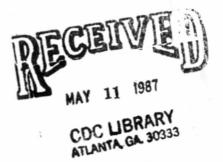
REPORT NO. 39 JULY 30, 1965



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COMMUNICABLE DISEASE CENTER

SURVEILLANCE

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U.S. Department of Health, Education, and Welfare/Public Health Service

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, lowa, 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 to:

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I. Summary

This month marks the completion of Dr. Charles E. McCall's two-year assignment with the Salmonella Surveillance Unit. Dr. McCall has returned to the Harvard University Medical Service at the Boston City Hospital as Senior Resident in Medicine. Dr. Richard N. Collins will now assume duties as Chief of the Salmonella Surveillance Unit.

During June a total of 2,174 isolations of salmonellae from human sources were reported to the Salmonella Surveillance Unit for an average weekly total of 435. This represented an increase of 14 isolations per week over May 1965, and a decrease of 4 isolations per week from June, 1964. This conforms to the seasonal pattern of salmonellosis noted in this country during 1963 and 1964.

Included under the section Current Investigations is a report on a recent program of surveillance of South American turtles and monkeys at the point of entry into the United States. A progress report on the continuing investigation of the large waterborne outbreak of <u>Salmonella typhi-murium</u> infection in Riverside, California, is also included under Current Investigations. A report of human isolations of salmonellae for the first quarter of 1965 from Belgium and the Netherlands is summarized in the International section.

II. REPORTS OF ISOLATIONS FROM THE STATES

A. Human

The seven most commonly reported serotypes from human sources during June were:

Rank	Serotype	Number	Per Cent	Rank <u>Last Month</u>
1	S. typhi-murium &			
	S. typhi-murium			
	var. copenhagen	786	36.2	1
2	S. heidelberg	156	7.2	2
3	S. infantis	116	5.3	3
4	S. newport	106	4.9	5
5	S. meleagridis	105	4.8	Not Listed
6	S. saint-paul	76	3.5	8
7	S. enteritidis	74	3.4	4
Total		1,419	65.3	

Total salmonellae isolated (June) 2,174

The increase in isolations of <u>S</u>. <u>meleagridis</u> is a reflection of a common source outbreak related to a delicatessen in Washington, D.C. (SSR #38). Persons who became ill in this outbreak resided in the states of Maryland, Virginia, New Jersey, and Pennsylvania, in addition to the District of Columbia. The age and sex distribution is consistent with past experience (Table IV). These seven serotypes accounted for 65.3 per cent of the total human isolations.

B. Nonhuman

There were 315 isolations of salmonellae from nonhuman sources reported in June, a decrease of 161 from the previous month. This decrease may be accounted for by the fact that no reports were received from the National Animal Disease Laboratory during June. Due to the heavy load of cultures being received for typing in that laboratory, reports became backlogged. There were 51 serotypes identified among those submitted from 36 states.

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Rank	Serotype	Number	Per Cent	Last Month
1	S. typhi-murium &			
	S. typhi-murium			
	var. copenhagen	87	27.6	1
2	S. san-diego	23	7.3	Not Listed
3	S. pullorum	17	5.4	Not Listed
4	S. give	16	5.1	Not Listed
5	S. newport	12	3.8	5
6	S. oranienburg	11	3.5	Not Listed
7	S. anatum and	10	3.2	Not Listed
	S. infantis	10	3.2	3
		186	59.1	

These seven types accounted for 59.1 per cent of the total number of nonhuman isolations reported.

The four species from which most of the isolations were obtained in order of frequency are: turkeys, 67 (21.3 per cent); chickens, 58 (18.4 per cent); cattle, 18 (05.7 per cent); and horses, 16 (5.0 per cent). Previously isolations from swine have appeared as the third or fourth most frequent.

<u>Salmonella eimsbuettel</u>, a type not previously reported in the United States was obtained from stuffed Easter ducks in Washington. However, according to Dr. W. H. Ewing, re-examination of cultures of the closely related serotype, <u>S</u>. <u>livingstone</u>, indicates that some of these are <u>S</u>. <u>eimsbuettel</u>. Another relatively rare type, <u>S</u>. <u>inverness</u>, was reported from swine in California. Most of the previous isolates of this type have been reported from Florida.

III. CURRENT INVESTIGATIONS

A. Surveillance of South American Turtles and Monkeys at Point of Entry into the United States. Reported by Arnold Kaufmann, D.V.M., Investigations Section, CDC; Charles Prather, M.D., Director of Epidemiology, Florida State Board of Health; and Lee C. Watkins, M.D., Medical Officer in Charge, USPHS Quarantine Station, Fisher Island, Miami Beach, Florida.

During May 1965, a culture surveillance program was instituted on South American turtles and monkeys arriving at Miami International Airport and at holding areas for wholesale dealers.

Twelve newly arrived turtles from South America were divided into four groups and cultures obtained from each group. Salmonella organisms were recovered from each of these four groups; serotypes isolated included <u>S</u>. <u>newport</u>, <u>S</u>. <u>san-diego</u>, and Arizona species. Ten swabs were taken from the tanks in the holding areas in which newly arrived turtles were to be placed. Nine of the ten tank swabs were positive for salmonella including <u>S</u>. <u>rubislaw</u>, <u>S</u>. <u>alagbon</u>, <u>S</u>. <u>madelia</u>, <u>S</u>. <u>urbana</u>, and an untyped salmonella. Cloacal swabs were obtained on ten large red-like turtles. All ten were

positive for salmonella or Arizona species. Serotypes isolated include <u>S</u>. <u>anatum</u>, <u>S</u>. <u>heidelberg</u>, <u>S</u>. <u>newport</u>, <u>S</u>. <u>oranienburg</u>, and <u>S</u>. <u>poona</u>.

Fecal cultures were obtained from South American monkeys in three categories: 1) newly arrived animals prior to transfer from shipping cages, 2) recently arrived animals being held at wholesale animal dealers, and 3) a stable colony of monkeys at a Florida medical school. The monkeys examined included several varieties of marmosets. Fifteen out of 26 swabs from newly arrived monkeys were positive for salmonella; serotypes isolated included <u>S. glostrup</u>, <u>S. poona</u>, <u>S. newport</u>, <u>S. oranienburg</u>, <u>S. saphra</u>, and <u>S. urbana</u>. Four out of the five fecal specimens obtained from monkeys maintained in a wholesale holding area were positive for <u>S. anatum</u>. Twelve out of 26 swabs from the medical school monkey colony were also positive; 10 of these were <u>S. typhi-murium</u> and 2, <u>S. montevideo</u>.

<u>Editor's Comment</u>: In this study a high percentage of isolations of salmonella organisms were made from imported turtles and monkeys at the point of entry into the United States. Many of the serotypes identified from these animals are extremely rare; <u>S</u>. <u>alagbon</u> and <u>S</u>. <u>glostrup</u> have not been previously reported from this country. Several of the other serotypes identified have previously been reported almost exclusively from the Southeastern states: <u>S</u>. <u>saphra</u> has previously been isolated only in the Gulf Coast states; <u>S</u>. <u>madelia</u> has previously been isolated only in Florida, Louisiana, and Texas; and the majority of isolations of <u>S</u>. <u>rubislaw</u> have been from the Southeastern United States. The evidence suggests that these serotypes are indigenous to South America and have subsequently been exported to the United States primarily in those areas serving as receiving areas for South American products.

The evidence presented in this study suggests that many of the animals are already infected with salmonella at the time of entry into the United States and further that wholesale holding areas, such as gang cages and large turtle tanks, provide ample opportunity for maintaining a reservoir of infection and cross contamination of different lots of imported animals. Both monkeys and turtles represent significant reservoirs of infection for salmonellosis in man. Similar studies at other points of entry into the United States are needed to further define the extent of the problem as a preliminary to formulation of regulations to control this source of salmonellae.

B. Progress Report on Water-Borne Outbreak of <u>Salmonella typhi-murium</u> Gastroenteritis in Riverside, California. Reported by Philip K. Condit, M.D., Director, Division of Communicable Diseases, California State Department of Public Health; Everett Stone, M.D., Director of Riverside County Health Department; and Read F. McGehee, M.D., and James B. Goldsby, Investigations Section, Communicable Disease Center.

In May and June 1965, a large outbreak of gastroenteritis due to <u>Salmonella typhi-</u><u>murium</u> occurred in Riverside, California (SSR #38). The municipal water supply was incriminated as the vehicle of infection in this outbreak. <u>Salmonella typhi-murium</u>, phage type 2, was recovered from both patients and six water samples taken from various points within the city limits. Based on a house-to-house sample survey, a total of 18,000 symptomatic cases are thought to have occurred. The vast majority of these were mild and self-limiting. Less than 75 persons required hospitalization. Infection with <u>S. typhi-murium</u> was associated with three deaths: one death occurred in a 5-day-old infant; another in a 16-year-old female with anemia; and the third death in a 55-year-old female with disseminated malignancy. The available data on symptomatology and duration of illness is tabulated on the next page.

Symptomatology - Tabulated on 974 Individuals Contacted During Surveys Riverside, California

No. with Symptom	% with Symptom
830	85.2
770	79.1
384	39.4
346	35.5
230	23.6
142	14.6
100	10.3
54	5.5
18	1.8
26	2.7
	830 770 384 346 230 142 100 54 18

Duration of Illness - Tabulated on 974 Individuals Contacted During Surveys Riverside, California

Duration	No. of Individuals		
< l day	30		
1 to 2 days	131		
2 to 3 "	206		
3 to 4 "	180	Median	3.67 days
4 to 5 "	92		
5 to 11 "	243		
11 to 17 "	40		
17 to 23 "	10		
23 +	6		
Uncertain or Unknown	36		
	974		

A program of continuing surveillance of diarrheal disease through contact with practicing physicians and the major hospitals in the Riverside community is underway. There is no indication of significant secondary spread of infection at this time. The incidence of diarrheal disease in the community has returned to what is considered to be the base-line level. Extensive precautions were taken in the pediatric departments of each of the hospitals in Riverside. To date, no serious problems of hospital-associated infections have been reported. No secondary outbreaks related to food handlers infected during the primary wave of infection have been reported.

A group of over 100 persons initially infected and documented to have stool cultures positive for <u>S</u>. <u>typhi-murium</u> is being kept under continuous surveillance to determine the persistance of excretion of this organism. It is anticipated that this study group will be cultured at 30-day intervals until all persons have had at least 2 consecutive negative cultures.

The municipal water system has been chlorinated since June 2. An extensive investigation of the water system by a county, state, and federal team continues. Every aspect of the water system, including the deep wells, transmission lines, and holding reservoirs, is being placed under close scrutiny in an effort to determine how contamination of the water system with <u>S</u>. <u>typhi-murium</u> organisms occurred. A thorough search for cross connections is underway. In the course of these investigations, several additional recoveries of <u>S</u>. <u>typhi-murium</u> directly from unchlorinated well sources in the Riverside area have been reported. It is anticipated that additional water samples throughout Riverside County and adjoining county water systems will be examined in the subsequent stages of this investigation.

IV. <u>REPORTS FROM THE STATES</u>

A. Georgia

(1) Report of Two Cases of Infection Due to <u>Salmonella java</u> Associated with Pet Turtle. Reported by Byron W. Mixon, Public Health Ecology Assistant, Epidemiologic Investigations Branch, State of Georgia Department of Public Health.

<u>Salmonella java</u> is a relatively uncommon serotype in the State of Georgia. Between 1955 and 1964, this organism has been isolated from humans only 13 times. A recent report of two isolations from the same family prompted an epidemiological investigation. Two children in a single household experienced gastroenteritis and <u>S</u>. java was isolated from both children. Subsequent investigation indicated the presence of a pet turtle in the household; <u>S</u>. java was isolated from both the gastrointestinal tract of the turtle and from water in the turtle bowl. The turtle had been purchased locally during the Christmas season in 1964.

> (2) Outbreak of Salmonellosis Due to Live Easter Chicks. Reported by Byron W. Mixon, Public Health Ecology Assistant, Epidemiologic Investigations Branch, State of Georgia Department of Public Health.

Salmonella infections due to exposure to live Easter chicks continue to be reported despite repeated warnings by the Georgia State Department of Public Health. A four and one-half month old white male child was hospitalized two days after Easter suffering from fever, severe diarrhea, and vomiting. Salmonella typhi-murium was recovered from this child and from an asymptomatic four-year old sibling. Subsequent investigation revealed that the older child had had close contact with five live Easter chicks given as an Easter present by his mother and grandmother. The mother had received the two chicks as a premium for shopping in a local suburban shopping center. The remaining three Easter chicks had been given to the children by their grandmother who purchased them in a different shopping center. Three of the five chicks died before completion of the investigation but were preserved by freezing. The live birds were sacrificed and all five were cultured by dropping the gall bladder, cecum, and a portion of the liver into enrichment broth. Salmonella montevideo was isolated from each of the five birds and S. typhi-murium was isolated from three of the birds. It was learned that the grandmother had sent an additional three chicks to another family. One of these was obtained and found to be positive for S. typhi-murium. Chicks obtained by the grandmother came from out of state; those obtained by the mother came from a hatchery within the State of Georgia. It is felt likely that additional infections due to exposure to live Easter chicks have occurred but have probably not been investigated.

Editor's Comment: The distribution and sale of live chicks as Easter gifts to preschool age children continues to be a widespread practice despite repeated warnings concerning the spread of salmonella infection from these chicks to human beings. These items are involved in both intrastate and interstate commerce annually at Easter time. At a recent meeting on salmonellosis attended by various Federal agencies, including the Public Health Service, Food and Drug Administration, Department of Agriculture, and Fish and Wild Life Service, the question of jurisdiction and control was discussed. A representative from the Department of Agriculture indicated that control of interstate shipment of these items would fall under their jurisdiction. There was agreement among all agencies that a more comprehensive program of control of this recognized hazard to health is necessary.

B. Virginia

Infection with <u>Salmonella enteritidis</u> Related to Exposure to Pet Dog. Reported by Martin B. Marx, D.V.M., M.P.H., Director, Veterinary Public Health, Commonwealth of Virginia, Bureau of Epidemiology; and Mrs. Eleanor Robertson, P.H.N., Lynchburg City Health Department, Lynchburg, Virginia.

In May 1965, a 75-year-old white female developed diarrhea, headache, fever, vomiting, and abdominal pain. A stool specimen was positive for <u>Salmonella enteritidis</u>. The patient had no close human contacts; she lived alone with a pet dog and pet cat. Prior to the patient's illness, her dog had experienced repeated attacks of diarrhea. Stool specimens obtained from the dog were also positive for <u>S. enteritidis</u>. The dog, a toy breed which "stays in the house all the time" is fed canned dog food consisting of chicken parts. Specimens of the canned dog food on hand were negative on examination for salmonellae.

C. <u>Washington</u>

Nursing Home Outbreak of Salmonellosis Due to <u>Salmonella typhi-murium</u>. Reported by Herb W. Anderson, Epidemiologist Assistant, Jean Spearman, Public Health Nurse - Epidemiologist, and Donald R. Pearson, M.D., Director, Division of Epidemiology and Communicable Disease Control, King County Department of Public Health, Seattle, Washington.

During the period May 13-17, 1965, 18 patients in a nursing home in Seattle became ill with gastroenteritis. Symptoms included diarrhea (100 per cent), fever (85 per cent), nausea (22 per cent), vomiting (17 per cent), and abdominal pain (11 per cent). The illness occurred only among the 86 patients in the nursing home who had received eggnog or poached egg on the morning of May 13. The incubation period using the eggnog feeding as a starting point ranged from 6 to 32 hours in 12 cases in which adequate data was available. <u>Salmonella typhi-murium</u>, phage 1A, was isolated from 13 of the 18 ill patients and from a specimen of left over eggnog. Subsequently, <u>S. typhi-murium</u> was isolated from two cooks, who became ill on May 18 and 21. Both admitted having tasted the eggnog during its preparation. Seven other food handlers in the kitchen were negative on culture for salmonellae. Grade AA small eggs were used in the eggnog. Investigation established that the eggs were received from

V. SPECIAL REPORTS

A. Sanitation Guidelines for Salmonella Control and Processing Industrial Fishery Products. Abstract of a pamphlet prepared by the Agricultural Research Service, U. S. Department of Agriculture, publication ARS 91-51, May 1965.

This recent USDA publication was produced with the co-operation of the National Fish Meal and Oil Association of the National Fisheries Institute, Inc., and sets forth general principles for producers of fish meal. The over-all goal is production of a salmonella-free product. Clearly the product should be free of salmonella when leaving a properly-operated dryer. A problem of major importance is recontamination of the product after leaving the dryer. The institution of a sturdy "wall of defense" between the raw material area and the processed material area is fundamental in the approach to solving this problem. Specific programs such as dust control, pest control, and the prevention of personnel and equipment from moving between the raw and finished product area are discussed and emphasized. The total program should include provision for a continuous bacteriological monitoring of the product in order to insure its salmonella-free status. Copies of this book are available to interested individuals from the National Fish Meal and Oil Association, National Fisheries Institute, Inc., 1614 - 20th Street NW, Washington, D.C. 20009.

B. Report on American Institute of Baking, Conference on Eggs and Baking held May 25-26, 1965 in Chicago, Illinois.

More than 70 bakers, suppliers, and specialists recently attended a two-day conference in Chicago sponsored by the American Institute of Baking. Eight additional special guests from government and industry also participated in the program. Three main points were emphasized.

- (1) With the increasing recognition of salmonellosis as a major public health problem in the United States, bakers can expect more rigid control measures by the FDA and other government regulatory agencies. Mandatory pasteurization of all egg products produced in government inspected plants or sold in interstate commerce is anticipated within months.
- (2) Leading technologists in the baking industry emphasized that pasteurized egg products can perform as well as or better than unpasteurized products and require little or no changes in bakery production methods.
- (3) Numerous speakers emphasized that pasteurization of egg products is not a panacea. It must be coupled with rigid sanitation procedures to further safeguard the product. The potential danger of cross-contamination or recontamination of finished egg products was also emphasized.

VI. INTERNATIONAL

A. Isolations of Salmonella in Belgium During the First Quarter of 1965. Reported by Dr. E. van Oye, Ministry of Public and Family Health, Brussels.

A total of 238 isolations of salmonella organisms from human sources were reported in Belgium during the first quarter of 1965. Twenty-three different serotypes were included in this total. <u>Salmonella urbana</u> and <u>Salmonella jerusalem</u> were isolated from humans for the first time in Belgium during this quarter. The seven most frequently isolated serotypes were as follows:

Rank		Serotype	No. of Isolations	Per Cent
1		S. typhi-murium	143	60.0
2		S. panama	39	16.3
3		S. brandenburg	17	7.1
4		S. enteritidis	6	2.5
5		S. bovis-morbificans	4	1.7
6		S. muenchen	4	1.7
7		S. heidelberg	3	1.3
	Total		216	92.8

B. Salmonella Isolations Typed During the First Quarter of 1965, Utrecht, The Netherlands. Reported by E. H. Kampelmacher, D.V.M., Head, Zoonoses Laboratory, National Institutes of Health, The Netherlands.

During the first quarter of 1965, 1,818 isolations of salmonellae were typed in the Zoonoses Laboratory for a decrease of 1,086 (37.4 per cent) from the last quarter of 1964. Of the 1,818 recoveries made, 742 (40.8 per cent) were from human specimens. The seven most frequently isolated serotypes from human and nonhuman sources appear in Table VII. As was true during the previous quarter, <u>S. typhi-murium</u>, <u>S. panama</u>, and <u>S. stanley</u> were the only types which appeared among the seven most common from

both human and nonhuman sources. <u>Salmonella dublin</u> was recovered predominately from cattle and the majority of the <u>S</u>. <u>bareilly</u> isolations were from chickens. Nonhuman recoveries of both <u>S</u>. <u>panama</u> and <u>S</u>. <u>stanley</u> were, with only minor exceptions, from meat and meat products, pigs, slaughterhouse scrapings and sewage and surface water.

The most prominant nonhuman sources of salmonellae were pigs, 306 (28.4 per cent); cattle, 241 (22.4 per cent); chickens, 156 (14.5 per cent); meat and meat products, 127 (11.8 per cent); and sewage and surface water, 96 (8.9 per cent).

VII. FOOD AND FEED SURVEILLANCE

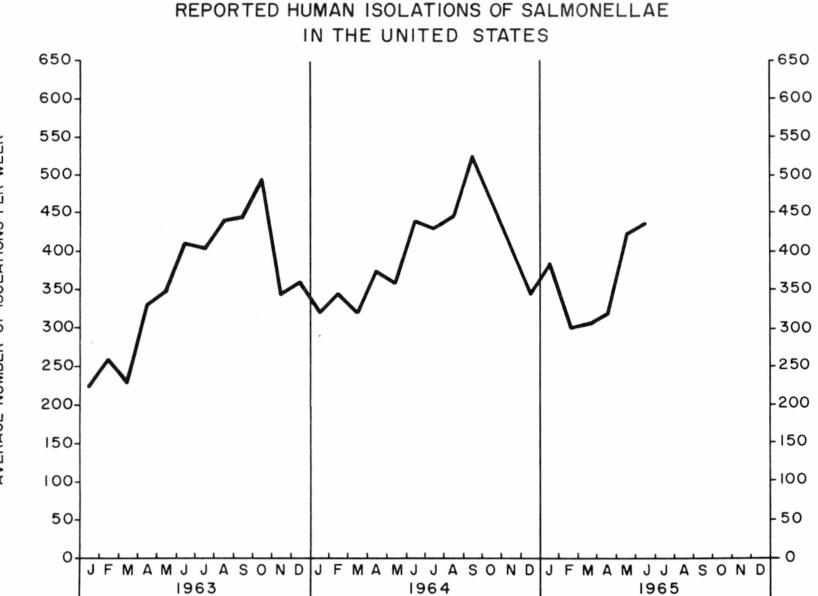
A. Dry Heat Resistance of Salmonellae in Rendered Animal By-products. Abstract from the May 1965 issue of the Veterinary Bulletin, from the original article by Rasmussen, O. G., Hansen, R., Jacobs, N. J., and Wilder, O. H. M., 1964, Poultry Science, 43:1151-1157.

A temperature of 180° F. (80.2° C.) for 7 minutes was sufficient to destroy consistently the salmonella in two naturally contaminated dry meals. A temperature of 170° F. for 15 minutes was not sufficient. In a third meal with a high fat content and a high level of natural salmonella contamination, a temperature of 195° F. (90.2° C.) for 7 minutes was required. Subsequent studies showed that when a relatively heat resistant strain, <u>S. senftenberg</u>, was added to a sterile meal, a milder heating procedure destroyed the salmonella, although the organisms were more numerous than in naturally contaminated meals. Heat tolerance studies on salmonella should, therefore, be conducted wherever possible with naturally contaminated meals. Heating did not significantly alter the nutritive value of the proteins in this study.

B. Dehydrated Dog Foods.

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Results of examination of samples of dog food for salmonellae: During the month, dried and moist dog food samples obtained in retail markets have been examined in the Veterinary Public Health Laboratory. All of the dried food was pelleted, or in flakes, the moist food was in the form of "hamburgers" or in chunks. Four different brands were represented in the 20 packages examined. Three samples from each of the 20 samples were cultured and no salmonellae were isolated. Figure I.



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AVERAGE NUMBER OF ISOLATIONS PER WEEK

TABLE I SALMONELLA SEROTYPES ISOLATED FROM HUMANS DURING **JUNE, 1965

							IONA	NDRE											
SEROTYPE	MAINE	NH	N E W	ENGI MASS	RI	CONN	TOTAL	NY-A	MIDDI *NY-BI	E A T NY-C	LAN	TIC	TOTAL	E A OHIO	IND	ILL	H CEN MICH	WIS	L TOTAL
anatum arkansas atlanta	MAINE	NH	VT	MASS	KI	CONN	TOTAL	1	NI-BI	1	NJ	PA	2	OHIO	180	3	MICH	W10	3
bareilly berta		_		1		1	2	1		1		1	2						
bilthoven binza blockley bovis-morbificans braenderup				2 1 1			2 1 1			1 1	1		1	1		4		1	6
brandenburg bredeney chester cholerae-suis cholerae-suis v kun															1	1	1		1
colorado cubana derby duesseldorf eastborne			1	2		3	2 6	2	2	6	1	18	29	4		2	1 1	1	8
enteritidis essen gaminara give hartford				12		2	14	3 1 1	5	7	1	9	25 1 1	7	1	2			10
heidelberg indiana infantis inverness kaapstad	1			17 4	1	1	19 6	4	3	7 1 8	3 5	3	20 1 28	5	1 8	10 5	5 1 8	5 1	26 1 27
java javiana johannesburg kentucky leeuvwarden				2			2									3 1	1		3 2 1
lexington litchfield lomita manhattan meleagridis								2	1	1	5		2	1		1 2			1 1 1 2
miami minnesota mississippi montevideo muenchen				3	1		4	2	1		1	1	3 2 1	9	1	2	2		14
muenster nagoya new-brunswick newington newport				2		1	3	1 8		3	1	1	2 13	6	1	1 2	5	1 5	2
ohio oranienburg oslo panama paratyphi A				1		1	1	1		3	1	1	6	2		1 2	1	1	4
paratyphi B paratyphi C poona reading saint-paul				2		1	6	1	1		9	2	1 1 14	4		2	2 3	1	6
san-diego schwarzengrund senftenberg stanley sundsvall						1	1			1		6	7	2		1 2		1	3 2 2
tennessee thompson typhi typhi-murium typhi-murium v cop				3 43 17	2	17	3 2 61 17	1 2 60	2 1 32	1 5 34	26 2	5 1 3E	1 8 9 190 2	1 1 3 27	2 12	1 4 29	2 13 3	2 1 15	1 6 10 96 3
urbana westhampton worthington yalding untypable group B					3	1	1			1			1	7					7
untypable group C-1 untypable group C-2 untypable group D untypable group E untypable group O				1	2		2												
unknown		6					6											4	4
TOTAL	1	6	1	124	10	30	172	97	54	83	57	93	384	89	28	86	50	41	294
		New Y	fork (A-Albany	y, B-B	eth Isra	el Hospi	tal, C-	City)										

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*The Beth-Israel Salmonella Typing Center in New York is a reference laboratory and processes many cultures from other states which are assigned to the respective states although reported by N.Y.-B.I. Beth Israel reported a total of 143 isolations for July.

TABLE I (Continued) BY SEROTYPE AND REPORTING CENTER

							REGIO	NAN	DREF	ORT	ING	CEN	TER					
	T			1	ENTRA								ATLA					
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TABLE I (Continued)

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lexington litchfield lomita manhattan meleagridis		1			1			1		1									
miami minnesota mississippi montevideo muenchen			1 1		1		3	2	3	3 3 5									
muenster nagoya new-brunswick newington newport		1	2	1	4	1	1 15	2	1	1 1 1 27									
ohio oranienburg oslo panama paratyphi A			1		1		2	. 2	6 10	10		1		1		1			2
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TABLE I (Continued)

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(VI - Virgin Islands)

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TABLE 1-A SEROTYPES REPORTED FROM HUMANS PREVIOUSLY DURING 1965 BUT NOT IN JUNE

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May Calif(1) 11	irchow	Jan	Colo	1
	veltevreden			11

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	PORTED						LANCE U		CLINIC	AL CASES
	CAS	ES	CAR	RIERS	UNK	NOWN	то	TAL		IMWR
STATE	June	1965 Cuml.	June	1965 Cuml.	June	1965 Cuml.	June	1965 Cuml.	June	1965 Cuml.
UNITED STATES	9	75	25	137	33	179	67	391	47	187
NEW ENGLAND	-	-	-	1	2	7	2	8	2	3
Maine	-	-	-	-	-	2	-	2	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	_	_	1	_	1	1	2
Massachusetts Rhode Island	_	_	_	_	2	4	2	4	1	1
Connecticut	_	_	_	1	_	_	_	1	_	_
MIDDLE ATLANTIC	4	18	1	12	3	16	8	46	7	32
New York	4	18	1	6	3	11	8	35	5	24
New Jersey	-	-		-	-	4	-	4	-	2
Pennsylvania	-	-	-	6	-	1	-	7	2	6
EAST NORTH CENTRAL	1	10 7	1	26 16	8	20 4	10	56 27	6	25 6
Ohio Indiana	_	_	-	9	2	4 6	2	15	5	9
Illinois	_	_	_	_	4	10	4	10	1	5
Michigan	_	2	-	1	-	-	-	3	-	3
Wisconsin	1	1	-	-	-	-	1	1	-	2
WEST NORTH CENTRAL	1	2	1	11	3	13	5	26	2	5
Minnesota	-	-	-	1	-	-	-	1	-	_
Iowa Missouri	1	2	-	10	2	8	4	20	1	1 4
North Dakota	_	-	-	-	-	-	4	20	1	*
South Dakota	_	_	_	_	_	_	_	_	_	-
Nebraska	-	-	_	_	-	-	-	-	-	_
Kansas	-	-	-	-	1	5	1	5	-	_
SOUTH ATLANTIC	1	16	15	36	-	10	16	62	8	40
Delaware	-	_	-	_	-	_	-	-	1	4
Maryland District of Columbia	-	2	-	3	-	6	-	11	3	12
District of Columbia Virginia	_	2	_	2	_	_	_	4	_	3
West Virginia	_	2	_	4	_	_	_	6	_	1
North Carolina	1	9	14	18	-	1	15	28	4	12
South Carolina	-	-	-	-	-	-	-	-	-	4
Georgia	-	-	-	1	-	2	-	3	-	2
Florida	-	1	1	8	-	1	1	10	-	2
EAST SOUTH CENTRAL Kentucky	-	3	-	15 1	2	16 3	2	34 4	3	18 6
Tennessee	_	3	-	6	2	3	2	12	3	6
Alabama	_	_	_	_	-	_	_	-	_	3
Mississippi	-	_	-	8	-	10	-	18	-	3
WEST SOUTH CENTRAL	2	23	7	32	1	8	10	63	10	28
Arkansas	-	4	1	7	1	4	2	15	2	10
Louisiana	-	6	1	15	-	2	1	23	3	5
Oklahoma Texas	2	$\frac{1}{12}$	1 4	2 8	_	1 1	1 6	4 21	5	2 11
MOUNTAIN		3	4	3	_	22	-	28	-	13
Montana	_	_	_	_	_	3	_	3	_	-
Idaho	- 1	_	-	-	- 1	-	- 1	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	1
Colorado	-	_	-	-		-	-	_	-	-
New Mexico	-	3	-	3	-	17	-	23	-	. 8
Arizona Utah	-	-	-	-	-	2	-	2	-	4
Nevada	-	_		_	_	_	-	_	_	_
PACIFIC	_	_	_	1	14	67	14	68	9	23
Washington	_	_	_	_	2	4	2	4	1	2
Oregon	-	-	-	1	3	12	3	13	-	3
California	-	-	-	-	9	50	9	50	7	16
Alaska	-	-	-	-	-	-	-	-	1	1
Hawaii	-	-	-	-	-	1	-	1	-	1
Virgin Islands	-	-	-	-	-	-		-	*	*

TABLE II REPORTED ISOLATIONS OF S. TYPHI BY PATIENT STATUS – JUNE 1965

*Does not report

TABLE III

Infrequent Serotypes

<u>Serotype</u> <u>S. arkansas</u>	Center CALIF	June 1	<u>1965*</u> 1	Total 1963 & <u>1964**</u> 0	<u>Comment</u> Never previously isolated from humans in U.S.
<u>S</u> . <u>atlanta</u>	GA	1	1	16	Almost all isolations have been from GA and bordering states.
S. bilthoven	CALIF	1	3	0	Previously isolated in MICH.
S. bovis-morbificans	MASS	1	7	11	Not infrequent in HAI.
S. brandenburg	ILL	1	1	8	Implicated in turtle-associated outbreak in NC - 1964.
<u>S</u> . <u>colorado</u>	HAI	1	3	5	HAI has reported half of total isolations.
S. <u>dusseldorf</u>	LA	1	3	7	Isolated previously from poultry in VA.
S. eastbourne	CALIF	1	1	2	Isolated previously from poultry in CALIF.
<u>S</u> . <u>essen</u>	ARIZ	1	2	6	Six of 7 previous isolations from COLO.
<u>S. gaminara</u>	MASS & NY	2	5	6	Previously isolated from sheep in UTAH and from man and dogs in FLA.
<u>S. inverness</u>	FLA	1	2	4	Previously found in cold-blooded vertebrates in MICH; originally isolated from man in FLA. Most subsequent cultures reported from FLA or neighboring states.
S. johannesburg	MINN	1	1	4	Previously found in poultry feed.
S. <u>kaapstad</u>	COLO	1	2	0	All isolations to date from COLO.
S. <u>leeuwarden</u>	TEX	1	1	0	First reported human isolation in USA.
S. lexington	ILL	1	2	3	First isolated from swine in KY.
S. lomita	OHIO	1	2	4	First isolated in TEX.
S. muenster	ARK & FLA	2	3	12	Many of previous isolations from Gulf states.

Table III (cont'd)

					Total 1963 &	
,	<u>Serotype</u> <u>S. nagoya</u>	<u>Center</u> TEX	June 1	$\frac{1965*}{1}$	<u>1964**</u> 0	<u>Comment</u> First isolation in USA.
	<u>S</u> . <u>ohio</u>	CALIF	2	4	4	Previously found in animal feeds.
	<u>S. paratyphi</u> <u>A</u>	CALIF	3	7	15	Common in India and Far East.
,	<u>S. paratyphi</u> <u>C</u>	IOWA	1	1	4	Also known as <u>S</u> . <u>hirscfeldii;</u> frequently produces septicemia.
	<u>S. sundsvall</u>	CALIF	1	1	3	Previously reported from MEX.
,	S. westhampton	LA	2	3	2	Previously reported from bone meal in WASH.
	S. yalding	TEX	1	1	0	First reported isolation from USA.

*Represents 9,380 human isolations of salmonellae during the first 5 months of 1965. **Represents 39,762 human isolations of salmonellae during 1963 and 1964.

TABLE IV

Age and Sex Distribution of 2,140 Isolations of Salmonellae Reported for June 1965

		neporced r	build 1909		01
Age	Male	Female	Total	_%	Cumula- tive %
Under 1	100	97	197	14.1	14.1
1-4 yrs.	226	152	378	27.1	41.2
5-9 yrs.	96	94	190	13.7	54.9
10-19 yrs.	73	47	120	8.6	63.5
20-29 yrs.	49	66	115	8.3	71.8
30-39 yrs.	44	58	102	7.3	79.1
40-49 yrs.	52	42	94	6.7	85.8
50-59 yrs.	43	26	69	5.0	90.8
60-69 yrs.	26	34	60	4.3	95.1
70-79 yrs.	19	25	44	3.1	98.2
80 +	7	18	25	1.8	100.0
Unknown	396	350	746		
Total	1,131	1,009	2,140		
% of Total	52	.9	47.1		

Source: National Animal Disease Laboratory, Ames, lowa and Weekly Salmonella Surveillance Reports from Individual States.

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TOTAL	westhampton worthington unknown	tennessee thompson typhi-murium typhi-murium v cop urbana	reading saint-paul san-diego schwarzengrund senftenberg	oranienburg oslo panama paratyphi B pullorum	miami minnesota montevideo muenchen newport	litchfield livingstone manhattan melaggridis menston	java javiana kentucky lexington lindenburg	give heidelberg indiana infantis inverness	dublin dueseldorf eimsbuettel enteritidis gallinarum	californía cerro chester cubana derby	anatum berta binza blockley bredeney	SEROTYPE
-									1			poultry
82	r s	NH Q 4		17	44		ω	6			ω μμ	chicken
67	F	F	2250		ω	2	12	17	1	2 1	1 5	turkey
3 2		~~						1			12	duck
w		ω										pigeon parakeet
-											1	myna bird
-								1				starling
16		15	N		1		-	-				equine
18		13			N				1 2			bovine
1		1										ovine
s		-			1				-			porcine
2			-							-		farm animal
-												environment
10		6		4		1			1			canine
ω		1 3					2					feline mouse
												guinea pig
-		1										rabbit
1 7		1		6						1		monkey
-		1										lemur
ω					i					ω		ocelot
-				1								tapir
5		ω		-						1		egg
4		1						н				egg albumen
-					-							egg yolk
-												frozen yolk
Ξ	-	44				1		1 1		1	щ	powdered egg
00				ω				ч	12			frozen egg
-								-				frozen albumen
-		1										egg shell
2						N						turkey roll
ω				1		N						beef
ω				ω								meat, other
-								1				pastry
2		1										ice cream
-		-										potato salad
-	-									ыц м		barbecue
-		1	· · · ·									cake corn beef
1 3			-			1 2						feather meal
												bone meal/
4					2		1					meat scraps
N											2	fish meal
9			-		-	-	н	ч			2	turtle
1 8		1 8										cockroach
8 10				-	2 1	-		-				water turtle water
-		-		4	1	1	, in the second	4		-	ц ц	auger
-												stuffed easter ducks & chicks
-				-					1			wood pulp
20	1	Ŷ	2			-		1 2			-	unknown
	TTT											
315	1 9 2	6 4 73 14 1	23 23 23 24	11 6 1 1 17	1 2 3 12	1 6 1	1 7 1	1 16 2 10	1 2 1	0 1 0 4 2	10 3	Total
2,671	43	50 78 384 131 4	29 98 69 40 32	43 10 4 5 145	4 13 84 19 51	1 62 26 22 3	10 5 22 1	66 308 18 150 1	24 2 1 19 15	29 37 70 12 44	94 8 19 71 30	6 Mos. Total
TOTAL	westhampton worthington unknown	tennessee thompson typhi-murium typhi-murium v cop urbana	reading saint-paul san-diego schwarzengrund senftenberg	oranienburg oslo panama paratyphi B pullorum	minnesota montevideo muenchen newport	litchfield livingstone manhattan meleagridis menston	java javiana kentucky lexington lindenburg	give heidelberg indiana infantis inverness	dublin duesseldorf eimsbuettel enteritidis gallinarum	california cerro chester cubana derby	anatum berta binza blockley bredeney	SEROTYPE

REPORTED NONHUMAN ISOLATES BY SEROTYPE AND SOURCE, *JUNE, 1965

							-						FURI						- Danco		and 3	1011		,	1705										,		
SEROTYPE	Ala	Art	z Ar	k Cali	f Col	o Con	n Del	a Fla	Ga	Hai	111	Ind	Iowa	Kan	La M	e Md	Mass	Mich	Minn	Miss	Mont	NJ	NY-A	NC	Ohio	Ore	Pa S	C Ter	Uta	h Vt	Va	Wash	Wisc	Wyo	Total	6 Mos. Total	SEROTYPE
anatum berta binza blockley bredeney	1			8 1 2			1		1 1							1	3		1	1												1	2		10 5 2 5 3	94 8 19 71 30	anatum berta binza blockley bredeney
california cerro chester cubana derby		1		1											1				2 1 1						3		3								2 4 3 1 5	29 37 70 12 44	california cerro chester cubana derby
dublin duesseldorf eimsbuettel enteritidis gallinarum				2							1				1							2									1	1			2 1 1 5 1	24 2 1 19 15	dublin duesseldorf eimsbuettel enteritidis gallinarum
give heidelberg indiana infantis inverness				7					1		1 3	1 2 1			1		1		1													1 4 1			1 16 2 10 1	66 308 18 150 1	give heidelberg indiana infantis inverness
java javiana kentucky lexington lindenburg				3		1					1			1					2				1					3					1		1 3 7 1 1	10 5 22 2 1	java javiana kentucky lexington lindenburg
litchfield livingstone manhattan meleagridis menston				2						1		1			1			1		1								2	1		5	1			1 6 1 7 1	1 62 26 22 3	litchfield livingstone manhattan meleagridis menston
miami minnesota montevideo muenchen newport				1 6	1			1		1		1				1	1	1	2						1			1							1 2 3 1 12	4 13 84 19 51	miami minnesota montevideo muenchen newport
oranienburg oslo panama paratyphi B pullorum	5			1 6					2					4		1		1	1		1	3		1	2		1	1		4					11 6 1 1 17	43 10 4 5 145	oranienburg oslo panama paratyphi B pullorum
reading saint-paul san-diego schwarzengrund senftenberg	3			4 23 3							1		3		1				1									1			1				3 9 23 4 2	29 98 69 40 32	reading saint-paul san-diego schwarzengrund senftenberg
tennessee thompson typhi-murium typhi-murium v cop urbana			1	2 36				1	1	4	1 4 1	2		3	1	1	1	1 4 1				1 4	1		4	3	1	1 2			4	4 1 2		3	6 4 73 14 1	50 78 384 131 4	tennessee thompson typhi-murium typhi-murium v cop urbana
westhampton worthington unknown	1			4								1			1		÷		4						1										1 9 2	2 43 4	westhampton worthington unknown

TABLE VI REPORTED NONHUMAN ISOLATES BY SEROTYPE AND STATE *JUNE, 1965

*Includes May late report (NY-A - New York - Albany) Source: National Disease Laboratory, Ames, Iowa and weekly Salmonella Surveillance Reports from Individual States.

TABLE VI-A SEROTYPES REPORTED FROM NONHUMAN SOURCES PREVIOUSLY DURING 1965 BUT NOT IN JUNE

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
lachua	Jan-Apr	Calif(3)	
	Feb	Ind(1)	
	Feb	Minn(4)	
	Feb	Tex(1)	
	Feb	Utah(2)	11
lbany	Feb	Tex(1)	2
an of 11 m	Mar Feb	Ind(1) Ga(2)	2
areilly	Feb	Mass(1)	
	Mar-May	Conn(2)	
	Mar	Utah(1)	
	Apr	Calif(1)	
	Apr	Fla(3)	
	Apr	I11(3)	
	May	NJ(1)	14
aenderup	Jan	Conn(1)	
	Jan	Ind(1)	
	Mar	Miss(1)	
	Apr	Mass(1)	
	Мау	Ala(1)	
	May	Ga(1)	6
andenburg	Jan	NC	1
mbridge	Apr	Ind	1
nolerae-suis v kun	Jan-Mar-Apr-May	Ala(8)	
	Jan	Calif(3)	
	Jan-Feb-Mar-Apr-May	SC(11)	
	Feb-May	Ind(7)	
	Feb	Kan(1)	
	Feb-Mar	Miss(2)	
	Feb-Mar-Apr	NC(5)	
	Mar	Ore(1)	
	Apr	111(1)	
	Apr	Md(1)	
	Apr	Va(1)	
	Мау	Fla(4)	
	May	Tenn(1)	46
lorida	Jan	111	1
perlitz	Jan	Wash	1
urtford	Apr	Minn	1
linois	Mar	Minn(1)	
	Мау	Md(1)	2
phannesburg	Mar	Utah	1
inila	Apr	Tenn	1
ikawashima	Mar	Ind	1
ssion	Jan	Ark(1)	
	Jan	SC(1)	2
lenster	Jan-Mar	F1a(2)	
	Jan-Apr	Miss(2)	
	Mar	Ohio(1)	5
ewington	Jan	Tenn(1)	
	Feb	I11(1)	
	Mar-Apr-May	Calif(11)	
	Mar	Fla(1)	
	Mar	Wisc(2)	16
rwich	Feb	NC	1
ion	Jan	Miss(1)	
	Jan	Mont(1)	
	Mar	Minn(2)	4
mona	Apr	Mich	1
ona	Jan	Tenn(1)	
	Mar	Calif(3)	
	Mar	Mass(3)	7
bislaw	Apr	Mont	1
iru	Apr	Md	1
egburg	May	Mich	1
llahassee	Jan	Fla	1
nomasville	Mar-Apr	Md (4)	
	Apr	Minn(1)	5
	Feb	Calif	1
vphi-suis			
ssenaar	Apr	I11	1
/phi-suis ssenaar sterstede	Apr Jan	III Miss	1 2

TABLE VII

The Seven Most Commonly Recovered Salmonella Serotypes from Human & Nonhuman Sources in the Netherlands - 1st Quarter, 1965

	Human			Nonhu	Nonhuman					
Rank	Serotype	No.	%	Serotype	Ng.	_%				
1	S. typhi-murium	278	37.5	S. typhi-murium	253	23.5				
2	S. panama	122	16.4	S. dublin	129	12.0				
3	S. stanley	112	15.1	S. bareilly	83	7.7				
4	S. typhi	31	4.2	S. oranienburg	75	7.0				
5	<u>S. paratyphi</u> <u>B</u>	26	3.5	S. give	74	6.9				
6	<u>S. java</u>	25	3.4	S. panama	67	6.2				
7	S. bovis-morbificans			S. stanley	53	4.9				
	& S. heidelberg	21	2.8							
Total		615	82.9		734	68.2				

Total (all serotypes) 742

1,076