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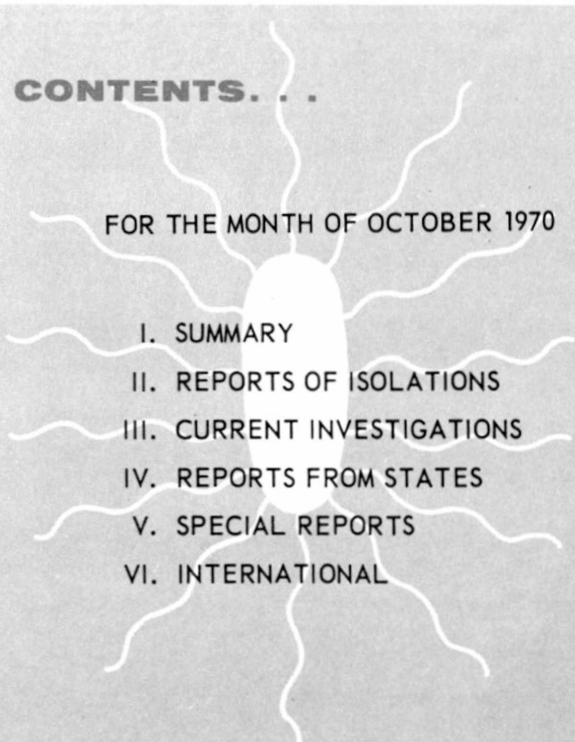
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# **SALMONELLA**

## **SURVEILLANCE**

### **CONTENTS...**

FOR THE MONTH OF OCTOBER 1970

- 
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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:

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March 2, 1971

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## I. SUMMARY

In October 1970, 2,573 isolations of salmonellae were reported from humans, an average of 644 isolations per week (Tables I, II, and V-A). This number represents an increase of 26 (4.2 percent) over the weekly average of September 1970 and an increase of 159 (32.8 percent) over the weekly average of October 1969.

Reports of 733 nonhuman isolations of salmonellae were received during October 1970 (Tables II, 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> *          | 535    | 20.8    | 1               | <u>typhi-murium</u> *            | 132    | 18.0    |
| 2 <u>enteritidis</u>             | 401    | 15.6    | 2               | <u>heidelberg</u>                | 57     | 7.8     |
| 3 <u>newport</u>                 | 186    | 7.2     | 3               | <u>san-diego</u>                 | 35     | 4.8     |
| 4 <u>heidelberg</u>              | 152    | 5.9     | 4               | <u>montevideo</u>                | 34     | 4.6     |
| 5 <u>saint-paul</u>              | 135    | 5.2     | 5               | <u>worthington</u>               | 30     | 4.1     |
| 6 <u>infantis</u>                | 119    | 4.6     | 7               | <u>saint-paul</u>                | 29     | 4.0     |
| 7 <u>blockley</u>                | 82     | 3.2     | 10              | <u>senftenberg</u>               | 28     | 3.8     |
| 8 <u>thompson</u>                | 78     | 3.0     | 6               | <u>thompson</u>                  | 28     | 3.8     |
| 9 <u>javiana</u>                 | 65     | 2.5     | 8               | <u>cholerae-suis</u>             |        |         |
|                                  |        |         |                 | <u>var. kunzendorf</u>           | 24     | 3.3     |
| 10 <u>java</u>                   | 56     | 2.2     | >10             | <u>newport</u>                   | 24     | 3.3     |
| <u>oranienburg</u>               | 56     | 2.2     | >10             |                                  |        |         |
| Total                            | 1865   | 72.5    |                 | Total                            | 421    | 57.4    |
| TOTAL<br>(all serotypes)         | 2573   |         |                 | TOTAL<br>(all serotypes)         | 733    |         |
| *Includes <u>var. copenhagen</u> | 15     | 0.6     |                 | *Includes <u>var. copenhagen</u> | 22     | 3.0     |

## III. CURRENT INVESTIGATIONS

### A. A Salmonella enteritidis Outbreak in a Prison Cafeteria - Michigan

Reported by Donald B. Coohon, D.V.M., Chief, Division of Acute Communicable Diseases, Kenneth R. Wilcox, Jr., M.D., Chief, Bureau of Laboratories, and Owen R. Birchman and Russell J. Vizina, Environmental Sanitarians, Division of Engineering, Michigan Department of Public Health; Richard Hardy,



During a 10-day period in October 1970, an outbreak of salmonellosis occurred among 900 employees of a state prison in southern Michigan. The outbreak was traced to food prepared on October 12 through October 21 in the officers' cafeteria, one of nine kitchens at the prison. In a questionnaire survey of 876 employees, 353 (40 percent) had experienced symptoms of gastroenteritis including diarrhea (92 percent), abdominal cramps (88 percent), fever (76 percent), headache (58 percent), vomiting (35 percent), bloody diarrhea (14 percent), and chills (9 percent). Days of onsets are shown in Figure 1. One hundred twenty-eight persons (36 percent) consulted a physician for their illness and 22 persons (6 percent) were hospitalized. At least eight inmate kitchen workers had also experienced gastrointestinal symptoms.

Salmonella enteritidis was recovered from 84 employees and 6 of their family members. In addition, a stool culture survey of inmates working or occasionally eating in the officers' cafeteria revealed 20 more persons infected with S. enteritidis.

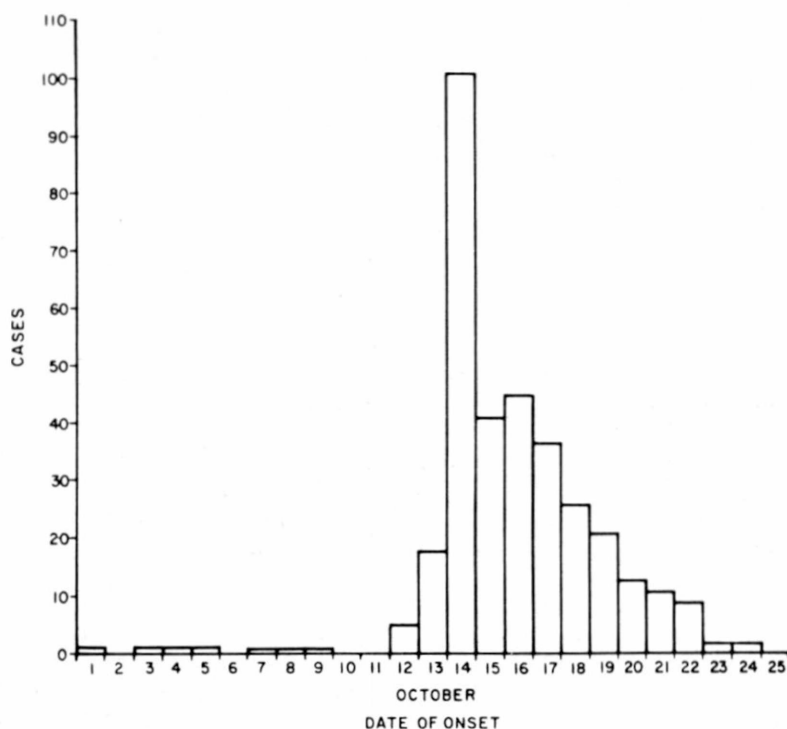
Meal specific attack rates calculated from questionnaire food histories suggested that many of the meals served between October 12 and 20 may have been sources of infection (Table 1). Several specific food items were implicated, such as hamburger steak served on October 12, and stuffed peppers and cole slaw served on October 13 (Table 2).

Meat used in the hamburger steak and stuffed peppers was prepared in the prison butcher shop on October 10. The employee in charge of meat preparation did not work on October 11 and 12. On October 13, he reported for work but developed gastrointestinal symptoms during the morning and went home without eating at the prison. Even though he had not consumed any of the meals during the remainder of the outbreak and had denied tasting the meat when it was prepared on October 10, S. enteritidis was recovered from his stool.

The meat served on October 12 and 13 may have originated from cattle at the prison beef farm or from other local farms. With the exception of a S. thompson isolation from a dairy cow at the prison, no salmonellae were recovered from prison livestock or from environmental swabs or leftover food specimens in the officers' cafeteria. Presumably, the meat which was first served on October 12 introduced S. enteritidis into the cafeteria kitchen. Isolation of S. enteritidis from an inmate who had experienced mild gastrointestinal illness early in the outbreak but continued to work in the officers' cafeteria revealed a possible means of continuing food contamination.

Inadequate handwashing facilities, poor lighting, worn cutting boards, and inadequate heating of foods in the serving line were noted at the time of inspection. All of these deficiencies may have contributed to extensive cross-contamination in the kitchen area. The cafeteria was closed for cleaning and improvements on October 22.

**Figure 1** 338 CASES OF GASTROINTESTINAL ILLNESS, BY DATE OF ONSET, JACKSON, MICHIGAN, OCTOBER 1-25, 1970



**Table 1** Meal Specific Attack Rates (Adjusted)

|         | ATE         |                  |              |                        | DID NOT EAT |                  |              |                        |
|---------|-------------|------------------|--------------|------------------------|-------------|------------------|--------------|------------------------|
|         | <u>Ill*</u> | <u>Not Ill**</u> | <u>Total</u> | <u>Attack Rate (%)</u> | <u>Ill*</u> | <u>Not Ill**</u> | <u>Total</u> | <u>Attack Rate (%)</u> |
| Oct. 12 | 82          | 179              | 261          | 31.4                   | 20          | 84               | 104          | 19.2                   |
| Oct. 13 | 130         | 132              | 262          | 49.6                   | 9           | 98               | 107          | 8.4                    |
| Oct. 14 | 99          | 146              | 245          | 40.4                   | 54          | 70               | 124          | 43.5                   |
| Oct. 15 | 78          | 123              | 201          | 38.8                   | 19          | 123              | 142          | 13.4                   |
| Oct. 16 | 58          | 111              | 169          | 34.3                   | 30          | 142              | 172          | 17.4                   |
| Oct. 17 | 24          | 74               | 98           | 24.5                   | 33          | 188              | 221          | 14.9                   |
| Oct. 18 | 27          | 83               | 110          | 24.5                   | 14          | 196              | 210          | 6.7                    |
| Oct. 19 | 19          | 144              | 163          | 11.7                   | 9           | 167              | 176          | 5.1                    |
| Oct. 20 | 9           | 127              | 136          | 6.6                    | 8           | 190              | 198          | 4.0                    |

\*The number ill includes only those persons with onsets of illness on the day of the meal or the following 2 days.

\*\*The number not ill includes persons never ill during the outbreak plus persons not becoming ill during the 3 day period after the meal specified.

Table 2 Food Specific Attack Rates

| FOOD ITEM       | ATE  |           |       |                 | DID NOT EAT |           |       |                 |
|-----------------|------|-----------|-------|-----------------|-------------|-----------|-------|-----------------|
|                 | Ill* | Not Ill** | Total | Attack Rate (%) | Ill*        | Not Ill** | Total | Attack Rate (%) |
| <u>Oct. 12</u>  |      |           |       |                 |             |           |       |                 |
| Potato Soup     | 21   | 40        | 61    | 34.4            | 25          | 81        | 106   | 23.6            |
| Hamburger Steak | 79   | 156       | 235   | 33.6            | 2           | 12        | 14    | 14.3            |
| Potatoes        | 58   | 115       | 173   | 33.5            | 8           | 27        | 35    | 22.9            |
| Relish          | 27   | 48        | 75    | 36.0            | 22          | 64        | 86    | 25.6            |
| Corn & Tomatoes | 15   | 33        | 48    | 31.2            | 29          | 78        | 107   | 27.1            |
| Lemon Pudding   | 46   | 94        | 140   | 32.9            | 18          | 42        | 60    | 30.0            |
| <u>Oct. 13</u>  |      |           |       |                 |             |           |       |                 |
| Chili           | 58   | 66        | 124   | 46.8            | 31          | 29        | 60    | 51.7            |
| Stuffed Peppers | 118  | 105       | 223   | 52.9            | 5           | 12        | 17    | 29.4            |
| Cornbread       | 39   | 41        | 80    | 48.8            | 47          | 47        | 94    | 50.0            |
| Cole Slaw       | 85   | 39        | 124   | 68.5            | 18          | 45        | 63    | 28.6            |
| Green Beans     | 69   | 63        | 132   | 52.3            | 24          | 33        | 57    | 42.1            |
| Spiced Apples   | 49   | 46        | 95    | 51.6            | 38          | 43        | 81    | 46.9            |

\*The number ill includes only those persons with onsets of illness on the day of the meal or the following 2 days.

\*\*The number not ill includes persons never ill during the outbreak plus persons not becoming ill during the 3 day period after the meal specified.

#### B. Salmonellosis in Lambs - Colorado

Reported by Martin D. Baum, D.V.M., State Public Health Veterinarian, Colorado State Department of Health, Robert E. Pierson, D.V.M., and L. Paul Williams, Jr., D.V.M., College of Veterinary Medicine, Colorado State University; and Marshall D. Fox, D.V.M., EIS Officer, Enteric Diseases Section, Bacterial Diseases Branch, CDC.

In August and September 1970, outbreaks of salmonellosis in young lambs occurred in three northeastern Colorado feedlots with combined populations of approximately 64,000 lambs. A total of 1,000 deaths were attributed to salmonellosis, and morbidity was high in selected pens of remaining lambs. Necropsy specimens from each feedlot were positive for Salmonella typhi-murium.

Investigation of the origins of feed, water, and lambs failed to reveal a common source of infection. Samples of individual feed ingredients and well water were negative for salmonellae. However, at one of the feedlots, S. derby and S. typhi-murium were isolated from a wet spot in the feedlot pen near the watering trough, and S. derby was isolated from feed in one of the troughs. While the origin of these salmonellae is not known, certainly the disease could have been disseminated to the animals from these sources. Since the feedlots were separated by distance ranging from 10 to 50 miles, there was little opportunity for direct transmission of infection between feedlots by persons, animals, or mechanical vectors.

Feedlot records indicated that the outbreaks were of unrelated origin. Outbreaks began at the three feedlots on August 10, August 20, and September 8. At each feedlot, the pens that were affected extensively included several lambs that had exhibited severe diarrhea and depression on arrival or shortly thereafter. These lambs had come from various stockyards and ranches in Colorado and Texas. For several weeks after the initial episode of salmonellosis, in each feedlot there were cases of diarrhea and some deaths with new shipments of lambs beginning 3 to 4 days after the animals entered the feedlot. Postmortem examinations eliminated Clostridium perfringens enterotoxemia and coccidiosis as causes of major death losses.

In all of the affected feedlots, salmonellosis had been encountered in previous years but had never reached the magnitude of the current outbreaks. A recent departure from previous management procedures was therefore sought. At all three feedlots, high quality alfalfa hay had been substituted for grass hay during the summer of 1970. Many new lambs subsequently developed mild transient diarrhea after arrival at the feedlots, which was attributed to the laxative effect of the alfalfa. Combined with the stress of shipment, this laxative effect may have contributed to the development of severe systemic salmonellosis in susceptible lambs.

#### IV. REPORTS FROM THE STATES

##### A. Salmonella enteritidis Outbreak in a Nursing Home - Pennsylvania

Reported by W. D. Schrack, Jr., M.D., Director, Division of Communicable Disease, John A. Dattoli, M.D., Medical Director, Region Three, and Mrs. Virginia Pawloski and Mrs. Rachel Smallwood, Public Health Nurses, Cumberland County Health Center, Pennsylvania Department of Health; and Ronald H. Goldenson, M.D., EIS Officer located at the Pennsylvania Department of Health.

Beginning the evening of September 23, 1970, 40 of 69 patients and 14 employees in a Pennsylvania nursing home developed a syndrome characterized by diarrhea (100 percent), fever (81 percent), abdominal cramps (49 percent), nausea (48 percent), and vomiting (41 percent). Two employees and two patients were hospitalized and eight patients were treated with intravenous fluids at the nursing home.

The noon meal was implicated by the fact that seven of the employees who became ill eat only lunches at the nursing home. Diet specific attack rates (Tables 3 and 4) indicated a 0 percent attack rate for the seven patients receiving a pureed, liquid, or tube feeding in contrast to a 65 percent attack rate (40 of 62 persons) for those whose diet included escalloped chicken. Salmonella enteritidis was recovered from the chicken, chicken gravy, and from 33 of the ill individuals. The epidemic curve (Figure 2) indicates a mean incubation period of 26 hours.

Preparation of the chicken began September 22 when two 6-pound lots of quartered chicken were cooked for 45 minutes at 15 pounds of steam pressure. After cooking, the chicken was placed on clean trays, cooled for 1 hour at room temperature, and then placed in a 36°F walk-in cooler.

On the morning of September 23, the chicken was removed from the refrigerator, deboned by a newly hired cook (who also prepared the dressing and gravy), warmed, and served at the noon meal. Of the six members of the kitchen staff, all ate chicken and five became ill. Only the newly hired cook remained asymptomatic; however, her stool culture was positive for S. enteritidis.

Since cooking temperatures were adequate to destroy salmonella, contamination apparently occurred after the chicken was removed from the pressure cooker. Epidemiologic data suggested that the newly hired cook may have been the source of the S. enteritidis and that the chicken became contaminated during the deboning process.

Table 3 Attack Rates by Diet

| Diet         | Total | Ill | Well | Percent Ill |
|--------------|-------|-----|------|-------------|
| Regular      | 39    | 26  | 13   | 67%         |
| Soft         | 9     | 3   | 6    | 33%         |
| Bland        | 3     | 2   | 1    | 67%         |
| Pureed       | 5     | 0   | 5    | 0           |
| Tube Feeding | 1     | 0   | 1    | 0           |
| Liquid       | 1     | 0   | 1    | 0           |
| Low Fat      | 2     | 0   | 2    | 0           |
| Diabetic     | 7     | 6   | 1    | 86%         |

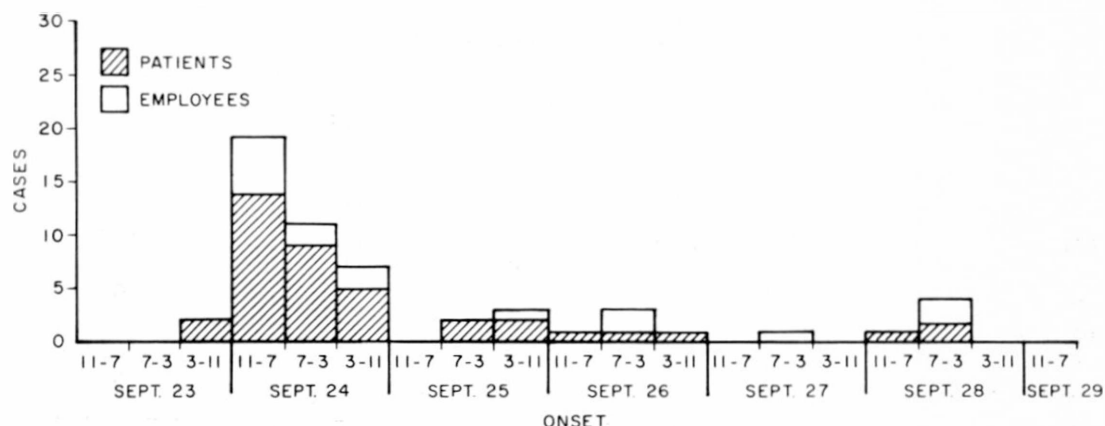
Table 4 Attack Rates by Diet Combinations

| Diet         | Total | Ill | Well | Percent Ill |
|--------------|-------|-----|------|-------------|
| Regular      | 62    | 40  | 22   | 65%         |
| Soft         |       |     |      |             |
| Bland        |       |     |      |             |
| Low Fat      |       |     |      |             |
| Diabetic     |       |     |      |             |
| High Protein |       |     |      |             |
| Pureed       | 7     | 0   | 7    | 0           |
| Tube Feeding |       |     |      |             |
| Liquid       |       |     |      |             |

(all included chicken at noon meal September 23, 1970)

(none included chicken at noon meal September 23, 1970)

**Figure 2** CASES OF SALMONELLOSIS, BY DATE AND TIME OF ONSET, PENNSYLVANIA NURSING HOME, SEPTEMBER 23-28, 1970



#### B. Salmonellosis from Homemade Salami - Seattle, Washington

Reported by Herbert W. Anderson, B.S., R.S., Environmental Epidemiologist, and Donald R. Peterson, M.D., M.P.H., Director of Epidemiology, Seattle-King County Department of Public Health.

On August 4, 1970, a 61-year-old man from Kent, Washington, experienced severe diarrhea, nausea, abdominal pain, headache, chills, fever, and aching back muscles. Four days later he was hospitalized for "viral enteritis" with electrolyte imbalance, and he remained in the hospital for 1 week. Salmonella newport was identified in a stool subculture submitted to the Seattle-King County Health Department Laboratory.

Epidemiologic investigation revealed that 3 days prior to onset of illness the man had prepared homemade smoked salami from pork trimmings and moosemeat. During the preparation, he had tasted the raw meat to determine if it was properly seasoned. He estimated that he ate one tablespoonful of meat at that time.

Leftover raw frozen meat and smoked salami were found in the home. S. newport, S. derby, and S. infantis were isolated from the raw pork, but not from the moosemeat. No viable salmonellae were found in the smoked salami which had been heated to 150°F for 1-1/2 hours.

The patient's 7-month-old, miniature schnauzer had been fed the raw pork scraps. Although the dog had shown no signs of clinical illness, a stool specimen yielded S. heidelberg.

The pork trimmings had been purchased from a neighborhood meat market, where pork sausages and patties were prepared. Market employees denied tasting the raw meat during preparation and also denied illness.

The patient's illness was clearly attributable to ingestion of contaminated raw pork. The dog's infection might possibly have resulted from the same source.

## 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. Baird-Parker AC, Boothroyd M, Jones E: The effect of water activity on the heat resistance of heat sensitive and heat resistant strains of salmonellae. J Appl Bact 33:515, 1970
2. Chung GT, Frost AJ: The growth of Salmonella cholerae-suis in various enrichment broths. J Appl Bact 33:449, 1970
3. Friedberg D, Shilo M: Role of cell wall structure of salmonella in the interaction with phagocytes. Infection and Immunity 2:279, 1970
4. Germanier R: Immunity in experimental salmonellosis 1. Protection induced by rough mutants of Salmonella typhi-murium. Infection and Immunity 2:309, 1970
5. Hornick RB, Greisman SE, Woodward TE, DuPont HL, Dawkins AT, Snyder MJ: Typhoid fever: pathogenesis and immunologic control (second of two parts). New Eng J Med 283:739, 1970
6. Kokolios H, Paizis C, Bredakis F, Georgopoulos AP: Survival of salmonellae in soft agar. Public Health Reports 85:841, 1970
7. Lucas TE, Kumar MC, Kleven SH, Pomeroy BS: Antibiotic treatment of turkey hatching eggs preinfected with salmonellae. Avian Diseases 14:3:455, 1970
8. Moellering RC Jr, Weinberg AN: Persistent salmonella infection in a female carrier for chronic granulomatous disease. Ann Intern Med 73:595, 1970
9. Previte JJ, Alden JC, Gagliardi M, William M, Shampine J: Invasiveness of salmonella administered orally to cold-exposed mice. Infection and Immunity 2:274, 1970
10. Randhawa AS, Kalra DS: Human pathogens from goat meat with special reference to sources of contamination. Part II. Salmonellae. Ind J Med Res 58:283
11. Siddiqui Y, Pomeroy BS, Heinrich D: Antibody response to Salmonella heidelberg in turkeys. Avian Dis 14:463, 1970

B. Recalls of Products contaminated with Salmonellae for Period November 4, 1970, to January 13, 1971 (reported by the U. S. Food and Drug Administration).

From November 4, 1970 to January 13, 1971, three 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<br>Ending | Name, Label, Form   | Manufacturer,<br>Distributor  | Lot No.                          | Depth of<br>Recall | Product<br>Distribution            | Serotype  | Use  |
|----------------|---|---|----------------------------------|--------------------|------------------------------------|---|------|
| 1/6            | Frosty Acres Pure Ground<br>Black Pepper, Pleezing<br>Ground Pepper, Nugget<br>Ground Pepper, Foodland<br>Ground Black Pepper,<br>Frank's Black Pepper Pure<br>Ground, Forbes Pure Ground<br>Black Pepper, Frankford<br>Brand Pure Ground Black<br>Pepper, McMahon's Best<br>Pure Ground Black Pepper,<br>Galanides Brand Pure<br>Ground Black Pepper, Nifda<br>Pure Ground Black Pepper,<br>White Villa Pure Ground<br>Black Pepper, Shurfine<br>Pure Ground Black Pepper,<br>Unity Pure Ground Black<br>Pepper, IGA Black Pepper<br>Pure Ground, Mary Ann<br>Black Pepper Pure Ground,<br>Frank's Ground Black Pepper | (Mfr.) The Frank Tea and<br>Spice Co., Cincinnati,<br>Ohio          | 3570                             | Wholesale          | National                           | Group I<br>(1,v in phase 1;<br>phase 2 undeter-<br>mined) | Food |
| 1/6            | Debittered Brewer's Dried<br>Yeast  | (Mfr.) Philadelphia Dry<br>Yeast Co., Philadelphia,<br>Pennsylvania | 1052                             | User               | Michigan                           | <u>S. cubana</u>  | Food |
| 1/13           | Monark Egg Products' Egg<br>Mix   | (Mfr.) Monark Egg Corp.,<br>Kansas City, Missouri                   | 223-0<br>272-0<br>274-0<br>288-0 | User               | Memphis, Tenn.<br>Kansas City, Mo. | Serotyping not<br>completed                               | Food |



C. Announcement of a Change in the Frequency of Salmonella Surveillance Reports.

Beginning with the first issue of 1971, it is anticipated that the Salmonella Surveillance Report will be distributed quarterly, rather than the present monthly distribution. All of the surveillance data currently presented in the Salmonella Surveillance Report will, of course, continue to be included in future issues. Consideration of this change has been necessitated by budgetary limitations. We would welcome your comments or questions concerning this proposal.

VI. INTERNATIONAL

None.

TABLE I. COMMON SALMONELLAE REPORTED FROM HUMAN SOURCES, OCTOBER, 1970

| 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>              |  |    |    | 1   |    |     |                 | 2   | 2   |    | 7   | 2                  |     | 1   |     | 1   |                    |     | 1  |    |    |     |                |     |     | 1  |    |     |    |    |    |     | 8 |
| <i>bareilly</i>            |  |    |    |     |    |     |                 | 1   |     |    | 1   |                    |     | 11  |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>blockley</i>            | 2  |    |    | 14  | 5  | 3   |                 | 2   | 2   | 1  | 6   | 1                  |     | 4   | 3   | 5   |                    | 2   | 1  |    |    |     | 1              | 1   | 1   |    | 3  |     | 5  |    |    | 4   |   |
| <i>braenderup</i>          |  |    |    | 2   |    | 2   |                 |     |     | 1  |     | 1                  |     |     |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    | 2   |   |
| <i>bredeney</i>            |  |    |    |     |    |     |                 |     |     | 2  | 2   | 1                  |     |     | 2   | 2   |                    |     |    |    |    |     |                |     | 2   |    |    |     |    |    | 1  |     |   |
| <i>chester</i>             |  |    |    |     |    |     |                 |     |     |    | 1   |                    |     |     |     |     | 1                  |     |    |    |    |     |                |     |     | 1  |    |     |    |    |    |     |   |
| <i>cholerae-suis v kun</i> |  |    |    |     |    |     |                 |     |     |    |     |                    |     | 1   |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>cubana</i>              |  |    |    | 2   |    | 1   |                 |     |     | 1  | 2   |                    |     | 2   |     |     |                    |     |    |    |    |     |                |     | 1   |    |    |     |    |    | 1  | 1   |   |
| <i>derby</i>               |  |    |    |     |    |     |                 | 2   | 2   | 1  |     |                    |     | 6   | 2   |     |                    |     |    |    |    |     |                |     | 6   |    | 1  |     | 4  |    |    | 1   |   |
| <i>enteritidis</i>         |  |    | 2  | 23  |    | 7   |                 | 13  | 9   | 11 | 33  | 11                 | 1   | 15  | 33  | 9   | 1                  | 126 | 2  |    | 3  | 12  |                |     | 12  | 3  | 14 |     | 4  |    | 3  | 11  |   |
| <i>give</i>                |  |    |    | 1   |    |     |                 |     |     |    | 1   |                    |     | 1   |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>heidelberg</i>          | 1  |    |    | 15  |    | 2   |                 | 5   | 4   | 4  | 17  | 5                  |     | 15  | 4   | 4   | 1                  |     |    | 1  |    |     | 1              |     | 6   | 1  | 1  |     | 6  |    | 3  | 6   |   |
| <i>indiana</i>             |  |    |    |     |    |     |                 |     |     |    | 2   |                    |     | 2   |     |     |                    |     |    |    |    |     |                |     | 1   |    |    |     |    |    |    | 1   |   |
| <i>infantis</i>            | 1  |    |    | 4   |    | 5   |                 | 1   | 2   | 2  | 10  | 6                  |     | 2   | 10  | 2   |                    | 1   |    |    |    |     | 4              | 1   | 3   |    | 3  |     | 1  |    | 3  | 3   |   |
| <i>java</i>                |  |    |    |     |    | 1   |                 | 2   | 5   | 4  | 8   |                    |     | 3   |     | 3   | 1                  |     |    |    |    |     | 1              | 4   |     |    |    |     |    |    |    | 4   |   |
| <i>javiana</i>             |  |    |    | 1   |    |     |                 |     |     |    |     |                    |     | 2   |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    | 1  | 27  |   |
| <i>litchfield</i>          |  |    |    |     |    |     |                 | 1   | 1   |    |     | 1                  | 1   |     | 2   |     |                    |     |    |    |    |     |                |     | 4   |    | 1  |     |    |    |    | 2   |   |
| <i>livingstone</i>         |  |    |    | 1   |    |     |                 |     |     |    |     | 4                  |     |     | 1   |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>manhattan</i>           |  |    |    |     |    |     |                 | 2   |     | 3  | 4   | 3                  | 1   | 2   |     | 1   |                    |     |    |    |    |     |                |     | 5   |    |    |     | 1  |    |    | 2   |   |
| <i>miami</i>               |  |    |    |     |    |     |                 |     |     |    |     |                    |     |     |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    | 9   |   |
| <i>mississippi</i>         |  |    |    |     |    |     |                 |     |     |    |     |                    |     |     |     | 1   |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>montevideo</i>          |  |    |    | 2   |    | 1   |                 | 3   |     |    | 5   | 7                  |     | 1   |     | 1   |                    |     |    |    |    |     |                |     |     |    |    |     |    |    | 1  | 5   |   |
| <i>muenchen</i>            |  |    |    | 2   |    | 1   |                 |     | 1   | 2  | 4   |                    |     |     |     |     |                    |     |    | 1  |    |     |                | 1   |     |    |    |     |    |    |    | 9   |   |
| <i>newington</i>           |  |    |    |     |    |     |                 |     |     | 3  | 2   |                    |     |     |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>newport</i>             |  |    |    | 3   |    |     |                 | 3   | 1   | 5  | 5   | 2                  | 4   | 6   | 2   | 7   | 3                  |     | 1  | 1  | 1  |     | 2              |     | 3   | 1  | 2  |     | 2  |    | 10 | 16  |   |
| <i>oranienburg</i>         |  |    |    | 1   |    | 2   |                 | 3   | 1   | 2  | 9   |                    |     | 2   |     | 4   |                    | 2   |    | 1  | 1  |     | 1              |     | 1   |    | 1  |     | 4  |    |    | 8   |   |
| <i>panama</i>              |  |    |    | 2   |    |     |                 |     |     |    | 1   |                    |     |     | 2   | 2   |                    |     |    |    |    |     |                |     | 2   |    |    |     | 2  |    |    |     |   |
| <i>paratyphi B</i>         |  |    |    | 8   |    | 1   |                 |     |     |    |     | 1                  | 1   | 2   | 2   | 1   |                    |     |    |    |    |     |                |     | 8   |    | 1  |     |    |    |    |     |   |
| <i>reading</i>             |  |    |    | 3   |    |     |                 |     |     |    | 1   |                    |     |     |     | 1   |                    |     |    |    |    |     |                |     |     |    |    |     | 1  |    |    |     |   |
| <i>saint-paul</i>          |  |    | 5  | 3   |    | 1   |                 | 9   | 6   | 6  | 9   | 4                  |     | 12  | 1   | 6   |                    | 1   |    |    |    |     |                |     | 13  | 1  | 2  |     | 5  |    | 1  | 15  |   |
| <i>san-diego</i>           |  |    |    |     |    | 1   |                 |     |     |    | 1   |                    |     |     |     |     |                    |     |    |    |    |     |                |     | 1   |    |    |     |    |    |    |     |   |
| <i>schwarzengrund</i>      |  |    |    |     |    |     |                 | 1   |     |    |     |                    |     |     |     | 1   |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>senftenberg</i>         |  |    |    |     |    | 1   |                 |     |     |    |     |                    |     |     |     |     |                    |     |    |    |    |     |                |     | 1   |    |    |     |    |    |    |     |   |
| <i>tennessee</i>           |  |    |    |     |    |     |                 | 1   | 1   |    |     |                    |     | 1   |     |     |                    |     | 1  |    |    |     | 1              |     |     |    |    |     | 1  |    | 1  |     |   |
| <i>thompson</i>            |  |    |    | 5   |    | 1   |                 | 4   | 1   | 2  |     | 8                  |     | 6   | 3   | 7   | 1                  |     |    |    |    |     | 3              |     | 1   |    | 1  |     |    |    | 1  | 2   |   |
| <i>typhi</i>               |  |    |    | 3   |    | 2   | 1               | 3   | 5   |    | 2   | 2                  | 2   | 1   |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>typhimurium</i>         | 1  | 1  | 2  | 51  | 3  | 16  |                 | 8   | 9   | 7  | 56  | 6                  | 12  | 20  | 11  | 23  | 3                  | 7   | 9  |    | 3  |     |                | 12  | 2   | 29 |    | 12  |    | 13 |    | 18  |   |
| <i>typhimurium v cop</i>   |  |    |    | 6   |    | 2   |                 |     |     |    |     |                    |     |     | 4   |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>weltevreden</i>         |  |    |    |     |    |     |                 |     |     |    |     |                    |     |     |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| <i>worthington</i>         |  |    |    | 1   |    |     |                 | 1   |     |    |     |                    |     |     |     |     |                    |     |    |    |    |     |                |     |     |    |    |     |    |    |    |     |   |
| TOTAL                      | 5  | 1  | 9  | 154 | 9  | 49  | 1               | 67  | 53  | 56 | 190 | 64                 | 22  | 118 | 82  | 81  | 11                 | 139 | 15 | 3  | 9  | 12  | 27             | 8   | 104 | 6  | 42 | —   | 51 | —  | 45 | 156 |   |
| ALL OTHER*                 | —  | 4  | —  | 12  | 3  | 3   | 14              | 3   | —   | 7  | 7   | 1                  | 1   | 8   | 4   | 1   | 1                  | —   | 3  | 1  | —  | 1   | —              | —   | 7   | 2  | 6  | —   | 2  | —  | 5  | 11  |   |
| TOTAL                      | 5  | 5  | 9  | 166 | 12 | 52  | 15              | 70  | 53  | 63 | 197 | 65                 | 23  | 126 | 86  | 82  | 12                 | 139 | 18 | 4  | 9  | 13  | 27             | 8   | 111 | 8  | 48 | —   | 53 | —  | 50 | 167 |   |

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 98 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  |     | 4   |          |     |     | 2   |    | 1   |     |         | 2   |     | 2   |     | 2   | 42    | 1.6        | 209                      | 1.0                           | <i>anatum</i>              |
|  |     |     |     | 1               |    |     |     |          |     |     |     |    |     |     |         |     |     |     |     |     | 14    | .5         | 62                       | .3                            | <i>bareilly</i>            |
|  | 1   |     |     | 3               |    |     | 1   |          | 1   |     | 2   |    | 1   |     |         |     |     | 6   | 1   |     | 82    | 3.2        | 570                      | 2.9                           | <i>blockley</i>            |
|  |     |     |     |                 |    |     | 1   |          |     |     | 1   |    |     |     |         |     |     |     |     | 1   | 11    | .4         | 69                       | .3                            | <i>braenderup</i>          |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     | 1   |     | 3   | 16    | .6         | 164                      | .8                            | <i>bredeney</i>            |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     | 2   |     |     |     | 5     | .2         | 67                       | .3                            | <i>chester</i>             |
|  | 1   | 1   |     |                 |    |     | 2   |          |     |     |     |    |     |     |         |     |     |     |     |     | 1     | .0         | 19                       | .1                            | <i>cholerae-suis v kun</i> |
|  | 2   |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     | 5   |     | 5   | 15    | .6         | 111                      | .6                            | <i>cubana</i>              |
|  | 4   | 3   |     |                 | 2  | 1   | 7   | 1        | 1   |     | 9   |    |     |     |         | 3   |     | 12  |     |     | 401   | 15.6       | 2043                     | 10.2                          | <i>derby</i>               |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     |     |     |     |       |            |                          |                               | <i>enteritidis</i>         |
|  |     | 1   |     | 1               | 3  |     | 4   |          |     |     |     |    |     |     |         |     |     |     |     | 1   | 13    | .5         | 64                       | .3                            | <i>give</i>                |
|  | 5   | 1   |     | 2               | 1  |     | 5   |          |     |     | 3   |    | 8   | 1   |         |     | 2   | 20  |     | 2   | 152   | 5.9        | 1443                     | 7.2                           | <i>heidelberg</i>          |
|  |     | 3   |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     |     |     |     | 9     | .3         | 94                       | .5                            | <i>indiana</i>             |
| 1  | 3   | 7   |     |                 | 2  |     | 13  |          |     |     |     |    |     |     |         | 1   |     | 20  |     | 8   | 119   | 4.6        | 983                      | 4.9                           | <i>infantis</i>            |
| 1  | 7   |     |     | 1               |    |     |     |          |     |     |     |    |     | 5   |         |     |     | 6   |     |     | 56    | 2.2        | 330                      | 1.7                           | <i>java</i>                |
|  | 1   |     | 1   |                 | 9  |     | 21  |          |     |     |     |    | 1   |     |         |     |     | 1   |     |     | 65    | 2.5        | 327                      | 1.6                           | <i>javana</i>              |
|  |     |     |     | 4               |    |     | 1   |          |     |     |     |    | 1   |     |         |     |     |     |     |     | 19    | .7         | 152                      | .8                            | <i>litchfield</i>          |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     | 1   |         |     |     | 1   |     | 1   | 9     | .3         | 27                       | .1                            | <i>livingstone</i>         |
|  | 1   |     |     | 2               |    |     |     |          |     |     |     |    |     |     |         | 2   |     | 7   |     |     | 36    | 1.4        | 285                      | 1.4                           | <i>manhattan</i>           |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     |     |     |     | 9     | .3         | 47                       | .2                            | <i>miami</i>               |
|  | 1   | 1   |     |                 | 4  |     |     |          |     |     |     |    |     |     |         |     |     |     |     |     | 8     | .3         | 60                       | .3                            | <i>mississippi</i>         |
|  |     |     |     |                 | 1  | 1   | 3   |          |     |     | 1   |    |     |     |         |     |     |     | 8   |     | 40    | 1.6        | 341                      | 1.7                           | <i>montevideo</i>          |
|  |     | 2   |     | 1               |    |     | 1   |          |     |     |     |    |     |     |         |     |     |     | 2   |     | 27    | 1.0        | 226                      | 1.1                           | <i>muenchen</i>            |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     | 1   |     | 1   | 7     | .3         | 38                       | .2                            | <i>newington</i>           |
|  | 9   | 3   | 1   | 6               | 11 | 1   | 37  |          |     |     | 1   |    | 6   |     |         | 1   | 29  |     |     | 1   | 186   | 7.2        | 1408                     | 7.0                           | <i>newport</i>             |
|  |     | 1   |     | 1               |    |     | 7   | 1        |     |     |     |    |     |     |         |     |     | 3   |     |     | 56    | 2.2        | 335                      | 1.7                           | <i>oranienburg</i>         |
|  |     |     |     |                 |    |     | 2   |          |     |     | 3   |    | 1   |     |         |     |     | 1   |     | 12  | 30    | 1.2        | 191                      | 1.0                           | <i>panama</i>              |
|  |     |     |     |                 |    |     | 1   |          |     |     |     |    |     |     |         |     |     |     |     |     | 28    | 1.1        | 170                      | .9                            | <i>paratyphi B</i>         |
|  |     |     |     |                 |    |     |     | 1        |     |     |     |    |     |     | 1       |     |     |     |     |     | 8     | .3         | 118                      | .6                            | <i>reading</i>             |
| 3  | 2   | 5   |     |                 | 3  |     | 1   |          |     |     | 1   |    | 1   |     |         | 1   | 2   | 15  |     | 1   | 135   | 5.2        | 973                      | 4.9                           | <i>saint-paul</i>          |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     | 3   |     |     | 6     | .2         | 202                      | 1.0                           | <i>san-diego</i>           |
|  |     |     |     |                 |    |     |     | 1        |     |     |     |    |     |     |         |     |     |     |     |     | 3     | .1         | 46                       | .2                            | <i>schwarzengrund</i>      |
|  |     |     |     |                 |    |     |     |          |     |     | 1   |    |     |     |         |     |     |     |     |     | 6     | .2         | 55                       | .3                            | <i>senftenberg</i>         |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     |     |     |     | 8     | .3         | 47                       | .2                            | <i>tennessee</i>           |
|  |     |     | 1   |                 | 4  |     | 4   | 1        | 1   |     | 1   |    |     |     |         | 4   | 1   | 13  | 2   |     | 78    | 3.0        | 822                      | 4.1                           | <i>thompson</i>            |
| 1  | 1   |     |     |                 | 5  |     | 1   |          |     |     |     |    | 1   |     |         |     |     | 11  |     |     | 47    | 1.8        | 435                      | 2.2                           | <i>typhi</i>               |
| 3  | 14  | 9   |     | 3               | 12 | 2   | 12  |          | 1   |     | 11  |    | 5   | 2   | 1       | 4   | 10  | 73  |     | 6   | 520   | 20.2       | 4641                     | 23.2                          | <i>typhimurium</i>         |
|  |     |     |     |                 | 1  |     |     |          | 1   |     |     |    |     |     |         |     | 1   |     |     |     | 15    | .6         | 242                      | 1.2                           | <i>typhimurium v cop</i>   |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     |     |     | 14  | 14    | .5         | 80                       | .4                            | <i>weltevreden</i>         |
|  |     |     |     |                 |    |     |     |          |     |     |     |    |     |     |         |     |     |     |     | 2   | 4     | .2         | 45                       | .2                            | <i>worthington</i>         |
| 11                                       | 53  | 38  | 2   | 18              | 67 | 5   | 130 | 5        | 5   | —   | 36  | —  | 26  | 9   | 2       | 17  | 19  | 242 | 3   | 60  | 2337  | 90.8       | 17940                    | 89.8                          | TOTAL                      |
| 2  | 3   | 3   | 19  | 5               | 10 | 1   | 33  | —        | —   | —   | —   | 20 | 4   | —   | —       | 1   | 4   | 19  | 3   | 2   | 236   | X          | 2035                     | X                             | ALL OTHER *                |
| 13                                       | 56  | 41  | 21  | 23              | 77 | 6   | 163 | 5        | 5   | —   | 36  | 20 | 30  | 9   | 2       | 18  | 23  | 261 | 6   | 62  | 2573  |            | 19975                    |                               | TOTAL                      |

TABLE II. OTHER SALMONELLAE REPORTED FROM HUMAN SOURCES, OCTOBER, 1970

| SERO TYPE                | REPORTING CENTER |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
|--------------------------|------------------|-----|-----|-----|-----|-----|----|-----|----|-----|-----|-----|----|----|----|-----|-----|-----|-----|----|
|                          | ALA              | ALK | ARI | ARK | CAL | CON | DC | FLA | GA | HAW | ILL | IND | KY | LA | MD | MAS | MIC | MIN | MIS | MO |
| <i>ade laide</i>         |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    | 1   |     |     |     |    |
| <i>agona</i>             |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    | 1   |     |     |     |    |
| <i>alachua</i>           |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>albany</i>            |                  |     |     |     | 1   |     |    |     |    |     |     |     |    |    |    |     |     |     |     | 4  |
| <i>berta</i>             |                  |     | 1   |     |     |     |    |     |    |     |     |     |    | 1  |    |     |     |     |     | 1  |
| <i>bovis-morbificans</i> |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    | 2   |     |     |     |    |
| <i>canoga</i>            |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     | 1  |
| <i>cerro</i>             |                  |     |     |     |     | 1   |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>cholerae-suis</i>     |                  |     |     |     | 1   |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>claibornei</i>        |                  |     |     | 1   |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>concord</i>           |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     | 1   |     |     |    |
| <i>degania</i>           |                  |     |     |     |     |     |    | 1   |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>drypool</i>           |                  |     |     |     | 1   |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>dueseldorf</i>        |                  |     |     |     |     |     |    | 1   |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>eimsbuettel</i>       |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>flint</i>             |                  |     |     |     |     |     |    |     | 1  |     |     |     |    |    |    |     |     |     |     |    |
| <i>gaminara</i>          |                  |     |     |     |     |     |    |     |    |     |     |     |    | 1  |    |     |     |     |     |    |
| <i>gatos</i>             |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     | 1   |     |    |
| <i>habana</i>            |                  |     |     |     |     |     |    | 1   |    |     | 1   |     |    |    | 2  |     |     |     |     |    |
| <i>hartford</i>          | 1                |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>ibadan</i>            |                  |     |     | 1   |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>johannesburg</i>      |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     | 1  |
| <i>kentucky</i>          |                  |     |     |     | 2   |     |    | 2   | 1  |     |     |     |    | 1  |    |     |     |     |     |    |
| <i>kottbus</i>           |                  |     |     |     |     |     |    |     |    |     | 3   |     | 2  |    | 4  |     | 2   |     |     |    |
| <i>lexington</i>         |                  |     |     |     |     |     |    |     |    |     |     |     |    |    | 1  |     |     |     |     |    |
| <i>loma-linda</i>        |                  |     |     |     | 1   |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>lomita</i>            |                  |     | 1   |     |     |     |    |     |    |     | 1   |     |    |    |    |     |     |     |     |    |
| <i>london</i>            |                  |     |     |     |     |     |    |     |    |     | 2   |     |    |    |    |     | 1   |     |     |    |
| <i>luciana</i>           |                  |     |     |     |     |     |    | 1   |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>meleagridis</i>       |                  |     | 1   |     |     |     |    |     | 1  | 2   |     |     |    | 1  |    |     |     |     |     |    |
| <i>minnesota</i>         |                  |     |     |     |     |     |    |     |    |     |     |     |    | 1  |    | 2   |     |     |     |    |
| <i>muenster</i>          |                  |     |     |     |     |     |    |     | 1  |     |     |     |    |    |    | 1   |     |     |     |    |
| <i>norwich</i>           |                  |     |     |     |     |     |    |     |    |     |     |     |    | 2  |    |     |     |     |     |    |
| <i>ohio</i>              |                  |     |     |     |     |     |    |     |    |     | 1   |     |    |    |    |     |     |     |     |    |
| <i>oslo</i>              |                  |     |     |     |     |     |    |     | 1  |     |     |     |    |    |    |     |     |     |     |    |
| <i>papuana</i>           |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>paratyphi A</i>       |                  |     |     |     |     |     |    |     |    |     |     |     |    |    | 1  |     |     |     |     |    |
| <i>pensacola</i>         |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>poona</i>             |                  |     |     | 1   | 1   |     |    | 3   |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>rubislaw</i>          |                  |     | 1   |     |     |     |    | 1   |    |     |     |     |    | 1  |    |     |     |     |     |    |
| <i>rutgers</i>           |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>saphra</i>            |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>siegburg</i>          |                  |     |     |     | 10  |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>tallahassee</i>       |                  |     |     |     |     |     |    | 1   |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>urbana</i>            |                  |     |     |     | 2   | 1   |    |     |    |     |     |     |    |    | 1  | 2   |     |     |     |    |
| <i>virchow</i>           |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>weslaco</i>           |                  |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| <i>westerstede</i>       | 2                |     |     |     |     |     |    |     |    |     |     |     |    |    |    |     |     |     |     |    |
| TOTAL                    | 3                | —   | 4   | 3   | 19  | 2   | —  | 11  | 5  | 2   | 8   | —   | 2  | 10 | 7  | 9   | 4   | 1   | —   | 3  |
| NOT TYPED*               | —                | 3   | —   | 2   | —   | 1   | 2  | —   | —  | —   | —   | 1   | —  | —  | —  | 3   | —   | —   | 19  | —  |
| TOTAL                    | 3                | 3   | 4   | 5   | 19  | 3   | 2  | 11  | 5  | 2   | 8   | 1   | 2  | 10 | 7  | 12  | 4   | 1   | 19  | 3  |

\*See Table V-A

TABLE II - Continued

| REPORTING CENTER |     |    |    |    |     |     |    |    |     |     |    |     |     | TOTAL | CUMULATIVE<br>TOTAL | SERO TYPE                |
|------------------|-----|----|----|----|-----|-----|----|----|-----|-----|----|-----|-----|-------|---------------------|--------------------------|
| NYA              | NYB | NC | ND | OH | OKL | ORE | PA | RI | TEN | TEX | VA | WAS | WIS |       |                     |                          |
|                  | 1   |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 2                   | <i>ade laide</i>         |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 4                   | <i>agona</i>             |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 10                  | <i>alachua</i>           |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 5     | 18                  | <i>albany</i>            |
|                  |     |    | 1  |    |     |     |    |    |     |     |    |     |     | 5     | 57                  | <i>berta</i>             |
|                  |     |    |    |    |     |     | 4  |    |     | 1   |    |     |     | 7     | 32                  | <i>bovis-morbificans</i> |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 1                   | <i>canoga</i>            |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 18                  | <i>cerro</i>             |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 7                   | <i>cholerae-suis</i>     |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 1                   | <i>claibornei</i>        |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 5                   | <i>concord</i>           |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 2                   | <i>degania</i>           |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 10                  | <i>drypool</i>           |
|                  |     |    |    |    |     |     |    |    |     |     |    | 1   |     | 1     | 12                  | <i>duesseldorf</i>       |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 16                  | <i>eimsbuetel</i>        |
|                  |     |    |    |    |     |     |    |    |     | 2   |    |     |     | 1     | 2                   | <i>flint</i>             |
|                  |     |    |    |    |     |     |    |    |     | 1   |    |     |     | 3     | 14                  | <i>gaminara</i>          |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 1                   | <i>gato</i>              |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 4                   | <i>habana</i>            |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 5     | 23                  | <i>hartford</i>          |
|                  |     |    |    |    |     |     |    |    |     | 2   |    |     |     | 3     | 7                   | <i>ibadan</i>            |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 5                   | <i>johannesburg</i>      |
|                  | 2   | 2  |    |    |     |     |    |    | 2   |     | 1  |     |     | 8     | 40                  | <i>kentucky</i>          |
|                  |     |    |    |    |     |     | 1  |    |     |     |    |     |     | 16    | 29                  | <i>kottbus</i>           |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 2     | 4                   | <i>lexington</i>         |
|                  |     |    |    |    |     |     |    |    |     | 2   |    |     |     | 1     | 3                   | <i>loma-linda</i>        |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 4     | 16                  | <i>lomita</i>            |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 3     | 16                  | <i>london</i>            |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 2                   | <i>luciana</i>           |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 5     | 21                  | <i>meleagridis</i>       |
|                  |     |    |    |    |     |     |    |    |     | 1   |    |     |     | 4     | 27                  | <i>minnesota</i>         |
|                  |     |    |    |    |     |     |    |    | 1   |     | 2  |     |     | 2     | 21                  | <i>muenster</i>          |
|                  |     |    |    |    | 1   |     |    |    |     |     |    |     |     | 5     | 16                  | <i>norwich</i>           |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 7                   | <i>ohio</i>              |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 2     | 21                  | <i>oslo</i>              |
|                  |     |    |    |    |     |     |    |    |     | 1   |    |     |     | 1     | 1                   | <i>papua</i>             |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 5                   | <i>paratyphi A</i>       |
|                  |     |    |    |    |     |     |    |    |     |     | 1  |     |     | 1     | 9                   | <i>pensacola</i>         |
|                  |     |    | 1  |    |     |     | 2  |    |     | 1   | 1  |     |     | 10    | 81                  | <i>poona</i>             |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 3     | 20                  | <i>rubislaw</i>          |
|                  |     |    |    |    |     |     |    |    |     | 5   |    |     |     | 1     | 1                   | <i>rutgers</i>           |
|                  |     |    |    |    |     |     |    |    |     | 2   |    |     |     | 5     | 11                  | <i>saphra</i>            |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 12    | 43                  | <i>siegburg</i>          |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 6                   | <i>tallahassee</i>       |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 6     | 50                  | <i>urbana</i>            |
|                  |     |    |    |    |     |     |    |    |     | 1   |    |     |     | 1     | 4                   | <i>virchow</i>           |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 1     | 1                   | <i>weslaco</i>           |
|                  |     |    |    |    |     |     |    |    |     |     |    |     |     | 2     | 3                   | <i>westerstede</i>       |
| -                | 3   | 2  | 1  | 1  | 1   | -   | 7  | -  | 3   | 19  | 5  | 1   | -   | 143   | 910                 | TOTAL                    |
| 14               | -   | -  | -  | -  | -   | 4   | -  | 3  | -   | 14  | 1  | -   | 1   | 93    | 1125                | NOT TYPED*               |
| 14               | 3   | 2  | 1  | 1  | 1   | 4   | 7  | 3  | 3   | 33  | 6  | 1   | 1   | 236   | 2035                | 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, 1970

| SERO TYPE                  | DOMESTIC ANIMALS AND THEIR ENVIRONMENT |         |       |        |        |       |          | ANIMAL FEEDS |                   |       |          |
|----------------------------|--|---------|-------|--------|--------|-------|----------|--------------|-------------------|-------|----------|
|                            | CHICKENS                               | TURKEYS | SWINE | CATTLE | HORSES | OTHER | SUBTOTAL | TANKAGE      | VEGETABLE PROTEIN | OTHER | SUBTOTAL |
| <i>anatum</i>              | 3                                      | 10      |       | 2      |        |       | 15       | 1            |                   | 1     | 2        |
| <i>bareilly</i>            |  |         |       |        |        |       | —        | 1            |                   |       | 1        |
| <i>blockley</i>            | 11                                     | 3       |       |        |        | 1     | 15       |              |                   |       | —        |
| <i>braenderup</i>          |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>bredeney</i>            |  | 5       |       |        |        |       | 5        | 3            |                   |       | 3        |
| <i>chester</i>             |  | 1       |       |        |        |       | 1        |              |                   |       | —        |
| <i>cholerae-suis v kun</i> |  |         | 23    |        |        |       | 23       |              |                   |       | —        |
| <i>cubana</i>              | 1                                      |         |       |        |        |       | 1        | 8            |                   |       | 8        |
| <i>derby</i>               |  | 4       |       |        |        | 1     | 5        | 1            |                   |       | 1        |
| <i>enteritidis</i>         | 1                                      |         | 1     |        |        | 1     | 3        |              |                   |       | —        |
| <i>give</i>                |  |         |       |        |        | 1     | 1        |              |                   |       | —        |
| <i>heidelberg</i>          | 15                                     | 34      | 2     | 2      | 1      | 2     | 56       |              |                   |       | —        |
| <i>indiana</i>             |  | 1       |       | 1      |        |       | 2        |              |                   |       | —        |
| <i>infantis</i>            | 10                                     | 1       | 3     | 2      |        | 1     | 17       | 2            |                   |       | 2        |
| <i>java</i>                |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>javiana</i>             |  |         |       | 1      |        |       | 1        |              |                   |       | —        |
| <i>litchfield</i>          |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>livingstone</i>         |  |         |       |        |        |       | —        |              |                   | 3     | 3        |
| <i>manhattan</i>           |  |         |       | 1      |        | 1     | 2        |              |                   |       | —        |
| <i>miami</i>               |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>mississippi</i>         |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>montevideo</i>          | 7                                      | 1       | 1     |        |        |       | 9        | 11           |                   |       | 11       |
| <i>muenchen</i>            |  | 2       |       |        |        |       | 2        |              |                   |       | —        |
| <i>newington</i>           |  | 1       |       |        |        |       | 1        |              |                   |       | —        |
| <i>newport</i>             | 2                                      | 5       | 2     | 3      |        |       | 12       |              |                   |       | —        |
| <i>oranienburg</i>         |  |         |       |        |        |       | —        | 3            |                   |       | 3        |
| <i>panama</i>              |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>paratyphi B</i>         |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>reading</i>             |  | 12      |       |        |        |       | 12       |              |                   |       | —        |
| <i>saint-paul</i>          | 2                                      | 18      | 1     | 1      | 2      | 4     | 28       |              |                   |       | —        |
| <i>san-diego</i>           |  | 34      |       |        |        |       | 34       | 1            |                   |       | 1        |
| <i>schwarzengrund</i>      |  | 3       |       |        |        |       | 3        | 3            |                   | 3     | 6        |
| <i>senftenberg</i>         | 4                                      | 10      |       |        |        | 1     | 15       | 6            |                   | 5     | 11       |
| <i>tennessee</i>           | 1                                      | 2       |       |        |        |       | 3        | 19           |                   |       | 19       |
| <i>thompson</i>            | 12                                     | 2       | 1     |        | 1      | 1     | 17       |              |                   | 5     | 5        |
| <i>typhi</i>               |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>typhimurium</i>         | 9                                      | 11      | 12    | 47     | 2      | 14    | 95       |              |                   | 2     | 2        |
| <i>typhimurium v cop</i>   | 10                                     | 1       |       | 4      | 2      | 4     | 21       |              |                   |       | —        |
| <i>weltevreden</i>         |  |         |       |        |        |       | —        |              |                   |       | —        |
| <i>worthington</i>         | 9                                      | 16      | 1     |        |        |       | 26       | 2            |                   |       | 2        |
| TOTAL                      | 97                                     | 177     | 47    | 64     | 8      | 32    | 425      | 61           | —                 | 19    | 80       |
| ALL OTHER *                | 17                                     | 16      | 1     | 27     | —      | 4     | 65       | 35           | —                 | 7     | 42       |
| TOTAL                      | 114                                    | 193     | 48    | 91     | 8      | 36    | 490      | 96           | —                 | 26    | 122      |

\* See Table IV

TABLE III - Continued

| WILD<br>ANIMALS<br>AND<br>BIRDS | REPTILES<br>AND<br>ENVIRON-<br>MENT | HUMAN DIETARY ITEMS  |         |          |                   |       |          | MISCEL-<br>LA-<br>NEOUS | TOTAL | CUMU-<br>LATIVE<br>TOTAL | SEROTYPE                   |
|---------------------------------|-------------------------------------|----------------------|---------|----------|-------------------|-------|----------|-------------------------|-------|--------------------------|----------------------------|
|                                 |                                     | EGGS AND<br>PRODUCTS | POULTRY | RED MEAT | DAIRY<br>PRODUCTS | OTHER | SUBTOTAL |                         |       |                          |                            |
| 1                               |                                     |                      |         |          |                   | 3     | 3        |                         | 21    | 415                      | <i>anatum</i>              |
| 1                               |                                     |                      |         |          |                   |       | —        |                         | 1     | 37                       | <i>bareilly</i>            |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 16    | 154                      | <i>blockley</i>            |
|                                 |                                     |                      |         |          |                   |       | —        |                         | —     | 23                       | <i>braenderup</i>          |
|                                 |                                     |                      |         |          |                   | 1     | 1        |                         | 9     | 113                      | <i>bredeney</i>            |
| 1                               |                                     |                      |         |          |                   |       | —        |                         | 1     | 38                       | <i>chester</i>             |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 24    | 261                      | <i>cholerae-suis v kun</i> |
| 1                               | 1                                   |                      |         |          | 6                 | 1     | 7        |                         | 16    | 113                      | <i>cubana</i>              |
|                                 | 1                                   |                      |         |          |                   |       | —        |                         | 8     | 103                      | <i>derby</i>               |
|                                 |                                     |                      | 3       |          |                   | 1     | 4        |                         | 8     | 121                      | <i>enteritidis</i>         |
| 2                               |                                     |                      |         |          |                   |       | —        |                         | 3     | 30                       | <i>give</i>                |
|                                 |                                     |                      |         |          |                   |       | —        | 1                       | 57    | 663                      | <i>heidelberg</i>          |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 2     | 49                       | <i>indiana</i>             |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 19    | 298                      | <i>infantis</i>            |
|                                 |                                     |                      |         |          |                   |       | —        | 2                       | 2     | 28                       | <i>java</i>                |
|                                 | 1                                   |                      |         |          |                   |       | —        |                         | 1     | 17                       | <i>javana</i>              |
|                                 |                                     |                      |         |          |                   |       | —        | 1                       | 2     | 14                       | <i>litchfield</i>          |
|                                 | 2                                   |                      |         |          |                   |       | —        |                         | 3     | 50                       | <i>livingstone</i>         |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 4     | 32                       | <i>manhattan</i>           |
|                                 |                                     |                      |         |          |                   |       | —        |                         | —     | 8                        | <i>miami</i>               |
|                                 |                                     |                      |         |          |                   |       | —        |                         | —     | 3                        | <i>mississippi</i>         |
|                                 | 1                                   | 8                    | 2       |          |                   | 3     | 13       | 1                       | 34    | 293                      | <i>montevideo</i>          |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 3     | 45                       | <i>muenchen</i>            |
| 1                               | 6                                   |                      |         |          |                   |       | —        |                         | 1     | 24                       | <i>newington</i>           |
|                                 |                                     |                      |         |          |                   |       | —        | 5                       | 24    | 187                      | <i>newport</i>             |
|                                 | 1                                   |                      |         |          |                   |       | —        | 2                       | 6     | 176                      | <i>oranienburg</i>         |
|                                 |                                     | 1                    |         |          |                   |       | 1        |                         | 1     | 9                        | <i>panama</i>              |
|                                 |                                     |                      |         |          |                   |       | —        |                         | —     | 2                        | <i>paratyphi B</i>         |
| 1                               |                                     |                      |         |          |                   |       | —        |                         | 12    | 46                       | <i>reading</i>             |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 29    | 440                      | <i>saint-paul</i>          |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 35    | 176                      | <i>san-diego</i>           |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 9     | 125                      | <i>schwarzengrund</i>      |
|                                 |                                     | 1                    |         |          |                   |       | 1        | 1                       | 28    | 230                      | <i>senftenberg</i>         |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 22    | 245                      | <i>tennessee</i>           |
|                                 |                                     | 6                    |         |          |                   |       | 6        |                         | 28    | 261                      | <i>thompson</i>            |
| 11                              |                                     |                      |         |          |                   | 1     | —        |                         | —     | —                        | <i>typhi</i>               |
| 1                               |                                     |                      |         |          |                   |       | 1        | 1                       | 110   | 1062                     | <i>typhimurium</i>         |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 22    | 183                      | <i>typhimurium v cop</i>   |
|                                 |                                     | 1                    |         |          | 1                 | 1     | 1        |                         | 1     | 1                        | <i>weltevreden</i>         |
|                                 |                                     |                      |         |          |                   |       | 2        |                         | 30    | 215                      | <i>worthington</i>         |
| 20                              | 13                                  | 17                   | 5       | —        | 7                 | 11    | 40       | 14                      | 592   | 6290                     | TOTAL                      |
| 7                               | 8                                   | 5                    | —       | —        | 1                 | 6     | 12       | 7                       | 141   | 1401                     | ALL OTHER*                 |
| 27                              | 21                                  | 22                   | 5       | —        | 8                 | 17    | 52       | 21                      | 733   | 7691                     | TOTAL                      |



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TABLE IV - Continued

| WILD<br>ANIMALS<br>AND<br>BIRDS | REPTILES<br>AND<br>ENVIRON-<br>MENT | HUMAN DIETARY ITEMS  |         |          |                   |       |          | MISCEL-<br>LA-<br>NEOUS | TOTAL | CUMU-<br>LATIVE<br>TOTAL | SEROTYPE            |
|---------------------------------|-------------------------------------|----------------------|---------|----------|-------------------|-------|----------|-------------------------|-------|--------------------------|---------------------|
|                                 |                                     | EGGS AND<br>PRODUCTS | POULTRY | RED MEAT | DAIRY<br>PRODUCTS | OTHER | SUBTOTAL |                         |       |                          |                     |
|                                 | 1                                   |                      |         |          |                   |       | —        |                         | 2     | 3                        | <i>agona</i>        |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 3     | 19                       | <i>alechua</i>      |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 4     | 16                       | <i>albany</i>       |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 1     | 14                       | <i>beria</i>        |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 3     | 42                       | <i>binza</i>        |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 4     | 33                       | <i>california</i>   |
|                                 | 1                                   | 1                    |         |          |                   |       | 1        |                         | 1     | 12                       | <i>carru</i>        |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 4     | 38                       | <i>cerro</i>        |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 7     | 60                       | <i>drypool</i>      |
| 1                               |                                     |                      |         |          |                   |       | —        | 1                       | 14    | 68                       | <i>dublin</i>       |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 10    | 194                      | <i>eimsbuetel</i>   |
| 1                               | 1                                   |                      |         |          |                   |       | —        |                         | 1     | 1                        | <i>gatum</i>        |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 1     | 7                        | <i>good</i>         |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 2     | 5                        | <i>habana</i>       |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 1     | 1                        | <i>hato</i>         |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 2     | 4                        | <i>illinois</i>     |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 6     | 76                       | <i>kentucky</i>     |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 1     | 1                        | <i>kingston</i>     |
|                                 |                                     |                      |         |          | 1                 |       | —        |                         | 1     | 14                       | <i>lexington</i>    |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 2     | 6                        | <i>london</i>       |
|                                 |                                     |                      |         |          |                   |       | —        | 2                       | 5     | 34                       | <i>meleagridis</i>  |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 11    | 99                       | <i>minnesota</i>    |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 3     | 19                       | <i>muenster</i>     |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 1     | 11                       | <i>ohio</i>         |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 1     | 13                       | <i>poona</i>        |
| 3                               |                                     |                      |         |          |                   |       | —        |                         | 3     | 51                       | <i>pullorum</i>     |
|                                 | 1                                   | 1                    |         |          |                   |       | —        |                         | 3     | 9                        | <i>rubislaw</i>     |
|                                 |                                     | 1                    |         |          |                   |       | —        | 2                       | 14    | 66                       | <i>siegburg</i>     |
| 1                               |                                     |                      |         |          |                   |       | —        |                         | 7     | 44                       | <i>stmsbury</i>     |
|                                 |                                     |                      |         |          |                   |       | —        |                         | 1     | 27                       | <i>takony</i>       |
|                                 |                                     | 2                    |         |          |                   |       | 2        |                         | 3     | 62                       | <i>thomassville</i> |
|                                 | 1                                   |                      |         |          |                   |       | —        |                         | 3     | 27                       | <i>urbana</i>       |
|                                 | 1                                   |                      |         |          |                   |       | —        |                         | 1     | 1                        | <i>warregul</i>     |
|                                 |                                     |                      |         |          |                   |       | —        |                         |       |                          |                     |
|                                 |                                     |                      |         |          |                   |       | —        |                         |       |                          |                     |
|                                 |                                     |                      |         |          |                   |       | —        |                         |       |                          |                     |
| 6                               | 6                                   | 4                    | —       | —        | 1                 | 6     | 11       | 5                       | 126   | 1258                     | TOTAL               |
| 1                               | 2                                   | 1                    | —       | —        | —                 | —     | 1        | 2                       | 15    | 143                      | NOT TYPED *         |
| 7                               | 8                                   | 5                    | —       | —        | 1                 | 6     | 12       | 7                       | 141   | 1401                     | TOTAL               |

### A. HUMAN SOURCES

| REPORTING CENTER | GROUP |   |  |    |    |  |    |   |  |   |   |  |     |  |  |  | TOTAL |
|------------------|-------|---|--|----|----|--|----|---|--|---|---|--|-----|--|--|--|-------|
|                  | B     | C |  | C1 | C2 |  | D  | E |  | G | O |  | UNK |  |  |  |       |
| ALASKA           | 1     |   |  |    | 2  |  |    |   |  |   |   |  |     |  |  |  | 3     |
| ARKANSAS         |       |   |  |    |    |  | 2  |   |  |   |   |  |     |  |  |  | 2     |
| CONNECTICUT      | 1     |   |  |    |    |  |    |   |  |   |   |  |     |  |  |  | 1     |
| D.C.             | 1     |   |  |    |    |  |    |   |  |   |   |  | 1   |  |  |  | 2     |
| INDIANA          |       |   |  |    |    |  | 1  |   |  |   |   |  |     |  |  |  | 1     |
| MASSACHUSETTS    | 3     |   |  |    |    |  |    |   |  |   |   |  |     |  |  |  | 3     |
| MISSISSIPPI      | 13    |   |  | 1  | 2  |  | 1  | 1 |  | 1 |   |  |     |  |  |  | 19    |
| NEBRASKA         |       |   |  |    |    |  | 1  |   |  |   |   |  |     |  |  |  | 1     |
| NEW HAMPSHIRE    | 1     |   |  |    | 1  |  | 1  |   |  |   |   |  | 1   |  |  |  | 4     |
| NEW MEXICO       | 7     |   |  | 2  | 1  |  | 9  | 1 |  |   |   |  |     |  |  |  | 20    |
| NEW YORK-A       |       |   |  |    |    |  |    |   |  |   |   |  | 14  |  |  |  | 14    |
| OREGON           | 3     | 1 |  |    |    |  |    |   |  |   |   |  |     |  |  |  | 4     |
| RHODE ISLAND     | 2     |   |  |    | 1  |  |    |   |  |   |   |  |     |  |  |  | 3     |
| TEXAS            | 1     |   |  | 2  | 8  |  | 2  |   |  |   |   |  | 1   |  |  |  | 14    |
| VIRGINIA         |       |   |  |    |    |  |    |   |  |   |   |  | 1   |  |  |  | 1     |
| WISCONSIN        |       |   |  | 1  |    |  |    |   |  |   |   |  |     |  |  |  | 1     |
| TOTAL            | 33    | 1 |  | 6  | 15 |  | 17 | 2 |  | 1 | - |  | 18  |  |  |  | 93    |

## B. NONHUMAN SOURCES

| SOURCES                                | GROUP    |          |  |          |          |  |          |          |  |          |          |  |          |  |  | TOTAL     |
|--|----------|----------|--|----------|----------|--|----------|----------|--|----------|----------|--|----------|--|--|-----------|
|  | B        | C        |  | C1       | C2       |  | D        | E        |  | G        | O        |  | UNK      |  |  |           |
| DOMESTIC ANIMALS AND THEIR ENVIRONMENT | 2        |          |  |          |          |  |          |          |  | 1        |          |  | 1        |  |  | 4         |
| ANIMAL FEEDS                           |          |          |  | 5        |          |  |          |          |  |          |          |  |          |  |  | 5         |
| WILD ANIMALS AND BIRDS                 | 1        |          |  |          |          |  |          |          |  |          |          |  |          |  |  | 1         |
| REPTILES AND ENVIRONMENT               |          |          |  |          |          |  | 1        |          |  |          |          |  | 1        |  |  | 2         |
| HUMAN DIETARY ITEMS                    | 1        |          |  |          |          |  |          |          |  |          |          |  |          |  |  | 1         |
| MISCELLANEOUS                          |          |          |  |          |          |  |          |          |  |          | 1        |  | 1        |  |  | 2         |
| <b>TOTAL</b>                           | <b>4</b> | <b>-</b> |  | <b>5</b> | <b>-</b> |  | <b>1</b> | <b>-</b> |  | <b>1</b> | <b>1</b> |  | <b>3</b> |  |  | <b>15</b> |

# STATE EPIDEMIOLOGISTS AND STATE LABORATORY DIRECTORS

Key to all disease surveillance activities are the physicians who serve as State epidemiologists. They are responsible for collecting, interpreting, and transmitting data and epidemiological information from their individual States; their contributions to this report are gratefully acknowledged. In addition, valuable contributions are made by State Laboratory Directors; we are indebted to them for their valuable support.

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