

COMMUNICABLE DISEASE CENTER SALMON MAY 11 1987 COC LIBRARY ATLANTA, GA. 30333 SURVEILLANCE

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For the Month of May 1966

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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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PHILIP RARICK EDWARDS

August 30, 1901 - May 16, 1966

An Appreciation

It is fitting that this publication take formal notice of the untimely death on May 16, 1966, of Philip Rarick Edwards at Atlanta, Georgia. In one sense, a major portion of its effectiveness stems from his efforts and studies throughout more than forty years during which Dr. Edwards maintained a constant interest in the genus <u>Salmonella</u>, extending our understanding of the basic relationships among this extensive group of pathogens and of the sometimes subtle but epidemiologically significant differences between any two of its members. Furthermore, Dr. Edwards was directly or indirectly responsible for the training of a veritable army of bacteriologists who supply the working data for this surveillance activity.

Dr. Edwards was born on August 30, 1901, at Owensboro in his beloved Kentucky. It is of interest that the generic name <u>Salmonella</u> had been proposed by Lignieres barely a year earlier. After graduation from the University of Kentucky in 1922, Dr. Edwards was privileged to earn, in 1925, a Doctor of Philosophy degree under Professor Leo F. Rettger at Yale University where he first became absorbed in the bacterial genus to which he devoted so many brilliantly productive years. Immediately thereafter, he joined the staff of the Department of Animal Pathology of the University of Kentucky. It was there in Lexington that he and I first forged the bonds of friendship which for my part were born out of appreciation both of the man himself and of his scientific ability and acumen. Six years later I forsook Kentucky but not that friendship. In the interim, I well remember the time when Dr. Edwards walked into my laboratory and, displaying Bruce White's original monograph on <u>Salmonella</u>, demanded: "Do you think there's anything to this?" Obviously he was intrigued then; subsequent events speak for themselves.

It would be far from the truth to assume that Dr. Edwards was as narrow a specialist as the preceding remarks may imply. His interests and competence ranged widely throughout the fields of medical and veterinary bacteriology. In recognition of this, his colleagues both at home and abroad bestowed many honors upon him and put his fertile mind and his many abilities to work in many ways. To this the following incomplete list attests:

Director, National Salmonella Center, Lexington, Kentucky (1939-1948).

- Bacteriologist-in-Charge, Main Salmonella Center for the Western Hemisphere, Communicable Disease Center, U.S. Public Health Service, Atlanta, Georgia (1948-1962).
- Distinguished Service Award, U.S. Department of Health, Education, and Welfare (1955).
- Recipient (with Dr. W. H. Ewing), Kimble Methodology Award of the Conference of State and Provincial Public Health Laboratory Directors (1956).

President, Society of American Bacteriologists (1959).

- Honorary Doctor of Science degree (University of Kentucky, his alma mater, 1959).
- Member and former Joint Chairman, <u>Enterobacteriaceae</u> Subcommittee, International Association of Microbiological Societies.
- Member and former Joint Chairman, International Committee for Enteric Phage Typing, International Association of Microbiological Societies.

Editorial Board, The Public Health Laboratory.

Member and President, American Academy of Microbiology.

Member: American Society for Microbiology; Society for Experimental Biology and Medicine; American Public Health Association; Society for General Microbiology; American Veterinary Medicine Association (Honorary); Gamma Alpha; Sigma Xi; RESA. Dr. Edwards' career was interrupted by his final illness while serving as Chief, Bacteriology Section, CDC, a post which he assumed in 1962 after having served as Chief of CDC's Enteric Bacteriology Unit since 1948. He will long be remembered in various ways as scientist, administrator, counselor, teacher, benefactor; above all as a man -- honest, sincere, modest and considerate. In his family life he was a warm and devoted husband, father and grandfather. His colleagues throughout the world respected him for all these facets of his character, and many were proud to call him friend. It is in the last capacity that I shall cherish verdant memories of a good companion, sterling host, considerate guest and genuine friend.

> Earle K. Borman, Director Laboratory Division Connecticut State Department of Health

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I. SUMMARY

During May, an average of 358 recoveries of salmonellae from human specimens was reported per week. This represented an increase of 41 isolations over April, but a decrease of 63 from the number reported during May 1965. The cumulative number of isolations reported for the first 5 months of 1966 (6,751) is 6.3 percent less than the same period last year (7,206); the seasonal pattern is similar to that observed in 1965 (See Figure 1).

Five hundred thirteen recoveries of salmonella from nonhuman sources were reported during May, an increase of 77 over April.

II. REPORTS OF ISOLATIONS FROM THE STATES

A. Human

The seven most frequently reported serotypes during May were:

Rank	Serotype	Number	Percent	Rank Last Month
1	<u>S. typhi-murium</u> and <u>S. typhi-murium</u> var. copenhagen	389	27.2	1
2	S. enteritidis	142	9.9	5
3	S. heidelberg	136	9.5	3
4	S. infantis	106	7.4	2
5	S. newport	78	5.5	4
6	S. saint-paul	51	3.6	6
7	S. blockley	43	_3.0	7
	Total	945	66.1	
	Total (all serotypes)	1,4	31	

Salmonella enteritidis, which usually accounts for 5 percent of isolations, increased to 10 percent during May. Fifty-nine of the 142 isolations reported were from Georgia, and most of these were associated with a chain of restaurants in the state, primarily in the Atlanta area. Although the vehicle of infection has not been identified as yet, studies by the State Health Department staff are presently underway.

Five new isolations of <u>S</u>. <u>new-brunswick</u> were reported during May. Attempts are presently underway to obtain food histories from these individuals to determine if there is any association of these cases with instant nonfat dry milk (See Table II).

The age-sex distribution of individuals reported as harboring salmonellae during May was compatible with past experience (Table III).

B. Nonhuman

There were 513 isolations of salmonella from nonhuman sources during May, 77 more than April. Fifty-seven serotypes were represented among these isolations, which were from 33 different states (See Table V).

The seven most frequently reported serotypes were:

Rank	Serotype	Predominant Source and Number	No.	%	Rank Last Month
1	<u>S. typhi-murium</u> and <u>S. typhi-murium</u> var.	Bovine (14) and Chickens (11)	57	11.1	1
2	S. heidelberg	Turkeys (13), Chickens (10), and Eggs (9)	44	8.6	2
3	S. oranienburg	Turtles (36)	43	8.4	Not Listed
4	S. anatum	Turtles (9) and Turkeys (8)	33	6.4	4
5	<u>S</u> . montevideo	Animal Feed (11), Dry Milk (9), and Chickens (6)	2 7	5. 3	3
6	S. tennessee	Chickens (17)	24	4.7	Not Listed
7	S. senftenberg	Turkeys (9) and Animal Feed (8)	21	4.1	Not Listed
	Tot al		249	48.5	
	Total (all serotypes)		513		

The most prominent nonhuman sources of salmonella reported during May were chickens, 109 (20.7 percent); turkeys, 94 (17.9 percent); animal feed, 88 (16.7 percent); and dry milk, 40 (7.6 percent). See Table IV for other sources.

III. CURRENT INVESTIGATIONS

NONE

IV. REPORTS FROM THE STATES

NONE

V. SPECIAL REPORTS

NONE

VI. INTERNATIONAL

NONE

VII. FOOD AND FEED SURVEILLANCE

A. Progress Report on Pilot Food and Feed Surveillance Program

During investigations of the problem of salmonellae in nonfat dry milk, it was learned that this product is used as a milk replacer in feeds for young calves. These milk replacer feeds were selected for examination during the months of May and June. From May 16 to June 6, 93 samples of milk replacer received from 8 states have been examined for salmonellae, <u>Escherchia coli</u>, coagulase positive staphylococci and enterococci. Seventeen different brands were represented. <u>E. coli</u> was recovered from 2 samples, and all samples contained enterococci. No salmonellae or coagulase positive staphylococci were found. The majority of these samples contained either chlortetracycline hydrochloride or oxytetracycline hydrochloride in concentrations of 50 gm. to 100 gm. per ton of feed. Many of these milk replacer products also contained dried whole eggs. In addition, 33 samples of calf starter feeds were received from three states. These products did not contain dry milk, but they did contain cottonseed meal and soybean meal. S. worthington was isolated from one sample. During this period, May 16 to June 6, 34 samples of nonfat dry milk, a food product for human use, representing 14 brands, were examined, and no salmonellae or coagulase positive staphylococci were found. E. coli was recovered from 4 samples and enterococci were present in 33.

B. Results of Examination of Eggs and Egg Containing Foods for Salmonella

Reported by the United States Food and Drug Administration

The FDA has provided information concerning their examinations of samples of eggs and foods containing egg products during the fiscal years of 1964, 1965, and the first 3 quarters of 1966. The data includes both official samples and those collected during investigational studies. The percent of salmonella isolations from these sources continued to increase through the first quarter of 1966. In the second quarter there was a slight decrease in isolations from investigational samples and a much greater reduction from official samples. This trend has continued through the third quarter with an even more drastic decrease in salmonella isolations from both investigational and official samples.

		INVE	STIGAT	IONAL				OFFICI	AL	
Fiscal Years:	<u>1964</u>	<u>1965</u>	<u>1966</u> 1st	(Quar 2nd	<u>ters)</u> <u>3rd</u>	<u>1964</u>	<u>1965</u>	<u>1966</u> 1st	(Quart) 2nd	ers) <u>3rd</u>
Samples examined	107	162	40	86	35	109	220	76	112	92
Percent positive	23.0	28.3	42.5	32.6	11.4	28.0	36.8	46.0	23.2	12.0
Subsamples examined	1008	2370	634	1329	532	855	2141	733	916	1076
Percent positive	11.0	10.6	12.9	10.5	0.94	11.0	17.4	20.0	9.3	2.5

Results of Samples of Eggs and Foods Containing Egg Products Examined for Salmonella Organisms*

* Source of data - USFDA

This apparent improvement in the problem of salmonella contamination in egg products may be related to increased compliance with recent pasteurization regulations.

C. Salmonellae in Imported Shredded Coconut

Reported by the United States Food and Drug Administration

When the problem of salmonellae contamination in shredded coconut came to the attention of the Food and Drug Administration in 1961, sampling of the product was initiated at its port of entry into the United States. During that year 208 samples were examined, and 28 were detained because of salmonella contamination. In 1962, 301 samples were examined, and 39 were detained. Considerable improvement was apparent in 1963 when 114 samples were examined and only 1 was found to contain salmonellae. This trend has continued, and in 1965 none of the 19 samples examined was found to contain salmonellae.

D. <u>Survey of State Public Health Laboratory Directors Concerning Surveillance</u> of Foods and Feeds for Salmonellae

During the March 1966 meeting of the State and Territorial Laboratory Directors, a questionnaire on surveillance of foods and feeds for salmonellae was distributed. Replies obtained from 45 States are listed below:

		Yes	No	Other*
1.	Are food and feed samples examined for salmonellae in your laboratory?	45		
2.	If yes, under what conditions are samples collected? a. Follow-up of suspected case or			
	outbreak?	43	2	
	of product?	30	9	6
	c. Continuous monitoring of various suspect items?	13	22	10
3.	Are salmonella isolations from examina- tions in 2 b and c included in reports	01	,	10
	to the Salmonella Surveillance Unit?	31	4	10

*Includes no response, not applicable and unknown.

It is encouraging to note that 43 of the 45 states responding examine food samples during investigations of outbreaks of salmonellosis. Thirty conduct special short-term studies on specific types of products when indicated, and 13 have programs for continuous monitoring of suspect items.

Figure I.

REPORTED HUMAN ISOLATIONS OF SALMONELLA IN THE UNITED STATES



				1	TABLE I							
COMMON	SALMONELLA	SEROTYPES	ISOLATED	FROM	HUMANS	IN	THE	UNITED	STATES	DURING	MAY,	1966

									G	EOO	R	A P	HI	C D	IV	IS	101	N A	ND	RE	PO	RΤ	IN	G	CE	NTE	R									
SEROTYPE			NE	W EN	GLAN	Ð			MIDDI	E ATI	ANT	іс		F	AST	NORT	H CE	TRAL			WEST	T NOR	TH (CENT	RAL				S	OUTH	ATL	ANT	IC			SEROTYPE
	ME	NH	VT	MASS	RI	CONN	TOT	NY-A	NY-BI	NY-0	NJ	PA	TOT	OHIO	IND	ILL	MICH	WIS	TOT	MINN	IOWA	MO	D SI	D NEI	BR KA	N TOT	DEL	MD	DC	VA W	V NC	SC	GA	FLA	TOT	
anatum bareilly berta blockley braenderup				1 1 1		2	3	8	1	1	1		10	1	1	1		1	1	1		1				3 3		1	1	1	2		4	3	3	anatum bareilly berta blockley braenderup
bredeney chester cholerae-suis v kun cubana derby				3 4			3 4	1 3	1	2	1	13	2 10	1 2		4	_	1	5	3		1						4		1	1		2	1	2 1 7	bredeney chester cholerae-suis v kun cubana derby
enteritidis give heidelberg indiana infantis				11 5 11		3 1 3	14 6 14	2 10 10	2	1 10 3	3 9 2	12 4 5	20 35 20	1 2 3	5 2 2	8 4 6	4	1 1 2	14 1 13 18	1	1	2 1 1		1		1 1 1 4 3 4		9 7	1	1	3 1 5 2		59 1 4 4	3 4 6	75 2 21 13	enteritidis give heidelberg indiana infantis
java javiana kentucky litchfield livingstone								5					5		1			2	3	1		1									2			1 4 1	1 6 1	java javiana kentucky litchfield livingstone
manhattan mealeagridis miami mississippi montevideo				1 2			1	1			1		1			1	1		1	2								2		1			1 3	1	2 1 2 3 2	manhattan meleagridis miami mississippi montevideo
muenchen newington newport oranienburg panama				1 1 1		2 4	3	2 4 1	1	2	1	17	1 4 13 3	2		6 1	3 2	4	4	1	1	1 1 1						2	1	1 2 1	1 1 1 1		2 3	$1\\11\\1$	2 1 19 6	muenchen newington newport oranienburg panama
paratyphi B poona saint-paul san-diego schwarzengrund	2			1 2			1		1	2	2		1 2 2	1	1	3			1 3 1	2		1					5	3					1	2	2 6 1	paratyphi B poona saint-paul san-diego schwarzengrund
senftenberg tennessee thompson typhi typhi-murium	3		2	1 20	1	1	1 1 31	1 1 31	4	2 1 25	1	1 30	1 4 2 97	1 1 7	6	1 1 1 12	1 1 19	9 1 4	2 11 4 48	1 9		1 4	3			1 1 6 22		1 1 1 16	1 5	3 8	1 3 18		2 1 18	2 1 14	4 6 7 79	senftenberg tennessee thompson typhi typhi-murium
typhi-murium v cop urbana weltevreden worthington untypable group B		30			1	2	2	1					1				1		1		1					1			5				1		1	typhi-murium v cop urbana weltevreden worthington untypable group B
untypable group Cl untypable group C2 untypable group D untypable group E untypable or unknown					1		1									1		4	5		1								1	1					1 1 2	untypable group Cl untypable group C2 untypable group D untypable group E untypable or unknown
Total Common	5	30	2	67	3	23	130	87	13	50	29	64	243	22	18	52	39	38	169	20	5	16	3	1	0 2	2 6	0	50	18	20	0 43	0	107	61	299	Total Common
Total Uncommon	0	0	0	1	0	0	1	0	0	0	1	0	1	1	1	1	0	1	4	2	0	1	0	0	0	1 4	0	2	0	1	0 2	0	2	1	8	Total Uncommon
Grand Total	5	30	2	68	3	23	131	87	13	50	30	64	244	23	19	53	39	39	173	22	5	17	3	1	0 2	3 7	0	52	18	21	0 45	0	109	62	307	Grand Total

New York (A-Albany, B-Beth Israel, C-City)

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 53 isolations for May.

TABLE I (Continued) COMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS IN THE UNITED STATES DURING MAY, 1966

														_	_		_			_	_											
					GE	O G	RA	рнј	с	DIV	IS	1 0	N A	ND	R	ΕP	OR	TI ?	G	CEN	ΤE	R						1966	% OF	1965	% OF	
SEROTYPE		EAST	SOUT	H CEN	TRAL	WE	ST S	OUTH	CENT	RAL				MOU	NTAI	N						PACI	FIC		OTHER	TOTAL	7. OF TOTAL	CUM. TOTAL	1966 CUM.	CUM.	1965 CUM.	SEROTYPE
	KY	TENN	ALA	MISS	TOT	ARK	LA	OKLA	TEX	TOT	MONT	IDA	WYO	COLO	NM	ARI	UTAH	NEV	TOT	WASH	ORE	CAL	ALAS	HAI TOT	VI				TOTAL		TOTAL	
anatum bareilly berta blockley braenderup						2	1		1	2			1	2					2	1	1	2 9 1		2 2 13 1		25 1 1 43 4	17 .1 .1 3.0 .3	117 15 16 184 40	1.7 .2 .2 2.7 .6	121 36 14 128 34	1.7	anatum bareilly berta blockley braenderup
bredeney chester cholerae-suís v kun cubana derby	1	1			1		2		2 2	2	1			1					1	1	1	4 1 3		5 1 1 1 7		5 13 2 8 42	.3 .9 .1 .6 2.9	44 44 13 75 135	.7 .7 .2 1.1 2.0	56 59 15 76 320	4.4	bredeney chester cholerae-suis v kun cubana derby
enteritidis give heidelberg indiana infantis	1	1 3 1	12		2 3 13	1	2 1 2	2	3	1 7 1 5	1	1		2 4		2	2 14		2 20 5	3 1 2	5	8 21 9		1 1 1 27 2 14		142 5 136 1 106	9.9 .3 9.5 .1 7.4	464 29 550 27 595	6.9 .4 8.1 .4 8.8	370 46 581 409	5.1 8.1 5.7	enterítidis give heidelberg indiana infantís
java javiana kentucky litchfield livingstone						1	3 1		1	3		1					1		2			3 3 2		1 4 3 2		19 12 4	1.3 .8 .3	65 61 5 23 10	1.0 1.0 .1 .3 .2	65 47 5 41 15		java javiana kentucky litchfield livingstone
manhattan meleagridis miami mississippi montevideo		3			3		1			1				1					1			1		1 <u>2</u> 2 <u>5</u>		7 1 3 5 18	.5 .1 .2 .3 1.3	37 4 21 13 121	.6 .1 .3 .2 1.8	40 8 28 190	2.6	manhattan meleagridis miami mississippi montevideo
muenchen newington newport oranienburg panama		3	1	1	4		21	1	1 1 1 6	2 3 3 6				2		7			9	1	1	3 1 15 4 3		4 1 3 18 4 3 11		14 3 78 36 26	1.0 .2 5.5 2.5 1.8	68 11 392 185 88	1.0 .2 5.8 2.8 1.3	68 20 332 222 57	4.6 3.1	muenchen newington newport oranienburg panama
paratyphi B poona saint-paul san-diego schwarzengrund		1			1		6	1	2	2 7 1	1 2			1		1 1 1	2		2 6 1		8 2	11 3		<u>19</u> 5	-	9 51 10 1	.6 3.6 .7 .1	56 16 236 39 20	.8 .2 3.5 .6 .3	77 18 265 139 56	3.7 1.9	paratyphi B poona saint-paul san-diego schwarzengrund
senftenberg tennessee thompson typhi typhi-murium	3	2 8	1		2	92	1 2 7 2 6	6	1 9	1 2 7 12 23	1 2	5		1	2	1	1		1 2 3 13	3	1 2	2 7 6 43		1 8 7 5 53		2 13 41 37 378	.1 .9 2.9 2.6 26.4	20 50 202 244 1,876	.3 .7 3.0 3.6 27.8	23 , 98 163 321 2,123	1.4 2.3 4.5 29.5	senftenberg tennessee thompson typhi typhi-murium
typhi-murium v cop urbana weltevreden worthington untypable, group B			2	1	3		3		4	7					5				5		1		4	4 4 2 2 5		11 3 4 4 50	.8 .2 .3 .3 3.5	58 8 9 21 131	.9 .1 .1 .3 1.9	78 5 11 16 101		typhi-murium v cop urbana weltevreden worthington untypable, group B
untypable, group Cl untypable, group C2 untypable, group D untypable, group E untypable or unknown															43				4		1		2	2		5 4 3 1 8	.3 .2 .1 .6	44 13 15 6 37	.6 .2 .2 .1 .5	28 24 14 11 51		untypable, group Cl untypable, group C2 untypable, group D untypable, group E untypable or unknown
Total Common	5	23	16	2	46	15	45	11	40	111	8	8	1	20	14	14	20	0	85	19	24	168	6	28 245	0	1,395	97.5	6,553	97.1			Total Common
Total Uncommon	0	0	0	0	0	0	0	0	3	3	0	0	0	2	0	0	0	0	2	1	3	8	0	1 13	0	36	2.5	198	2.9			Total Uncommon
Grand Total	5	23	16	2	46	15	45	11	43	114	8	8	1	20	14	14	20	0	87	20	27	176	6	29 258	0	1,431	100.0	6,751	100.0	7.206		Grand Total

TABLE II UNCOMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS DURING 1966

	_		-				_	_	_	_	_	_	_	_	-	_	-	-	-	_	-	_			_			-		_		
												RE	PO	RT	IN	G	EN	Т	ER													
SEROTYPE	ALA	ALAS	ARI	ARK	CALIF	COLO	CONN	DEL	DC	FLA	GA	HAI	IDA	ILL	IND	IOWA	KAN	КY	LA	ME	MD	MASS	MICH	MINN	MISS	мо	MONT	NEBR	NEV	NH	NJ	NM
aberdeen abortus-bovis alachua albany atlanta					1					2	2			2					1			1		1								
austin ball binza boniare bovis-morbificans					2					1									1 1					1		1						
bradford brandenburg california carrau cerro					2	1					1	2		1			1		3													
cholerae-suis colorado duesseldorf duisburg eimsbuettel					1	1													1 2			1										
fayed gaminara garoli glostrup grumpensis																			1		1											
hartford inverness irumu kaapstad lanka					1	2 1				2	1								1				1									
menston minnesota mission mjimwema molade										1						1	1															
muenster nagoya new-brunswick norwich ohio			1	1	1 1 4		2			2 2 1	2			2	1						1	1	1	2							1	
oritamerin os oslo paratyphi A paratyphi C					2 1	1						6					1		3		1											
pomona pullorum reading rubislaw siegburg			1		6 2 2					1				9 14					1 1 1			1				1	1					
simsbury stanley stockholm tallahassee virchow														1 1									3									
wassenaar westerstede untypable group G untypable group O					2					1									1													1
Total	0	0	2	1	31	6	2	0	0	13	7	8	0	31	1	1	3	0	18	0	3	5	5	4	0	2	1	0	0	0	1	1

TABLE II (Continued) UNCOMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS DURING 1966

						RE	PO	R	T I	N (G	CEN	NTE	ER								MAY	1966 CUM.	MONTH	STATE	TOTAL PREVIOUSLY REPORTED TO	SEROTYPE
NY-B	NY-BI	NY-C	NC	ND	OHIO	OKLA	ORE	PA	RI	SC	SD	TENN	TEX	UTAH	VT	VA	VI	WASH	wv	WIS	WYO	IUIAL	TOTAL	REPORTED	REPORTED	UNIT 1962-1965	
		1																				1 1 2	1 2 3 4 2	May 66 Jan 66 May 66 Apr 66 May 66	Calif Ill Calif Minn Ga	1 0 21 15 25	aberdeen abortus-bovis alachua albany atlanta
1																							1 2 4 1 2	Feb 66 Jan 66 Apr 66 Apr 66 Feb 66	Mo Calif Fla-Minn Calif NYA-La	0 0 54 0 44	austin ball binza boniare bovis-morbificans
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5	2	6	7	0	4	2	3	1	0	0	0	4	7	0	0	2	0	6	0	3	0	36	198				Total

TABLE III

Age and Sex Distribution of Individuals Reported As Harboring Salmonellae During May 1966

<u>Age (Years)</u>	Male	Female	Unknown	Total	<u>%</u>	Cumulative %
Under 1	98	73	2	173	16.9	16.9
1 - 4	142	114	1	257	25.1	42.0
5 - 9	73	64		137	13.4	55.4
10 - 19	51	53		104	10.1	65.5
20 - 29	34	46		80	7.8	73.3
30 - 39	25	32		57	5.6	78.9
40 - 49	25	33		58	5.7	84.6
50 - 59	30	36		66	6.4	91.0
60 - 69	19	26		45	4.4	95.4
70 - 79	17	17		34	3.3	98.7
80 +	5	8		13	1.3	100.0
Child (Unspec.)	11	3	2	16		
Adult (Unspec.)	6	21		27		
Unknown	<u>204</u>	<u>143</u>	<u>17</u>	364		
Total	740	669	22	1,431		

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*Includes April	Total	typh1-murium v cop worthington untypable group B untypable group O unknown	stockholm tennessee thomasville thompson typhi-murium	saint-paul san-diego schwarzengrund senftenberg siegburg	panama paratyphi-B poona pullorum reading	newington newport oranienburg orion oslo	mission montevideo muenchen muenter nev-brynswick	livingstone manhattan meleagridis minneapolis minnesota	indiana infantis kentucky lexington lichfield	eimsbuettel enteritidis gallinarum give heidelberg	chester cholerae-suis v kun cubana derby dublin	binza blockley bredeney californía cerro	alachua anager anatum bareilly berta	SEROTYPE
lat	N											-		poultry
e rep	109	32	17 1 3	*		22	36		.u. 00	10 1	2	2 8 2	1 3	chicken
orts	94	2	4 4	9514	4	- 4 -	4 11	3 1	2 1	13	Ĩ	-	00	turkey
-	4		1						2	-				duck
	-		-			-								chicken droppings
	- 1							-						quail
	6		0											sparrow
	-													stork
	2	-							1					bird droppings
	-									-				avain
	6		S			-								equine
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	17		1	-					-	-	4 7			porcine
	7	1	4	-				-						canine
	-			-										feline
	N										2			lab mouse
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Dis	-													chicken meat
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bor	7			N			2			-			-	poultry feed
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la	-													unknown
Reports	513	6 2 1	1 24 3 9 51	9 14 21 1	1 2 2 4	6 10 43 3	1 27 8 3 16	9 1 2	1 19 2 3 7	3 13 1 44	13 10 4 11 2	11 4 3	7 1 33 2 1	Total
from	2.75	29	34	846		1154	13	30	13	10 40 25 26	4) 3) 28	22 8 3	140	5 Mos Total
Individual	D Total	3 typhi-murium v cop 5 worthington 4 untypable group B 3 untypable group 0 1 unknown	tennessee thomasville thompson typhi-murium	saint-paul san-diego schwarzengrund siegburg	5 paratyphi-B poona pullorum reading	nevington nevport oranienburg oslo	mission montevideo muenchen nev-brunswick	annhattan manhattan mannagridis minneapolis minnesota	infantis kentucky lexington litchfield	enteritidis gallinarum heidelberg	cholerae-suís v kun cubana deby dublín	binza blockley california cerro	alachua anager anatum bareilly berta	SEROTYPE

TABLE IV TABLE IV REPORTED NONHUMAN ISOLATES BY SERVITYPE AND SOURCE, *MAY, 1966

	TABLE V														
REPORTED	NONHUMAN	ISOLATES	BY	SEROTYPE	AND	STATE,	*MAY,	196							

SEROTYPE	ALA	ARIZ	ARK	CAL	CON	FLA	GA	IDAHO	ILL	IND	IOWA	KAN	KY	LA	MD 1	місн	MINN	MISS	MO	MONT	NH	NJ	NC	оніо	OKLA	PA	sc s	DT	EX	UTAH	VA	WASH	WISC	TOTAL	5 MOS. TOTAL	SEROTYPE
alachua amager anatum bareilly berta		1	1	6	1				1	1	2	9	1	4		2	2		1					1				1	2	1				7 1 33 2 1	17 1 146 7 3	alachua amager anatum bareilly berta
binza blockley bredeney california cerro	2		4			1	3	1	2	1	1			2 1 1					1						2					1	1		1	8 11 4 3 1	31 83 26 12 28	binza blockley bredeney california cerro
chester cholerae-suis v kun cubana derby dublin	1	1		52					1	3	3			3		2	4	2	1				1			1	2						6	13 10 4 11 2	42 50 32 70 28	chester cholerae-suís v kun cubana derby dublin
eimsbuettel enteritidis gallinarum give heidelberg	1	2	3	1			4			12	3			2		3	5		1			1	1		1			2		15			1	3 13 1 1 1 44	19 40 9 22 267	eimsbuettel enteritidis gallinarum give heidelberg
indiana infantis kentucky lexington litchfield	1	1	2	5		4	1			1 3 2		2		1 2	1		1					1		1						2				1 19 2 3 7	19 134 12 7 8	indiana infantis kentucky lexington litchfield
livingstone manhattan meleagridis minneapolis minnesota				13		1								1 1 5			1		1					1									1	2 1 3 1 9	46 24 10 1 30	livingstone manhattan meleagridis minneapolis minnesota
mission montevideo muenchen muenster new-brunswick	1						15		1	1 12	2			1 6 1 2		1	6 3	1	3			3				1				1			2	1 27 8 3 16	2 139 21 12 27	mission montevideo muenchen muenster new-brunswick
newington newport oranienburg orion oslo		1		36					1			36		1			1 2 2		1					1					1		1	1		6 10 43 1 3	41 53 115 10 5	newington newport oranienburg orion oslo
panama paratyphi-B poona pullorum reading				1							1			1			2				1			2				1						1 2 2 1 4	5 5 25 14	panama paratyphi-B poona pullorum reading
saint-paul san-diego schwarzengrund senftenberg siegburg	1	1	1	9		3			1	32				1 3 1		1	2 5 7	1	1					2			1	4		2 2				9 14 11 21 1	130 66 45 85 3	saint-paul san-diego schwarzengrund senftenberg siegburg
stockholm tennessec thomasville thompson typhi-murium	1	2	1	1 19	1					44	2	1 4		1 1 1		6	3 1 1	15 1		1				1		1			4		1		2	1 24 3 9 51	1 60 8 73 346	stockholm tennessee thomasville thompson typhi-murium
typhi-murium v cop worthington untypable group B untypable group O unknown	2	1	3	2						3				2		1		1				1												6 9 2 2 1	93 26 4 3 7	typhi-murium v cop worthington untypable group B untypable group O unknown
Total	10	10	18	74	2	9	15	1	8	55	15	52	1	49	1	18	49	21	13	1	1	7	2	10	4	4	3	8	7	24	7	1	13	513	2,750	Total

*Includes April late reports.

Source: National Disease Laboratory, Ames, Iowa, weekly Salmonella Reports from individual States and US-FDA-Division of Microbiology, Washington, D.C.

TABLE V-A OTHER SEROTYPES REPORTED DURING 1966 FROM NONHUMAN SOURCES

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
abortus-bovis	Mar	La	1
adelaide	Mar	La	1
alagbon	Mar	NJ	2
amsterdam	Jan	Ohio	1
babelsberg	Jan	Ind	1
bovis-morbificans	Jan	Calif	1
bradford	Jan	NJ	1
braenderup	Jan-Feb	Ark(4)	
	Jan	Calif(1)	
	Jan	Miss(1)	
	Feb	Ala(1)	
	Feb	Tex(1)	
	Mar	Va(1)	
	Apr	Conn(1)	10
cambridge	Apr	La	1
caracus	Mar	La	1
carrau	Apr	Mass	2
champaign	Mar	La	2
cholerae-suis	Feb	Calif	1
colorado	Mar	NJ	1
corvallis	Apr	La	1
eppendorf	Jan	NJ	1
faved	Apr	La(1)	
rayeu	Apr	NC(1)	2
grumpensis	Mar	La	1
habana	Apr	Md	1
halmstad	Mar	La	3
hamilton	Ian	La	1
hartford	Mar	Fla	1
illinois	Mar	Minn	1
iava	Jan-Foh-Mar	Calif(6)	1
Java	Jan	Fla(1)	
	Jan	T11(1)	
	Feb-Mar	Pa(4)	
	Mar	Conn(3)	15
johannesburg	Mar	Mich	1
kaanstad	Mar	Ia	1
kotthus	Feb	Ga	1
11110	Mar	NI	1
manila	Ian	Ind(1)	1
and the first of the	Anr	Md(1)	2
miami	Feb	Calif(1)	2
and their a	Feb	Tex(1)	2
micciccioni	Mar	Lo.	1
neu-hau	Max	La NT	1
obio	Ech	Tous(7)	1
01110	Feb	Minn(1)	0
pharr	Ian	Mich	1
pomona	Mar	NJ	1
simphury	Ian	Ind(1)	
o fino out y	Fabrica		
	Mar	NI(1)	4
taksony	Fob		4
canoony	Apr	Md(1)	2
tournai	Mar	NT	1
tuebinger	Jan	Mich	1
typhi	Jan	Mo	1
typhi-suis	Feb-Mar	Calif/6)	
c)pur-0019	Mar	Minn(1)	7
urbana	Mar	Minn(1)	/
orodila	Apr		
	Apr	La(1) Pa(1)	2
veile	Apr		3
westhampton	Mar	Kan	1
			L
Total			94