | | | 1 | 7 | <i>westhampton</i> |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 5 | 3 | 7 | 1 | - | 2 | 17 | 27 | 6 | 221 | 653 | TOTAL |
| 1 | - | - | - | - | - | - | - | - | 9 | 49 | NOT TYPED * |
| 6 | 3 | 7 | 1 | - | 2 | 17 | 27 | 6 | 230 | 702 | TOTAL |

