REPORT NO. 14 JUNE 29, 1963



COMMUNICABLE DISEASE CENT

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SURVEILLANCE

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For Month of May, 1963

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SALMONELLA

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# PREFACE

Summarized in this report is information received from State and City Health Departments, university and hospital laboratories, the National Animal Disease Laboratory (USDA, ARS), Ames, 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: Chief, Salmonella Surveillance Unit, Communicable Disease Center, Atlanta 22, Georgia.

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#### I. SUMMARY

The May report marks the regrettable termination of the association of Dr. Eli Friedman with the Salmonella Surveillance Unit. Dr. Friedman has terminated his tour of duty with the Communicable Disease Center to assume an academic assignment with the State University of New York. Dr. Eugene Sanders will now assume the duties of Chief of the Salmonella Surveillance Unit.

A record number of reports of outbreaks or incidents from the States is included in this issue which, as a group, describe a wide clinical and epidemiological spectrum of salmonellosis.

During May, 1738 salmonella isolations from human sources were reported from fifty States and fifty-four reporting centers (Table I). This number of isolations represents the highest monthly total for the five months during which nationwide reporting has been in effect. These isolations account for 28.2 per cent of the 5-month total of salmonella recoveries (6169) from human sources.

Among a few of the reports of outbreaks reviewed are: (1) follow-up of the current outbreak of hospital associated <u>S. derby</u> disease, (2) report of an outbreak of <u>S. heidelberg</u> gastroenteritis traced to contaminated pork sandwiches in New Jersey, (3) description of an epidemic of <u>S. braenderup</u> gastroenteritis mediated by barbequed beef in Texas, and (4) a preliminary report of severe salmonellosis affecting enlisted men at a Strategic Air Force Command Base in Nebraska.

A typhoid-like illness, caused by <u>S. typhimurium</u>, among members of a rural Nebraska family is described. An outbreak of <u>S</u>. <u>heidelberg</u> gastroenteritis with a high incidence of associated bacteremia is recounted from Massachusetts. Finally, current knowledge of the several outbreaks of typhoid fever in Great Britain is included in the International Section.

#### II. REPORTS OF ISOLATIONS FROM THE STATES

## A. Human

During May, the seven serotypes recovered most frequently were:

| No. | Serotype       | Number | Per Cent | Standing Last Month |
|-----|----------------|--------|----------|---------------------|
| 1   | S. typhimurium | 499    | 28.7     | 1                   |
| 2   | S. heidelberg  | 219    | 12.6     | 2                   |
| 3   | S. derby       | 139    | 8.0      | 6                   |
|     | S. newport     | 139    | 8.0      | 3                   |
| 4   | S. infantis    | 100    | 5.8      | 4                   |
| 5   | S. muenchen    | 51     | 2.9      | 11                  |
| 6   | S. typhi       | 48     | 2.8      | 5                   |

# 2 TABLE I

#### SALMONELLA SEROTYPES ISOLATED FROM HUMANS DURING MAY, 1963

|  |    |    |    |         |       | R    | EGION       | AND RE | PORTIN      | G CENT | FER  |         |              |      |      |        |        |     |              |
|--|----|----|----|---------|-------|------|-------------|--------|-------------|--------|------|---------|--------------|------|------|--------|--------|-----|--------------|
| SEROTYPE   | -  | -  | N  | EW ENG  | GLANE | 2    |             |        | MIDD        | LE ATI | LANT | c       |              |      | EAST | NORT   | H CEN  | RAL |              |
| -1-1   | ME | NH | VT | MASS    | RI    | CONN | TOT         | NY-A   | NY-BI       | NY-C   | ΓИ   | PA      | TOT          | OHIO | IND  | ILL    | MICH   | WIS | тот          |
| alochua<br>amager<br>anatum<br>arechavaleta<br>atlanta   |    |    |    |         |       |      |             | 1      |             |        |      |         | 1            | 1    |      | 1<br>2 | 4      |     | 1<br>7       |
| bareilly<br>berta<br>blockley<br>bonariensis<br>braenderup   |    |    |    | 1       |       | 5    | 6           |        | 2           | 1      |      | 1 4     | 1<br>1<br>9  | 1    |      | 2 5    | 1 2    |     | 3<br>8       |
| bredeney<br>california<br>cerro  |    |    |    | 1       |       |      | 1           |        | 1           |        |      |         | 1            |      |      |        |        |     |              |
| chester<br>cholerae-suis<br>cholerae-suis  | -  |    |    |         |       |      |             | 3      | 2           | 1      |      |         | 3            |      |      | 1      | 2      |     | 2            |
| var kunzendorf<br>colorado<br>cubana<br>daytona<br>decatur   |    |    |    | 6       |       |      | 6           |        |             |        |      |         |              |      | 1    |        |        |     | 1            |
| derby<br>dublin<br>dusseldorf<br>enteritidis   |    |    |    | 5       | 3     | 1    | 9           | 21     | 24          | 1      | 10   | 44<br>5 | 100          | 8    | 1    | 2      |        | 1   | 12           |
| gaminara   |    |    |    |         |       |      |             |        | 1           |        |      | -       | 1            | -    |      |        |        |     | -            |
| gatuni<br>georgia<br>give<br>grumpensis<br>hartford  |    |    |    |         |       |      |             | 1      |             |        |      |         | 1            |      |      |        |        |     |              |
| heidelberg<br>horsham<br>hvittingfoss<br>indiana   |    |    |    | 53      | 1     | 5    | 59          | 2      | 22          | 1      | 66   | 4       | 95<br>1      | 2    | 2    | 3      | 1      |     | 8            |
| infantis<br>Inverses   | -  |    |    | 2       |       | 2    | 4           | 7      | 3           | 1      | 1    | 4       | 16           | 9    | 7    | 15     | 4      |     | 35           |
| irumu<br>javiana<br>johannesburg<br>kentucky   |    |    |    |         | 1     | 1    | 2           | 1      |             |        |      |         | 1            |      |      |        |        |     |              |
| lexington<br>litchfield<br>livingstone<br>llandorf   |    |    |    |         |       |      |             |        |             |        |      |         |              | 4    |      |        |        |     | 4            |
| manhattan  | -  |    |    | 1       |       |      | 1           | 21     | 1           |        |      |         | 22           |      |      | 2      |        |     | 2            |
| meleagridis<br>miami<br>minnesota  |    |    |    |         |       |      |             |        | 2           |        |      |         | 2            |      |      |        | 2      |     | 2            |
| mississippi<br>montevideo<br>muenchen<br>muenster<br>new-brunswick   |    |    |    | 1<br>16 |       |      | 1<br>16     | 1      | 5<br>13     | 1      |      | 1       | 8<br>14      |      |      | 1      | 3      | 1   | 5            |
| newington  |    |    |    | 1       |       |      | 1           |        | 1           |        |      |         | 1            |      |      |        |        |     |              |
| newport<br>norwich<br>oranienburg<br>oslo<br>panamo  |    |    |    | 4       |       |      | 4           | 4      | 3           | 6      | 1    | 3       | 26<br>8<br>2 |      | ,    | 3      | 2<br>4 | 4   | 10<br>1<br>4 |
| paratyphi A<br>paratyphi B<br>var java<br>paratyphi B  |    |    |    |         |       | 1    | 1           |        | 2           |        |      | 1       | 1            | 2    |      | 1      |        |     | 1            |
| paratyphi C<br>pomona  |    |    |    |         |       |      |             |        | 2           |        |      |         | -            | -    |      |        |        |     | 3            |
| poona<br>potsdam<br>reading<br>richmond<br>sa int-paul   |    |    |    | 2       |       |      | 2           |        | 6           |        | 3    | 1       | 10           |      |      | 2      | 3      |     | 5            |
| san-diego<br>schwarzengrund<br>senftenberg<br>simsbury<br>stanley  |    |    |    | 1<br>2  |       |      | 1 2         |        | 3           | 1      |      | 1       | 3<br>3       | 1    |      |        | 1      |     | 2            |
| tennessee<br>thomasville<br>thompson<br>typhi  |    |    |    | 1       |       | 2    | 1<br>2<br>3 | 1 2    | 1<br>5<br>2 | 2      |      | 2       | 1<br>8<br>6  | 2    |      | 2 2    | 2      |     | 4            |
| typhimurium<br>typhimurium   | 1  |    | 2  | 6       | 4     | 7    | 19          | 10     | 26          | 11     | 9    | 17      | 73           | 9    | 4    | 27     | 24     | 9   | 73           |
| urbana<br>weltevreden<br>worthington<br>untypable, Group A   |    | 1  |    |         |       |      | 1           |        |             |        |      |         |              |      |      | 1      | 1      |     | 1            |
| untypable, Group B<br>untypable, Group C <sub>1</sub><br>untypable, Group C <sub>2</sub><br>untypable, Group D<br>untypable, Group E |    | 1  | 1  |         | 2     |      | 3<br>1<br>1 |        |             |        |      |         |              |      |      |        |        |     |              |
| untypable, Group O<br>untypable<br>unknown   |    |    |    | 1       |       |      | 1           | 1      |             |        |      |         | 1            |      |      |        |        |     |              |
| TOTAL  | 1  | 2  | 3  | 109     | 13    | 29   | 157         | 81     | 151         | 34     | 91   | 93      | 450          | 44   | 16   | 77     | 60     | 16  | 213          |

| ΒY | SEROTYPE | AND | REPORTING | CENTER |
|----|----------|-----|-----------|--------|
|    |          |     |           |        |

| REGION AND REPORTING CENTER  |              |        |        |      |      |     |    |        |    |     |        |        |      |      |      |        |      |      |
|--|--------------|--------|--------|------|------|-----|----|--------|----|-----|--------|--------|------|------|------|--------|------|------|
| SEPOTYPE   |              |        |        | NTIC | ATLA | UTH | so |        |    |     |        |        | RAL  | CENT | ORTH | WEST N |      |      |
| SERUTTFE   | TOT.         | FLA    | GA     | SC   | NC   | WV  | VA | DC     | MD | DEL | тот.   | KAN    | NEBR | SD   | ND   | мо     | IOWA | MINN |
| chua<br>ager<br>atum<br>chavaleta<br>anta  | 1            |        |        |      | 1    |     |    |        |    |     | 2<br>3 | 2<br>3 |      |      |      |        |      |      |
| eilly<br>ta<br>ockley<br>aariensis<br>enderup  | 1<br>7       | 1      | 1<br>4 |      |      |     | 1  |        | 1  |     | 1      |        |      |      |      |        |      | 1    |
| deney<br>lifornia<br>rro<br>ester  | 4            | 2      | 2      |      |      |     | 1  |        | 1  |     | 1      |        |      |      |      |        | 1    |      |
| olerae-suis<br>var kunzendorf  | 3            | 2      |        |      | 1    |     |    |        |    |     |        |        |      |      |      |        |      |      |
| oraao<br>oana<br>ytona<br>catur  | 1            | 1      |        |      |      |     |    |        |    |     |        |        |      |      |      |        |      |      |
| by<br>blin<br>sseldorf<br>teritidis  | 4            |        | 2      |      |      |     | 1  | 1      | 3  |     | 1      |        |      |      |      | 1      |      |      |
| ninara<br>tuni<br>orgio<br>re<br>unpensis  | 1            |        | 1      |      |      |     |    |        |    |     | 1      |        |      |      |      |        |      | 1    |
| idelberg<br>sham   | 9            |        | 5      |      | 1    |     | 3  |        |    |     | 1      |        |      |      |      |        |      | 1    |
| antis<br>verness   | 1<br>5       |        | 1      |      | 2    |     | 2  |        | 1  |     | 4      | 2      |      |      |      | 1      |      | 1    |
| ma<br>riana<br>jannesburg<br>ntucky  | 6            | 5      | 1      |      |      |     |    |        |    |     |        |        |      |      |      |        |      |      |
| ington<br>chfield<br>ingstone<br>ndorf<br>na-linda   |              |        |        |      |      |     |    |        |    |     |        |        |      |      |      | ,      |      |      |
| nhattan<br>leagridis<br>ami<br>an esota<br>ssissippi   | 1            | 1      |        |      |      |     |    | 1      |    |     | 1      |        |      |      |      | i      |      |      |
| ntevideo<br>enchen<br>enster<br>w-brunswick<br>wington   | 8<br>5       | 1<br>4 | 2      |      | 2    |     | 1  |        | 3  |     | 5      |        |      |      |      |        |      | 5    |
| wport  | 16           | 3      | 7      |      | 2    |     | 2  |        | 2  |     | 7      |        |      |      |      | 1      |      | 6    |
| wich<br>in ienburg<br>o<br>nama  | 7            | 1      | 1      |      |      |     | 4  |        | 1  |     | 1      | 1      |      |      |      |        |      |      |
| atyphi A<br>atyphi B<br>varjava<br>atyphi B<br>ratyphi C<br>mona                               | 2<br>1       | 1      |        |      | 1    |     |    |        | 1  |     |        |        |      |      |      |        |      |      |
| isdom<br>iding<br>hmond  | 1            |        | ,      |      | ,    |     | ,  |        | 1  |     |        |        |      |      |      |        |      |      |
| n-diego  | 5            | 2      | 1      | -+   |      |     | 2  |        | 2  |     |        |        |      |      | -    |        |      |      |
| ntenberg<br>nsbury<br>nley   | 1            |        | 1      |      |      |     |    |        |    |     |        |        |      |      |      |        |      |      |
| nessee<br>masville<br>mpson<br>hi  | 2<br>1<br>12 | 1      |        |      | 2    |     | 1  |        | 1  |     | 1      |        |      |      |      | 3      |      | 1    |
| himurium<br>var copenhagen<br>vana<br>ltevreden<br>rthington<br>typable, Group A               | 1            | 6      | 20     |      | 13   |     | 18 | 1      | 16 |     | 65     | 29     | 23   | 1    |      | 6      | 2    | 4    |
| ypable, Group B<br>ypable, Group C1<br>ypable, Group C2<br>ypable, Group D<br>typable, Group E | 1<br>3       |        |        |      |      |     |    | 1<br>3 |    |     | 2      | 1      |      |      |      | 1      |      |      |
| ypable, Group O<br>typable<br>known  | 2            |        |        |      | 24   |     | 20 | 2      | 20 |     | 00     | 20     | 22   | ,    |      | 14     |      | 20   |
| TTAL   | 198          | 36     | 50     | _    | 26   | - 1 | 39 | y      | 38 | -   | 77     | 38     | 2.5  |      |      | 14     |      | 20   |

#### TABLE | (Continued)

|   | ,  |         |         |       |        | R   | GION | AND RE | PORTIN | G CENT      | ER   |     |     |        |         |        |      |     |         |
|---|----|---------|---------|-------|--------|-----|------|--------|--------|-------------|------|-----|-----|--------|---------|--------|------|-----|---------|
| SEROTYPE  |    | EAST SC | DUTH CI | ENTRA | L      |     | WEST | SOUTH  | CENTRA | L           |      | r   |     | MO     | UNT     | IN     |      |     |         |
|   | KY | TENN    | ALA     | MISS  | TOT.   | ARK | LA   | OKLA   | TEX    | TOT.        | MONT | IDA | WYO | COLO   | NM      | ARI    | UTAH | NEV | тот.    |
| alachua<br>amager<br>anatum<br>arechavaleta<br>atlanta  |    |         |         |       |        |     |      |        |        |             |      |     |     |        |         |        |      |     |         |
| bareilly<br>berta<br>blockley<br>bonariensis<br>braenderup  |    | 1       |         |       | 1      |     | 2    |        | 1      | 3           |      |     |     |        |         |        |      |     |         |
| bredeney<br>california<br>cerro   |    |         |         |       |        |     |      |        |        |             |      |     |     |        |         |        |      |     |         |
| chester<br>cholerae-suis  | 1  |         |         |       | 1      |     |      |        |        |             |      | _   |     |        |         |        |      |     |         |
| var kunzendorf<br>colorado<br>cubana<br>daytona<br>decotur  |    |         |         |       |        |     |      |        | 1      | 1           |      |     |     |        |         |        |      |     |         |
| derby<br>dublin<br>dusseldorf   |    | ,       |         |       | 2      |     | 1    |        |        | 1           |      |     |     |        |         |        |      |     |         |
| gaminara<br>gatuni  | -  |         |         |       | 2      |     | 3    |        |        | 3           |      |     |     |        | -       |        |      |     |         |
| georgia<br>give<br>grumpensis<br>hartford   |    |         |         |       |        |     |      |        |        |             |      |     |     |        |         |        |      |     |         |
| heidelberg<br>harsham<br>hvittingfoss<br>indiana<br>infantis  |    |         |         |       |        | 2   | 1    | 1      | 1      | 5           |      |     |     |        |         | 3      | 1    |     | 4       |
| inverness<br>irumu<br>javiana<br>johannesburg   |    | 4       |         |       | 4      |     | 6    |        | 2      | 8           |      |     |     |        |         |        |      |     |         |
| kentucky<br>lexington<br>litchfield<br>livingstone<br>llandorf  |    |         |         |       |        |     | 1    |        | 1      | 1           |      |     |     |        |         | 1      |      |     | 1       |
| manhattan<br>meleagridis<br>miami   |    | 1       |         |       | 1      |     | 1    |        |        | 1           |      |     |     |        |         |        |      |     |         |
| minnesota<br>mississippi<br>montevideo  |    |         |         |       |        |     | 1    |        |        | 1           |      |     |     |        |         |        |      |     |         |
| muenchen<br>muenster<br>new-brunswick<br>newington  |    |         |         |       |        |     | 2    |        | 4      | 6<br>1<br>1 |      |     |     |        |         |        |      |     |         |
| newport<br>norwich<br>oranienburg   |    | 1       |         |       | 1<br>2 | 1   | 1    |        | 4      | 6<br>3      |      |     |     | 5<br>3 |         | 2<br>1 |      |     | 7       |
| panama<br>paratyphi A   | -  |         |         |       |        |     |      |        |        |             |      |     |     |        |         |        |      |     |         |
| paratyphi B<br>var java<br>paratyphi B<br>paratyphi C<br>panama   |    | 2       | 1       |       | 1<br>2 |     | 1    |        |        | 1           |      |     |     |        | 1       |        |      |     | 1       |
| poona<br>potsdam<br>reading<br>richmond   |    | 2       |         |       | 2      |     |      |        | 1      | 1           |      |     |     |        |         |        |      |     |         |
| san-diego<br>schwarzengrund<br>senftenberg<br>simsbury<br>stanley   |    | L       |         |       |        |     | 1    |        |        | 1           |      |     |     |        |         |        |      |     |         |
| tennessee<br>thomasville<br>thompson<br>typhi   |    | 1       |         |       | .1     | 3   | 1    | 2      | 1 2    | 2 7 22      |      |     |     | 2      |         |        |      |     | 2       |
| typhimurium<br>var copenhagen<br>urbana<br>weltevreden<br>worthington                                       | 5  | 3       | 2       |       |        | 2   | 3    |        | 10     | 5           |      | 1   |     | ,      |         |        |      |     | 13      |
| untypable, Group A<br>untypable, Group B<br>untypable, Group C1<br>untypable, Group D<br>untypable, Group D |    |         |         |       |        |     |      | 1      |        | 1           |      |     |     |        | 17<br>2 |        |      |     | 17<br>2 |
| untypable, Group O<br>untypable<br>unknown  |    |         | 6       |       | 6      |     |      |        |        |             |      |     |     |        |         |        | 1    |     | 1       |
| TOTAL   | 7  | 18      | 9       | 1     | 35     | 12  | 37   | 7      | 31     | 87          | -    | 4   |     | 19     | 20      | 8      | 2    | -   | 53      |

|  | ABLE | 1 | Con | tin | ueo |
|--|------|---|-----|-----|-----|
|--|------|---|-----|-----|-----|

|        |                  |                |                      |        |                   |       |                          | 5                  |                               |                           |                    |                        |  |
|--------|------------------|----------------|----------------------|--------|-------------------|-------|--------------------------|--------------------|-------------------------------|---------------------------|--------------------|------------------------|--|
|        | ECION A          |                | OPTING               | CENTER |                   | 1     | TABL                     | E   (Continued     | i)                            |                           |                    |                        | 1  |
| R      | EGION A          | PAC            | IFIC                 |        | 1 707             | OTHER | TOTAL                    | OF<br>TOTAL        | FIVE<br>MONTH<br>TOTAL        | PERCENT<br>MONTH<br>TOTAL | CDC<br>TOTAL       | PERCENT<br>OF<br>TOTAL | SEROTYPE   |
| 2<br>2 | ORE              | 1<br>1<br>1    | ALAS                 | HAI    | 1<br>1<br>3       | VI    | 3<br>2<br>15             | 0.9                | 4<br>2<br>83                  | 1.3                       | 2                  | 1.1                    | alachua<br>amager<br>anatum<br>arechavaleta  |
|        | 1                | 3              |                      |        | 4                 |       | 1<br>5<br>39<br>2        | 2.2                | 1<br>23<br>21<br>120<br>16    | 1.9                       | 2                  | 1.1                    | atlanta<br>bareilly<br>berta<br>blockley<br>bonariensis<br>braenderup                                      |
|        | -                | 2<br>1<br>2    |                      | 4      | 6<br>1<br>2       |       | 12<br>1<br>1<br>10<br>4  | 0.6                | 35<br>1<br>1<br>97<br>11      | 1.6                       | 1                  | 1.1                    | bredeney<br>california<br>cerro<br>chester<br>cholerae-suis  |
|        |                  |                |                      |        |                   |       | 10                       |                    | 34<br>2<br>11<br>1            |                           | 3<br>2             |                        | cholerae-suis<br>var kunzendorf<br>colorado<br>cubano<br>day tona<br>daga tona                             |
| 2      |                  | 4<br>1<br>1    |                      | 6      | 12<br>1<br>1      |       | 139<br>1<br>41           | 8.0                | 280<br>1<br>1<br>179          | 4.5                       | 13<br>1<br>3       | 6.9                    | derby<br>dublin<br>dusseldorf<br>enteritidis   |
|        |                  |                |                      |        |                   |       | 1                        |                    | 1                             |                           | 2                  |                        | gaminara<br>gatuni<br>georgia<br>give<br>grumpensis  |
| 8      | 3                | 31<br>1<br>1   | 2                    | 3      | 47<br>1<br>1      |       | 219<br>1<br>1<br>2       | 12.6               | 553<br>1<br>1<br>6            | 9.0                       | 7                  | 3.7                    | heidelberg<br>horsham<br>hvittingfoss<br>indiana   |
|        |                  | 23             |                      | 4      | 27                |       | 20                       | 1.2                | 335<br>2<br>2<br>44<br>1      | 0.7                       | 9<br>5<br>1        | 4.8                    | intantis<br>inverness<br>irumu<br>javiana<br>johannesburg  |
|        |                  | 3              |                      |        | 3                 |       | 4                        |                    | 1<br>23<br>2<br>1             |                           | 1                  |                        | kentucky<br>lexington<br>litchfield<br>livingstone<br>llamaolinda  |
| Т°н,   |                  | 1              |                      | 3      | 4 2               |       | 30<br>7<br>1<br>2<br>2   | 1.7                | 87<br>39<br>14<br>4<br>7      | 1.4                       | 3<br>1             |                        | manhattan<br>meleagridis<br>miami<br>minnesota<br>mississippi  |
|        |                  | 2 4            |                      |        | 2 4               |       | 26<br>51<br>1<br>3       | 1.5<br>2.9         | 164<br>123<br>2<br>5<br>10    | 2.7<br>2.0                | 2 4                | 1.1<br>2.1             | montevideo<br>muenchen<br>muenster<br>new-brunswick<br>newington   |
|        |                  | 62<br>1<br>2   |                      | 2      | 64<br>1<br>1<br>3 |       | 139<br>1<br>34<br>1<br>6 | 8.0<br>2.0         | 435<br>3<br>142<br>4<br>27    | 7.1<br>2.3                | 9<br>2<br>3        | 4.8<br>1.1             | newport<br>norwich<br>oranienburg<br>oslo<br>panama  |
|        | 1                | 2<br>3<br>1    | 10 <sup>-10</sup> -1 |        | 2<br>3<br>1       |       | 2<br>10<br>9<br>1<br>1   |                    | 4<br>31<br>44<br>1<br>1       |                           | 1                  |                        | paratyphi A<br>paratyphi B<br>var java<br>paratyphi B<br>paratyphi C<br>pomona                             |
| 2      | 2                | 2              |                      |        | 4                 |       | 1<br>4<br>1<br>47        | 2.7                | 10<br>1<br>10<br>5<br>179     | 2.9                       | 1                  | 0.5                    | poona<br>potsdam<br>reading<br>richmond<br>saint-paul  |
| 1      | 1                | 10<br>31       |                      |        | 12<br>31          |       | 23<br>38<br>1            | 1.3<br>2.2         | 58<br>75<br>9<br>6<br>3       | 0.9<br>1.2                | 2                  | 1.1                    | san-diego<br>schwarzengrund<br>senftenburg<br>simsbury<br>stanley  |
| 16     | 1                | 1<br>10<br>125 | 1                    | 6      | 1<br>10<br>149    |       | 5<br>18<br>48<br>499     | 1.0<br>2.8<br>28.7 | 46<br>9<br>94<br>283<br>1,988 | 4-6<br>32-2               | 1<br>2<br>46<br>47 | 24-3<br>24-9           | tennessee<br>thomasville<br>thompson<br>typhi<br>typhimurium   |
|        |                  | 1              |                      |        | 1                 |       | 14<br>2<br>3             |                    | 45<br>17<br>8<br>14           |                           | 5                  |                        | typhimurium<br>var copenhagen<br>urbana<br>weltevreden<br>worthington<br>untypha                           |
|        | 1<br>5<br>1<br>1 | 5              | 1                    | 1      | 7<br>6<br>1<br>1  |       | 31<br>6<br>4<br>5        |                    | 103<br>17<br>11<br>19<br>4    |                           |                    |                        | untypable, Group A<br>untypable, Group C<br>untypable, Group C<br>untypable, Group D<br>untypable, Group E |
| 21     | 1                | 241            |                      | 22     | 1                 |       | 1                        |                    | 1<br>27<br>19                 |                           | 2                  |                        | untypable, Group O<br>untypable<br>unknown   |

These seven serotypes account for 68.8 per cent of the 1738 human isolates reported during May (Table I). The presence of <u>S</u>. <u>heidelberg</u> as second most common serotype for the second consecutive month may be explained by the occurrence of two large outbreaks in New Jersey and Massachusetts (See Reports from States) due to this organism. Similarly, the ascendancy of <u>S</u>. <u>derby</u> to third position is undoubtedly a result of the hospital-associated outbreak of <u>S</u>. <u>derby</u> illness and its attendant intensive bacteriological surveillance (See Current Investigations).

Of the 1738 individuals reported as harboring salmonellae, 246 (14.2 per cent) had one or more members of their immediate family positive for the same salmonella serotype (Table II). This family infection rate is slightly lower than that computed for April (16.4 per cent). However, both rates fall within the range of family infection rates computed during the past eight months (12.0 to 22.1 per cent).

The modal age group (Table IV) observed this month, 1-4 years, is consistent with that evident during the preceding 8 months.

The hypothesis that there is no sex predilection among individuals reported as harboring salmonella organisms gains further credence from this month's tabulation (Table IV). Of the 1669 individuals for whom sex was indicated during May, 833 (49.9 per cent) were male and 836 (50.1 per cent) were female.

## B. Nonhuman

The 446 nonhuman salmonella isolations reported by States and typing centers during May represent an increase from April, but they do not exceed the 5-month average. Reports were received directly from 16 States and the National Animal Disease Laboratory at Ames, Iowa, totalling 30 States reporting 46 serotypes. The number of identified serotypes remains fairly constant ranging from 45 to 52 for the months of 1963.

The seven serotypes recovered most frequently during May were:

| No. | Serotype   | Number | Per Cent | Standing Last Month |
|-----|--|--------|----------|---------------------|
| 1.  | <u>S. typhimurium</u><br><u>S. typhimurium</u><br><u>var. copenhagen</u> | 115    | 25.8     | 2                   |
| 2.  | S. montevideo  | 33     | 7.4      | 14                  |
| 3.  | S. heidelberg  | 28     | 6.3      | 7                   |
| 4.  | S. pullorum  | 26     | 5.8      | 5                   |
| 5.  | S. worthington   | 20     | 4.5      | 12                  |
| 6.  | S. muenchen  | 18     | 4.0      | 17                  |
| 7.  | S. infantis  | 17     | 3.8      | 1                   |

<u>Salmonella typhimurium</u> and <u>S. typhimurium var. copenhagen</u> represent the most frequent isolates, 115 (25.8 per cent). This is similar to the previous 4 month's percentages which range from 18.2 to 29.0. The other most common types in order of frequency for May are <u>S. montevideo</u> (7.4 per cent), <u>S. heidelberg</u> (6.3 per cent), <u>S. pullorum</u> (5.8 per cent), <u>S. worthington</u> (4.5 per cent), <u>S. muenchen</u> (4.0 per cent), and <u>S. infantis</u> (3.8 per cent). Of these 7 types, <u>S. worthington</u> and <u>S. muenchen</u>, are not in the group of the same number of most common types for the preceding months in 1963.

Comparing the frequency of serotypes from human and nonhuman sources over the past 5 months, <u>S. typhimurium</u> is the most common type in both, followed by <u>S. heidelberg</u>. <u>S. heidelberg</u> appears most frequently in turkeys and chickens, but has been identified since January from swine, pork sandwiches, cattle, raw milk, ice cream, other foods, and a horse. This organism has become more prominent in poultry and livestock in recent months, perhaps contributing to extensive food contamination. By the same token, the appearance of this infection in many animal hosts may be the result of contamination in feeds.

The most common serotype isolated from poultry is <u>S</u>. <u>pullorum</u>. This organism caused heavy losses in the poultry industry 30 years ago, but programs of testing breeding flocks have reduced mortality to a low level. Were it not for the program of serologically testing most breeding fowl flocks and subsequent attempts to isolate this organism from reactor birds, this organism would perhaps seldom appear in this listing and the number of other salmonellae isolated by circumstance from avian species would be fewer in total number.

Isolation of three salmonella serotypes, <u>S. chester</u>, <u>S. infantis</u>, and <u>S. pullorum</u> was reported from eggs this month. Comments on eggs as sources of salmonellae are mentioned under Current Investigations. Unusual sources of contamination are also reported. One of these is the isolation of <u>S. panama</u> from a beverage, canned cream soda. Dircumstances surrounding identification of other sources, such as lasagna (<u>S. newport</u>), pork sandwiches (<u>S. heidelberg</u>), and turkey roll (<u>S. derby</u>) are incorporated into the body of this month's report.

### III. CURRENT INVESTIGATIONS

#### A. Interstate Outbreak of Hospital Associated Salmonella derby Infections

The interstate hospital-associated outbreak of <u>Salmonella derby</u> infections continues to be a serious problem. From March 1 to July 1, a total of 752 recoveries of <u>S. derby</u> have been reported from 25 States and the District of Columbia to the Salmonella Surveillance Unit (Table VI). The majority of total and hospital-associated isolations are concentrated in the Northeastern United States (Totals: Pennsylvania, 514; New York, 72; Massachusetts, 26 and New Jersey, 18. To date, 581 patients have been reported to have acquired <u>S. derby</u> within the environment of 38 hospitals in 10 States. The number of "community-acquired" cases (69) of <u>S. derby</u> infection is consistent with the number recorded during a comparable, non-epidemic period.

# TABLE VI

Reported S. derby Isolates March 1, 1963 - July 1, 1963

| State           | No. Hospitals<br>Involved | Hospital<br>Associated | Community<br>Acquired | Unknown | Under<br>Investigation | <u>Total</u> |
|-----------------|---------------------------|------------------------|-----------------------|---------|------------------------|--------------|
| Alabama         |                           |                        | 2                     |         |                        | 2            |
| California      |                           |                        | 11                    | 3       | 5                      | 19           |
| Connecticut     | 2                         | 2                      |                       | 1       | 3                      | 6            |
| Delaware        | 2                         | 3                      | 1                     |         | 1                      | 5            |
| District of Col | lumbia                    |                        | 1                     | 2       |                        | 3            |
| Georgia         |                           |                        | 1                     | 1       |                        | 2            |
| Hawaii          |                           |                        |                       | 2       | 18                     | 20           |
| Illinois        | 1                         | 1                      | 2                     |         | 3                      | 6            |
| Indiana         | 1                         | 1                      |                       |         |                        | 1            |
| Louisiana       |                           |                        | 2                     |         | 1                      | 3            |
| Maryland        |                           |                        | 4                     | 3       | 2                      | 9            |
| Massachusetts   | 4                         | 5                      | 9                     | 3       | 9                      | 26           |
| Michigan        |                           |                        | 2                     | 1       |                        | 3            |
| Minnesota       |                           |                        | 2                     |         |                        | 2            |
| Missouri        |                           |                        | 2                     |         | 3                      | 5            |
| New Jersey      | 5                         | 13                     | 4                     | 1       |                        | 18           |
| New Mexico      |                           |                        |                       |         | 1                      | 1            |
| New York        | 9                         | 60                     | 2                     | 4       | 6                      | 72           |
| North Carolina  |                           |                        | 3                     |         |                        | 3            |
| Ohio            | 3                         | 4                      | 6                     | 5       | 2                      | 17           |
| Pennsylvania    | 10                        | 489                    | 13                    | 1       | 11                     | 514          |
| Rhode Island    | 1                         | 3                      |                       | 1       |                        | 4            |
| Texas           |                           |                        | 1                     |         | 2                      | 3            |
| Virginia        |                           |                        | 1                     | 1       |                        | 2            |
| Washington      |                           |                        |                       |         | 4                      | 4            |
| Wisconsin       |                           |                        |                       | 1       | 1                      | 2            |
| Total           | 38                        | 581                    | 69                    | 30      | 72                     | 752          |

# TABLE II

Number of Salmonella Isolates From Two or More Members of the Same Family by Reporting Center - May, 1963.

|                      | Total No. of Salmonella | No. of Isolates From | Per Cent |
|----------------------|-------------------------|----------------------|----------|
|                      | Isolates Reported       | Family Outbreaks     | of Total |
| Alabama              | 9                       | 0                    | 0.0      |
| Alacka               | 4                       | 2                    | 50.0     |
| Arizona              | *                       | 2                    | 25.0     |
| Arkansas             | 12                      | 2                    | 16.7     |
| California           | 361                     | 49                   | 13.6     |
| Colorado             | 10                      | 49                   | 21 0     |
| Connectiont          | 20                      | 4                    | 10.3     |
| District of Columbia | 0                       | 2                    | 22.2     |
| Florida              | 26                      | 3                    | 33.3     |
| Coorgia              | 50                      | 4                    | 26.0     |
| Georgia              | 50                      | 13                   | 20.0     |
| hawall               | 32                      | 2                    | 6.2      |
| Idano                | 4                       | 0                    | 0.0      |
| lllinois             | 11                      | 8                    | 10.4     |
| Indiana              | 16                      | 4                    | 25.0     |
| Iowa                 | 3                       | 0                    | 0.0      |
| Kansas               | 38                      | 8                    | 21.0     |
| Kentucky             | 7                       | 3                    | 42.8     |
| Louisiana            | 37                      | 5                    | 13.5     |
| Maine                | 1                       | 0                    | 0.0      |
| Maryland             | 38                      | 1                    | 2.6      |
| Massachusetts        | 109                     | 33                   | 30.3     |
| Michigan             | 60                      | 15                   | 25.0     |
| Minnesota            | 20                      | 0                    | 0.0      |
| Mississippi          | 1                       | 0                    | 0.0      |
| Missouri             | 14                      | 0                    | 0.0      |
| Nebraska             | 23                      | 4                    | 17.4     |
| New Hampshire        | 2                       | 0                    | 0.0      |
| New Jersey           | 91                      | 32                   | 35.2     |
| New Mexico           | 20                      | 3                    | 15.0     |
| New York-Albany      | 81                      | 14                   | 17.3     |
| New York-Beth Israel | 151                     | 7                    | 4.6      |
| New York City        | 34                      | 0                    | 0.0      |
| North Carolina       | 26                      | 2                    | 7.7      |
| Ohio                 | 44                      | 7                    | 15.9     |
| Oklahoma             | 7                       | 0                    | 0.0      |
| Oregon               | 18                      | 0                    | 0.0      |
| Pennsylvania         | 93                      | 2                    | 2.2      |
| Rhode Island         | 13                      | 2                    | 15.4     |
| South Dakota         | 1                       | ō                    | 0.0      |
| Tennessee            | 18                      | 0                    | 0.0      |
| Texas                | 31                      | 0                    | 0.0      |
| Utah                 | 2                       | 0                    | 0.0      |
| Vermont              | 3                       | 0                    | 0.0      |
| Virginia             | 39                      | 4                    | 10.3     |
| Washington           | 31                      | 4                    | 12.9     |
| Wisconsin            | 16                      | 4                    | 25.0     |
|                      |                         |                      | 23.0     |
| Tota                 | al 1738                 | 246                  | 14.2     |

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# SEROTYPES REPORTED BY ONLY ONE CENTER DURING MAY, 1963 TABLE III

# HUMAN

| Serotype                | Center      | May | 5-Month<br>Total* | CDC** | Comment   |
|-------------------------|-------------|-----|-------------------|-------|---|
| <u>S. amager</u>        | CAL<br>ILL  | 2   | 2                 | 13    | Rare cause human illness. Only<br>4 of 13 isolations in CDC ex-<br>perience derived from human<br>sources.  |
| <u>S.</u> braenderup    | CONN<br>TEX | 2   | 16                | 39    | Cause of outbreak traced to con-<br>taminated barbequed beef (See<br>Reports from States, this issue)   |
| <u>S. california</u>    | CAL         | 1   | 1                 | 143   | Infrequent cause human disease.<br>Caused several large outbreaks<br>among turkeys in mid-1930's and<br>early 1950's with approximately<br>25 per cent mortality. |
| <u>S. cerro</u>         | NY-BI       | 1   | 1                 | 35    | Isolated from urine of 70-year-<br>old male with acute urinary<br>retention. Repeated cultures of<br>this patient's stools have faile<br>to reveal this organism. |
| <u>S.</u> <u>cubana</u> | FLA         | 1   | 2                 | 94    | A frequent isolate from animal<br>feeds. Seven of 8 reported<br>human recoveries have originated<br>on Eastern Seaboard of U. S.                                  |
| S. daytona              | TEX         | 1   | 1                 | 0     | Extremely rare isolate from any source.   |
| <u>S. geminara</u>      | NY-BI       | 1   | 2                 | 23    | Frequently detected in animal feeds. Rarely a cause of human illness.   |
| <u>S. gatuni</u>        | MINN        | 1   | 1                 | 2     | Two previous recoveries were<br>made from human cases of<br>gastroenteritis in Hawaii.  |
| S. give                 | GA<br>NY-A  | 2   | 18                | 285   | Cause of sporadic cases only during the past 12 months.   |
| <u>S. horsham</u>       | CAL         | 1   | 1                 | 1     | This isolation represents only<br>the second in CDC experience.<br>The first was recovered from a<br>patient in Arizona.  |
| <u>S. hvittingfoss</u>  | CAL         | 1   | 1                 | 1     | Only previous isolation in CDC<br>experience originated from a<br>human case of salmonellosis in<br>Oklahoma.   |

| Series view       Content       Data view       Content       Content         S. indiana       GA       2       6       29       First described 1955. Reported intermittently since.         S. johannesburg       NY-A       1       1       5       1         S. livinestone       LA       1       2       0       Recently isolated from poultry processing plant and employee in Georgia and peruvian fishmeal used in poultry feed.         S. loma linda       CAL       1       1       5       Human isolations confined exclusively to California. The first three recoveries were from patients with associated bypogammeglobulinemia.         S. miami       FLA       1       14       63       Over 80 per cent of human isolations have originally isolated in Plorida. Others have occurred sporadically in Eastern U. S.         S. minnesota       MICH       2       4       81       Though originally isolated in Minesota, over 50 per cent of total recoveries have been made in Georgia and Plorida.         S. missiesippi       LA       2       7       25       Predominantly accuse of per det Us appearing human illness in Southeastern U. S.         S. muenster       TEX       1       2       Extremely rare serotype in U.S. Recent reports from Great         S. muenster       TEX       1       2       Extremely cause isolations in Solations in Solations in Solati   | Constant              | Contor    | Mou | 5-Month | CDC** | Commont   |
|--|-----------------------|-----------|-----|---------|-------|---|
| S. indiana       GA       2       6       29       First described 1955. Reported intermittently since.         S. johannesburg       NN-A       1       1       1         S. livingstone       LA       1       2       0       Recently isolated from poultry processing plant and employee in Georgia and peruvian fishmeal used in poultry feed.         S. loma linds       GAL       1       1       5       Human isolations confined exclusively to California. The first three recoveries were from patients with associated by programsglobulinemia.         S. miami       FLA       1       14       63       Over 80 per cent of human isolations have originated in Florida. Others have occurred spordically in Eastern U. S.         S. minnesota       MICH       2       81       Though originally isolated in Minnesota, over 50 per cent of total recoveries have been made in Georgia cad Florida.         S. mississippi       LA       2       7       25       Predominantly a cause of sporadically appearing human illness in Southeastern U. S.         S. muenster       TEX       1       2       2       Extremely are serotype in U.S. Recent reports from Great Brita.n indicate that recoveries are becoming more frequent there so regime and Hawaii. Recently acues of sporadically outpearing human illness in Southeastern U. S.         S. miesissippi       LA       2       2       Extremely are serotype in U.S. Recent reports from Great  | Serotype              | Center    | May | Iotal*  | 000   | Comment   |
| S. iohannesburg       NY-A       1       1         S. livingstone       LA       1       2       0       Recently isolated from poultry processing plant and employee in Georgia and peruvian fishmeal used in poultry feed.         S. loma linds       CAL       1       1       5       Human isolations confined exclusively to California. The first three recoveries were from patients with associated byyogammaglobulinemia.         S. miami       FLA       1       14       63       Over 80 per cent of human isolations have originated in Florida. Others have originated in Florida. Others have originated in Storacy over 50 per cent of total recoveries have been made in Georgia and Florida.         S. minnesota       MICH       2       81       Though originally isolated in Minnesota, over 50 per cent of LLL         S. mississippi       LA       2       7       25       Predominantly a cause of sporadically appearing human illness in Southeastern U. S.         S. muenster       TEX       1       2       2       Extremely are serotype in U.S. Recent reports from Great Britaan indicate that recoveries are becoming more frequent there originated in Soluteastern U. S.         S. oslo       HAI       1       4       16       Predominantly isolated in California and Hawaii. Recently isolated from dogs and wild rate in Hawaii.         S. paratyphi C       CAL       1       1       6       Rare human isolate in U.S. (See Re  | <u>S. indiana</u>     | GA<br>PA  | 2   | 6       | 29    | First described 1955. Reported intermittently since.  |
| S. livingstone       LA       1       2       0       Recently isolated from poultry processing plant and employee in Gorgia and peruvian fishmeal used in poultry feed.         S. loma linds       CAL       1       1       5       Human isolations confined exclusively to California. The first three recoveries were from patients with associated hypogammaglobulinemia.         S. miami       FLA       1       14       63       Over 80 per cent of human isolations have originated in Florida. Others have occurred sporadically in Eastern U. S.         S. minnesota       MICH       2       4       81       Though originally isolated in Minnesota, over 50 per cent of total recoveries have been made in Georgia and Plorida.         S. mississippi       LA       2       7       25       Predominantly a cause of sporadically appearing human illness in Southeastern U. S.         S. muenster       TEX       1       2       2       Extremely are serotype in U.S. Recent reports from Great Britaan indicate that recoveries are becoming more frequent there originated in California and Havaii. Recently isolated from the California and Havaii. Recently isolated from to have isolations in Havaii.  | S. johannesburg       | NY-A      | 1   | 1       |       |   |
| S. loma linda       CAL       1       1       5       Human isolations confined exclusively to California. The first three recoveries were from patients with associated bypogammaglobulinemia.         S. miami       FLA       1       14       63       Over 80 per cent of human isolations have originated in Florida. Others have occurred sporadically in Eastern U. S.         S. minnesota       MICH       2       4       81       Though originally isolated in Minnesota, over 50 per cent of total recoveries have been made in Georgia and Florida.         S. mississippi       LA       2       7       25       Predominantly a cause of sporadically appearing human illness in Southeastern U. S.         S. muenster       TEX       1       2       2       Extremely rare serotype in U.S.         S. morwich       ILL       1       4       25       All provious isolations in Science reports from Great Britain indicate that recoveries are becoming more frequent there sortglised in California and Hawaii.         S. peratyphi C       CAL       1       1       6       Rare human isolate in U.S. (Gee Report No. 9, December, 1962).   | S. livingstone        | LA        | 1   | 2       | 0     | Recently isolated from poultry<br>processing plant and employee<br>in Georgia and peruvian fish-<br>meal used in poultry feed.                          |
| S. miami       FLA       1       14       63       Over 80 per cent of human isolations have originated in Florida. Others have occurred sporadically in Eastern U. S.         S. minnesota       MICH       2       4       81       Though originally isolated in Minnesota, over 50 per cent of total recoveries have been made in Georgia and Florida.         S. mississippi       LA       2       7       25       Predominantly a cause of sporadically appearing human illness in Southeastern U. S.         S. muenster       TEX       1       2       2       Extremely rare serotype in U.S. Recent reports from Great Britain indicate that recoveries are becoming more frequent there are becoming more frequent there orightered in Southeastern U.S.         S. oslo       HAI       1       4       16       Predominantly isolated in California and Hawaii. Recently isolated from dogs and wild rate in Hawaii.         S. oslo       HAI       1       6       Rare human isolate in U.S. (Gee Report No. 9, December, 1962).   | <u>S. loma linda</u>  | CAL       | 1   | 1       | 5     | Human isolations confined ex-<br>clusively to California. The<br>first three recoveries were<br>from patients with associated<br>hypogammaglobulinemia. |
| S. minnesota       MICH       2       4       81       Though originally isolated in Minnesota, over 50 per cent of total recoveries have been made in Georgia and Florida.         S. mississippi       LA       2       7       25       Predominantly a cause of sporadically appearing human illness in Southeastern U. S.         S. muenster       TEX       1       2       2       Extremely rare serotype in U.S. Recent reports from Great Britain indicate that recoveries are becoming more frequent there are becoming more frequent there originated in Southeastern U.S.         S. norwich       ILL       1       4       25       All previous isolations in Solorella Curveillance Reports originated in California and Hawaii. Recently isolated in California and Hawaii. Recently isolated from dogs and wild rate in Hawaii.         S. paratyphi C       CAL       1       1       6       Rare human isolate in U.S. (See Report No. 9, December, 1962).  | <u>S. miami</u>       | FLA       | 1   | 14      | 63    | Over 80 per cent of human iso-<br>lations have originated in<br>Florida. Others have occurred<br>sporadically in Eastern U. S.                          |
| S. mississippi       LA       2       7       25       Predominantly a cause of sporadically appearing human illness in Southeastern U. S.         S. muenster       TEX       1       2       2       Extremely rare serotype in U.S. Recent reports from Great Britain indicate that recoveries are becoming more frequent there are becoming more frequent there overginated in Southeastern U.S.         S. norwich       ILL       1       4       25       All previous isolations in Salwone La Surveillance Reports overginated in Southeastern U.S.         S. oslo       HAI       1       4       16       Predominantly isolated in California and Hawaii. Recently isolated from dogs and wild rates in Hawaii.         S. paratyphi C       CAL       1       1       6       Rare human isolate in U.S. (See Report No. 9, December, 1962).   | <u>S. minnesota</u>   | місн      | 2   | 4       | 81    | Though originally isolated in<br>Minnesota, over 50 per cent of<br>total recoveries have been<br>made in Georgia and Florida.                           |
| <ul> <li><u>S. muenster</u> TEX 1 2 2 Extremely rare serotype in U.S. Recent reports from Great Britain indicate that recoveries are becoming more frequent there are becoming more frequent there.</li> <li><u>S. norwich</u> ILL 1 4 25 All previous isolations in Salvone U.a Surveillance Reports originated in Southeastern U.S.</li> <li><u>S. oslo</u> HAI 1 4 16 Predominantly isolated in California and Hawaii. Recently isolated from dogs and wild rate in Hawaii.</li> <li><u>S. paratyphi C</u> CAL 1 1 6 Rare human isolate in U.S. (See Report No. 9, December, 1962).</li> </ul>  | <u>S. mississippi</u> | LA<br>ILL | 2   | 7       | 25    | Predominantly a cause of<br>sporadically appearing human<br>illness in Southeastern U. S.   |
| <ul> <li><u>S. norwich</u> ILL 1 4 25 All previous isolations in Salvone La Surveillance Reports originated in Southeastern U.S.</li> <li><u>S. oslo</u> HAI 1 4 16 Predominantly isolated in California and Hawaii. Recently isolated from dogs and wild rates in Hawaii.</li> <li><u>S. paratyphi C</u> CAL 1 1 6 Rare human isolate in U.S. (See Report No. 9, December, 1962).</li> </ul>  | <u>S. muenster</u>    | TEX       | 1   | 2       | 2     | Extremely rare serotype in U.S.<br>Recent reports from Great<br>Britain indicate that recoveries<br>are becoming more frequent there                    |
| <ul> <li><u>S. oslo</u></li> <li><u>HAI</u></li> <li><u>HAI</u></li> <li><u>HAI</u></li> <li><u>HAI</u></li> <li><u>HAI</u></li> <li><u>HAI</u></li> <li><u>California</u> and Hawaii. Recently isolated from dogs and wild rates in Hawaii.</li> <li><u>S. paratyphi</u></li> <li><u>C</u></li> <li><u>CAL</u></li> <li><u>L</u></li> <li><u>California</u></li> <li><u>California</u></li> <li><u>Amageneral Amageneral Amagenera</u></li></ul> | S. norwich            | ILL       | 1   | 4       | 25    | All previous isolations in<br>Saluonella Surveillance Reports<br>originated in Southeastern U.S.  |
| S. paratyphi C CAL 1 1 6 Rare human isolate in U.S. (See Report No. 9, December, 1962).  | <u>S. oslo</u>        | HAI       | 1   | 4       | 16    | Predominantly isolated in<br>California and Hawaii. Recently<br>isolated from dogs and wild rats<br>in Hawaii.  |
|  | <u>S. paratyphi C</u> | CAL       | 1   | 1       | 6     | Rare human isolate in U.S.<br>(See Report No. 9, December,<br>1962).  |

| Serotype              | Center | May   | 5-Mont<br>Total: | th<br>* CDC** | Comment   |
|-----------------------|--------|-------|------------------|---------------|---|
| Derocype              | oenter | Ticty | IULAL            | 020           | <u>oonmerre</u>   |
| <u>S. pomona</u>      | LA     | 1     | 1                | 8             | Of previous isolations in CDC<br>experience, 3 originated from<br>humans and 5 from nonhuman<br>sources (1 dog, 2 turkey, 1<br>reptile, 1 water). |
| S. poona              | TEX    | 1     | 10               | 61            | Sporadic cause human illness.   |
| S. richmond           | MD     | 1     | 5                | 1             | (See SSR No. 12, Reports from States)   |
| <u>S. senftenberg</u> | LA     | 1     | 9                | 191           | Sporadic cause disease in man.<br>Frequent contaminant in poultry<br>feeds.   |
|                       |        |       | NONHUN           | MAN           |   |
| <u>S. durban</u>      | MICH   | 1     | 1                | 2             | Only two reported isolations from humans in surveillance experience   |
| S. eastbourne         | ARIZ   | 1     | 1                | 10            | Previous recoveries from humans,<br>turkeys, and chickens.  |
| <u>S. inverness</u>   | місн   | 1     | 1                | 6             | Recently recovered from dogs.<br>Infrequent cause human illness.<br>All previous human isolates from<br>Southeastern U. S.                        |
| S. typhi-suis         | CAL    | 1     | 1                | 1             | Very rare host-adapted type.<br>Previous isolate from swine.  |

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\* Represents 6,169 isolations of all serotypes in current surveillance.

\*\* Represents 28,000 cultures from all sources typed between 1947 and 1958.

# TABLE IV

# Age and Sex Distribution of 1669 Isolations of Salmonella Reported for April, 1963

| Age      | Male    | Female | <u>Total</u> |   |
|----------|---------|--------|--------------|---|
| Under 1  | 78      | 69     | 147          |   |
| 1-4      | 149     | 126    | 275          |   |
| 5-9      | 65      | 64     | 129          |   |
| 10-19    | 63      | 50     | 113          |   |
| 20-29    | 49      | 66     | 115          |   |
| 30-39    | 36      | 35     | 71           |   |
| 40-49    | 19      | 27     | 46           |   |
| 50-59    | 23      | 37     | 60           |   |
| 60-69    | 22      | 40     | 62           |   |
| 70-79    | 11      | 16     | 27           |   |
| 80-89    | 7       | 6      | 13           |   |
| Unknown  | 311     |        | 611          | _ |
| TOTAL    | 833     | 836    | 1669         |   |
| % of Tot | al 49.9 | 50.1   |              |   |

<u>Fatalities</u>: To date, 16 fatalities have been reported among patients from whom <u>S</u>. <u>derby</u> was isolated (Table VII). Many patients were suffering life-threatening or debilitating illness prior to acquiring <u>S</u>. <u>derby</u> infection, however at least two deaths have been considered primarily a result of salmonellosis.

The Special Problem in Philadelphia: Of the 514 isolations in Pennsylvania, 439 have originated in 10 Philadelphia hospitals, or institutions for care of the chronically ill. These hospitalassociated isolations have been the subject of intensive study teams from the city, state, and Communicable Disease Center. As a result, perhaps more asymptomatic "cases" have been uncovered in this area than in others. S. derby has been recovered from 373 patients and 116 hospital employees in Philadelphia. Over 50 per cent of total recoveries have been isolated from individuals without symptoms. The earliest cases in these hospitals are thought to have arisen from a common source (See below). However, the continuing appearance of new symptomatic cases and asymptomatic carriers at a time when food served in the hospital has been shown to be free of salmonella, strongly suggests spread of infection person-to-person by contact either directly or through fomstes, or by aerosol. Studies to more clearly define the current mode(s) of spread are in progress. To date, S. derby has been recovered from aerosol samples and a variety of fomites in one Philadelphia hospital.

<u>The Special Problem in New York</u>: During the last 2 weeks of May, very few isolations of <u>S</u>. <u>derby</u> were reported from New York. However, during the month of June, an additional 23 recoveries were reported. Twenty-one of these cultures were obtained from hospitalized patients. Investigation to determine if infection was acquired in the hospital or in the community has not yet been completed.

Nonhuman isolations: Salmonella derby has been recovered from the following nonhuman sources since January 1, 1963:

| Porcine | 2    | 22 | Poultry Feed       | 1 |
|---------|------|----|--------------------|---|
| Chicker | n    | 3  | Slurries           |   |
| Turkey  |      | 15 | Cracked            |   |
| Turkey  | Ro11 | 5  | Eggs               | 3 |
| Canine  |      | 3  | Fomites (hospital) | 6 |
| Bovine  |      | 1  | Aerosol            |   |
| Duck    |      | 1  | Samples (hospital) | 3 |
| Horse   |      | 1  |                    |   |
| Animal  | Feed | 1  |                    |   |

A number of these sources have been investigated, and are described below:

<u>Investigation of Possible Common Sources</u>: Evidence accumulated thus far suggests that the initial hospital-associated cases of <u>S</u>. <u>derby</u> infection were acquired from a common source(s) within each hospital, since dates of onset of gastroenteritis, in most instances, fell within the second week of hospitalization. That the infection was not transmitted initially by carriers is evidenced by the simultaneous appearance of this organism in several hospitals in 4 States. It is known that none of these hospitals had exchanged patients, personnel,

|  |                  |                       |      |        |               |               |          |       |                 |       |         |         |             |             |        |       |        |      |            |                      |                | -       |             |           |                      |               |             |                      |                       |                         |           |                      |      |         |                          |                            |  |
|--|------------------|-----------------------|------|--------|---------------|---------------|----------|-------|-----------------|-------|---------|---------|-------------|-------------|--------|-------|--------|------|------------|----------------------|----------------|---------|-------------|-----------|----------------------|---------------|-------------|----------------------|-----------------------|-------------------------|-----------|----------------------|------|---------|--------------------------|----------------------------|--|
|  |                  |                       |      |        |               |               |          |       |                 |       |         |         |             |             |        |       |        | 50   | URCE       |                      |                |         |             |           |                      |               |             |                      |                       |                         |           |                      |      |         |                          |                            | s  |
| S<br>E<br>R<br>O<br>T<br>Y<br>P<br>E   | CHICKEN          | rurkey                | DUCK | PIGEON | DOMESTIC FOWL | DOMESTIC FOWL | PHEASANT | QUAIL | DTHER WILD FOWL | AVIAN | EQUINE  | BOVINE  | PORCINE     | FARM ANIMAL | CANINE | MOUSE | RABBIT | MINK | ZOO ANIMAL | DTHER WILD<br>ANIMAL | ANIMAL UNKNOWN | LASAGNE | TURKEY ROLL | EGG-WHOLE | OTHER EGG<br>PRODUCT | PORK SANDWICH | RAW MILK ** | CANNED<br>CREAM SODA | FEED POULTRY<br>GRAIN | FEED POULTRY<br>UNKNOWN | FISH MEAL | MEAT AND<br>BONEMEAL | FEED | UNKNOWN | TOTAL                    | FIVE-MONTH<br>TOTAL        | E<br>R<br>O<br>T<br>Y<br>P<br>E  |
| amager<br>anatum<br>bareilly<br>berta<br>binza                                   | 1                | 1<br>7<br>1           | 2    |        |               |               |          | 0     | 0               |       | -       | 1       | 3           |             |        | -     | -      | 1    |            |                      |                |         |             |           |                      |               |             |                      |                       | 1                       |           |                      |      |         | 1<br>12<br>5<br>1<br>10  | 2<br>134<br>21<br>2<br>12  | amager<br>anatum<br>bareilly<br>berta<br>binza                                   |
| blockley<br>bredeney<br>california<br>cerro<br>chester                           | 9<br>3<br>3<br>3 | 3<br>5<br>1<br>4      |      |        |               | 1             |          |       |                 | 1     |         |         | 2           |             |        |       |        |      |            |                      |                |         |             | 1         |                      |               |             |                      |                       |                         |           |                      |      |         | 12<br>10<br>1<br>3<br>10 | 33<br>72<br>8<br>13<br>54  | blockley<br>bredeney<br>california<br>cerro<br>chester                           |
| cholerae-suis<br>var kunzendorf<br>derby<br>dublin<br>durban<br>eastbourne       | 1                | 7                     |      |        |               |               |          |       |                 |       |         | 6       | 5           |             | 2      |       |        |      | 1          |                      |                |         | 2           |           |                      |               |             |                      |                       |                         |           |                      |      |         | 5<br>11<br>6<br>1        | 64<br>48<br>21<br>1<br>1   | cholerae-suis<br>var kunzendorf<br>derby<br>dublin<br>durban<br>eastbourne       |
| enteritidis<br>gallinarum<br>give<br>heidelberg<br>indiana                       | 1<br>1<br>15     | 1<br>1<br>6           |      |        |               |               |          |       |                 | 3     |         | 3       |             |             |        |       |        |      |            |                      | 1              |         |             |           |                      | 3             | 2           |                      |                       |                         |           |                      |      | 1       | 4<br>5<br>1<br>28<br>1   | 17<br>26<br>26<br>155<br>4 | enteritidis<br>gallinarum<br>give<br>heidelberg<br>indiana                       |
| infantis<br>inverness<br>javiana<br>kentucky<br>livingstone                      | 2                | 5<br>1<br>2           |      |        |               |               |          |       |                 |       |         | 1       | 3           |             | 1      |       | 4      |      | 1          |                      |                |         |             | 1         |                      |               |             |                      |                       |                         | 1         |                      |      |         | 17<br>1<br>1<br>6<br>2   | 149<br>1<br>18<br>20       | infantis<br>inverness<br>javiana<br>kentucky<br>livingstone                      |
| manhattan<br>montevideo<br>muenchen<br>new-brunswick<br>newington                | 12               | 1<br>3<br>1<br>7<br>4 |      |        | 8             |               |          |       |                 |       | 2       |         | 2<br>14     |             |        |       |        |      | 1          |                      |                |         |             |           | 1                    |               |             |                      | 1                     |                         |           | 6                    |      |         | 1<br>33<br>18<br>7<br>5  | 9<br>94<br>45<br>8<br>25   | manhattan<br>montevideo<br>muenchen<br>new-brunswick<br>newington                |
| newport<br>oranienburg<br>panama<br>pullorum<br>reading                          | 23               | 2<br>1<br>1           |      |        |               |               |          | 1     |                 | 1     | 1       |         |             |             |        |       |        |      |            |                      |                | 1       |             | 2         |                      |               |             | 1                    |                       |                         |           | 5                    |      |         | 3<br>8<br>2<br>26<br>6   | 60<br>23<br>9<br>91<br>13  | newport<br>oranienburg<br>panama<br>pullorum<br>reading                          |
| saint-paul<br>san-diego<br>schwarzengrund<br>senftenberg<br>tennessee            | 2 6 3            | 7<br>1<br>3<br>1<br>5 | 1    |        |               |               |          |       |                 |       |         |         |             |             | 2      | 1     |        |      |            |                      |                |         |             |           |                      |               |             |                      |                       |                         |           |                      | 1 2  |         | 9<br>1<br>11<br>3<br>11  | 87<br>32<br>60<br>21<br>50 | saint-paul<br>san-diego<br>schwarzengrund<br>senftenberg<br>tennessee            |
| thompson<br>typhi-suis<br>typhimurium<br>typhimurium<br>var copenhagen<br>urbang | 4<br>25<br>12    | 1                     | 1    | 2      |               | 1             | 2        | 2     | 1               | 1     | 12<br>2 | 20<br>1 | 1<br>3<br>2 | 1           | 2      |       |        | 2    | 1          | 1                    |                |         |             |           |                      |               |             |                      |                       |                         |           |                      |      | 2       | 7<br>1<br>92<br>23<br>1  | 31<br>1<br>409<br>113<br>2 | thompson<br>typhi-suis<br>typhimurium<br>typhimurium<br>var copenhagen<br>urbana |
| worthington<br>untypable, Group B<br>untypable, Group C<br>untypable, Group E    | 14               | 5                     |      |        |               |               |          |       |                 |       | 1       |         | 1           |             |        |       |        |      |            |                      |                |         |             |           |                      |               |             |                      |                       |                         |           |                      |      |         | 20<br>1<br>1<br>1        | 53<br>3<br>1<br>1          | worthington<br>untypable, Group B<br>untypable, Group C<br>untypable, Group E    |
| TOTAL  | 150              | 117                   | 4    | 7      | 8             | 2             | 2        | 3     | 1               | 6     | 18      | 33      | 38          | 1           | 8      | 1     | 4      | 3    | 4          | 1                    | 1              | 1       | 2           | 4         | 1                    | 3             | 2           | 1                    | 1                     | 1                       | 1         | 11                   | 3    | 3       | 446                      | 2,248                      | TOTAL  |

SOURCE: National Disease Laboratory, Ames, Iowa, and Weekly Salmonella Surveillance Reports, California, Colorado, Connecticut, Illinois, Kansas, Louisiana, Michigan, Mississippi, New Jersey, New York, Ohio, Oklahoma, Rhode Island, Texas, Virginia and Washington.

\* Includes late April Reports. \*\* Includes one Ice-cream in California.

# TABLE V NON-HUMAN ISOLATES BY THE NATIONAL ANIMAL DISEASE LABORATORY AND STATE REPORTING CENTERS - MAY,\* 1963

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#### NON-HUMAN ISOLATES REPORTED BY THE NATIONAL ANIMAL DISEASE LABORATORY AND STATE REPORTING CENTERS - MAY,\* 1963

|   | T  |     |        |              |       |    |    |    |         |             |      |     |    |    |    |       |             |             |         |        | TATE |     |      |     |      |      |     |     |     |      |     |      |        |      |     |                          |                            |   |
|---|----|-----|--------|--------------|-------|----|----|----|---------|-------------|------|-----|----|----|----|-------|-------------|-------------|---------|--------|------|-----|------|-----|------|------|-----|-----|-----|------|-----|------|--------|------|-----|--------------------------|----------------------------|---|
| SEROTYPE  | AL | ARI | Z ARK  | CALI         | F DEL | FL | LA | GA | ILL     | IND         | IOWA | KAN | LA | MD | MA | SS MI | СН          | MINN        | мо      | MONT   | Ν.J. | NYA | NY-E | BIN | YC N | N.C. | оню | ORE | PA  | R.I. | TEX | UTAH | -VA    | WASH | WIS | TOTAL                    | 5 MO                       | SEROTYPE  |
| amager<br>anatum<br>bareilly<br>berta<br>binza                                    |    |     |        | 3            |       | 1  |    | 1  | 3       | 1           |      |     | 1  |    |    |       | 1           |             | 3<br>10 |        |      |     |      |     |      | 1    | 1   |     | 1 2 |      |     |      |        |      |     | 1<br>12<br>5<br>1<br>10  | 2<br>134<br>21<br>2<br>12  | amager<br>anatum<br>bareilly<br>berta<br>binza                                |
| blockley<br>bredeney<br>california<br>cerro<br>chester                            | 2  |     | 1      | 1<br>5<br>2  |       |    |    | 1  | 1       | 4           |      |     |    | 1  | 2  |       | 4           | 1           | 1       |        |      |     |      |     |      |      |     |     | 1   |      |     |      | 3<br>1 | 2    |     | 12<br>10<br>1<br>3<br>10 | 33<br>72<br>8<br>13<br>54  | blockley<br>bredeney<br>california<br>cerro<br>chester                        |
| cholerae-suis<br>var. kunzendorf<br>derby<br>dublin<br>durban<br>eastbourne       |    | 1   |        | 6            |       |    |    |    |         |             |      |     |    |    |    |       | 3           | 6           |         |        |      |     | 2    |     |      | 1    | 1   |     |     |      | 3   |      |        |      |     | 5<br>11<br>6<br>1<br>1   | 64<br>48<br>21<br>1<br>1   | cholerae-suis<br>var. kunzendorf<br>derby<br>dublin<br>durban<br>eastbourne   |
| enteritidis<br>gallinarum<br>give<br>heidelberg<br>indiana                        |    | 3   | 3      | 1<br>5       | 2     |    |    | 8  |         | 2           |      | 1   |    |    |    |       | 1           | 1           | 4       |        | 3    | 1   |      |     |      |      |     |     |     |      | 1   | 1    | 1      |      | 1   | 4<br>5<br>1<br>28<br>1   | 17<br>26<br>26<br>155<br>4 | enteritidis<br>gallinarum<br>give<br>heidelberg<br>indiana                    |
| infantis<br>inverness<br>javiana<br>kentucky<br>livingstone                       |    | 1   |        | 7            |       |    |    |    |         | 1           | 1    |     | 1  |    |    |       | 1           | 2           | 3       |        |      |     |      |     |      |      |     |     |     |      | 1   |      | 2      |      |     | 17<br>1<br>1<br>6<br>2   | 149<br>1<br>1<br>18<br>20  | infantis<br>inverness<br>javiana<br>kentucky<br>livingstone                   |
| manhattan<br>montevideo<br>muenchen<br>new-brunswick<br>newington                 |    |     | 1      | 1            | 2     | 1  |    | 19 | 6<br>14 |             | 2    |     |    |    |    |       | 1<br>7<br>3 | 1<br>3      |         |        |      |     |      |     |      |      | 1   |     |     | 1    |     |      |        | 1    |     | 1<br>33<br>18<br>7<br>5  | 9<br>94<br>45<br>8<br>25   | manhattan<br>montevideo<br>muenchen<br>new-brunswick<br>newington             |
| newport<br>oranienburg<br>panama<br>pullorum<br>reading                           | 1  |     | 82     | 1            | 3     |    |    | 1  | 5       | 2<br>4<br>3 | 2    | 1   |    |    |    |       | 1           | 1           | 2       | 2      |      | 1   |      |     | 1    |      | 1   |     | 1   |      | 1   | 1    |        |      |     | 3<br>8<br>2<br>26<br>6   | 60<br>23<br>9<br>91<br>13  | newport<br>oranienburg<br>panama<br>pullorum<br>reading                       |
| saint-paul<br>san-diego<br>schwarzengrund<br>senftenberg<br>tennessee             |    |     | 2      | 4<br>1<br>1  |       |    |    |    |         | 1<br>3<br>2 | 2    |     |    |    |    |       |             | 3<br>2<br>2 |         |        | 1    |     | 1    |     |      |      | 1   |     | 1   |      | 2 2 |      | 3      |      | 1   | 9<br>1<br>11<br>3<br>11  | 87<br>32<br>60<br>21<br>50 | sa int-paul<br>san-diego<br>schwarzengrund<br>senftenberg<br>tennessee        |
| thompson<br>typhi-suis<br>typhimurium<br>typhimurium<br>var. copenhagen<br>urbana | 2  |     | 3<br>9 | 1<br>1<br>24 | 1     | 1  |    | 3  |         | 2<br>13     | 2    |     | 1  | 3  | 2  |       | 4           | 24<br>2     | 1       | 3<br>1 |      |     |      |     |      | 2    | 1   | 1   | 4   |      |     | 2    | 2      | 1    |     | 7<br>1<br>92<br>23<br>1  | 31<br>1<br>409<br>113<br>2 | thompson<br>typhi<br>typhimurium<br>typhimurium<br>copenhagen<br>urbana       |
| worthington<br>untypable, Group B<br>untypable, Group C<br>untypable, Group E     |    |     |        | 1<br>1<br>1  |       |    |    | 1  |         | 8           | 1    |     |    |    |    |       |             | 5           | 1       |        |      |     |      |     |      |      |     |     |     |      | 3   |      |        |      | 1   | 20<br>1<br>1<br>1        | 53<br>3<br>1<br>1          | worthington<br>untypable, Group B<br>untypable, Group C<br>untypable, Group E |
| TOTAL   | 5  | 5   | 29     | 68           | 9     | 3  | :  | 34 | 29      | 46          | 12   | 2   | 3  | 4  | 4  | 3     | 30          | 56          | 31      | 6      | 4    | 2   | 3    |     | 1    | 4    | 6   | 1   | 11  | 1    | 13  | 4    | 12     | 5    | 3   | 446                      | 2,248                      | TOTAL   |

SOURCE: National Disease Laboratory, Ames, Jawa and Weekly Salmonella Surveillance Reports Received from California, Colorado, Connecticut, Illinois, Kansas, Lauisiana, Michigan, Mississippi, New Jersey, New York, Ohio, Oklahoma, Rhode Island, Texas, Virginia and Washington.

NOTE: Figures for California were reported as Colorado in the April Report due to a typographical error.

\* Includes late April Reports.

# TABLE VII

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# Fatalities Associated with the Isolation of <u>S</u>. <u>derby</u> During Hospitalization

|   | 2   | State        | Age and Sex of I | Patient | Other Diagnosis                         |
|---|-----|--------------|------------------|---------|---|
|   | 1.  | Pennsylvania | 80 M             |         | Chronic duodenal ulcer with obstruction |
|   | 2.  | Pennsylvania | 18 F             |         | Staphylococcal pneumonia                |
|   | 3.  | Pennsylvania | 64 M             |         | Diabetes mellitus                       |
|   | 4.  | Pennsylvania | 50 F             |         | Ulcerative Colitis                      |
|   | 5.  | Pennsylvania | 56 F             |         | Melanoblastoma                          |
|   | 6.  | Pennsylvania | 74 F             |         | Ulcerative Colitis                      |
|   | 7.  | Pennsylvania | 78 F             |         | Hypertensive cardiovascular disease     |
|   | 8.  | Pennsylvania | 81 M             |         | Fractured hip                           |
|   | 9.  | Pennsylvania | 53 M             |         | GI Surgery                              |
| 1 | .0  | Pennsylvania | 69 M             |         | Carcinoma bladder                       |
| 1 | 11. | Pennsylvania | 9 M              |         | Myeloblastoma                           |
| 1 | .2. | Pennsylvania | 63 M             |         | Pulmonary carcinoma                     |
| 1 | .3. | Pennsylvania | F                |         | Fractured hip                           |
| 1 | 14. | Pennsylvania | 74 F             |         | Renal failure, hepatic failure          |
| 1 | 15. | New York     | 30 F             |         | Hodgkins Disease                        |
| ] | 16. | New York     | 59 M             |         | Carcinoma bladder                       |

or employees during the period in question. Since the early symptomatic cases in each hospital appeared sporatically over a 2-3 week period, it has been suggested that the common source factor was perhaps introduced into the hospital environment intermittently. Further, since the early symptomatic cases were confined almost exclusively to a highly susceptible patient population (antecedent gastrointestinal disease, 43 per cent, and malignancy, 25 per cent), it has been suggested that <u>S</u>. <u>derby</u> was introduced into the environment in low dosage.

Thus, the investigation has attempted to uncover a source common to the hospitalized patients, that may have been introduced intermittently and/or in low dosage.

Analysis of case records and interviews of patients who acquired <u>S. derby</u> infection within hospitals has revealed that eggs, raw or soft cooked, were consumed by more patients than any other single food item or medication within the 48 hours prior to onset of illness. In addition, there is evidence to suggest that patients who developed <u>S. derby</u> gastroenteritis were more likely to consume raw or soft cooked eggs than the total hospital population at risk.

Following this lead, possible egg sources of 13 involved hospitals in three States were defined. It was learned that perhaps 12,000 poultry farms possibly supplied one or more of the involved hospitals. However, eggs from only a small number of these farms, located in two limited geographic areas, could have reached all of the hospitals studied. A sampling of eggs, pooled chicken droppings, and poultry feeds from representative farms in one of these areas was completed June 19. Cultures of the samples completed to date reveal the presence of <u>S. derby</u> in 3 of 48 slurries (15 whole eggs per slurry) of cracked or Grade B eggs, in 1 of 39 feed samples, and in none of 2000 swabs of pooled chicken droppings. Interpretation of these results must necessarily await completion of all cultures, and similar examination of "control" farms that have served hospitals not involved in the current outbreak.

In last month's report (Number 13), two "community-acquired" cases of <u>S</u>. <u>derby</u> gastroenteritis were reported from Philadelphia, which were traced to contaminated turkey rolls. Environmental examination of each of three turkey roll processing plants in the Philadelphia area revealed the presence of <u>S</u>. <u>derby</u> in each. It is interesting that in at least one of the plants, <u>S</u>. <u>derby</u> was the only salmonella organism recovered. As yet, there is no convincing evidence to link turkey or turkey rolls to the current hospital-associated epidemic.

<u>Further Investigations</u>: Epidemiologic investigation is continuing pursuant to the plan outlined in Salmonella Surveillance Report No. 13.

## B. <u>Salmonella</u> javiana Alert

The Salmonella Surveillance Unit has noted an increased number of <u>S. javiana</u> isolations during April and May, 1963, primarily in children in the Southeastern United States. The number of recoveries

of this serotype as reported since January, 1963 are:

| Florida119 children, 1Georgia71 unknownLouisiana129 children, 3North Carolina1UnknownTennessee51 Child, 3 aduTexas71 Child, 6 unk |         |
|---|---------|
| Georgia7ChildrenLouisiana129 children, 3North Carolina1UnknownTennessee51 Child, 3 aduTexas71 Child, 6 unkOtherChildren1          | adult,  |
| Louisiana 12 9 children, 3<br>North Carolina 1 Unknown<br>Tennessee 5 1 Child, 3 adu<br>1 unknown<br>Texas 7 1 Child, 6 unk       |         |
| North Carolina 1 Unknown<br>Tennessee 5 1 Child, 3 adu<br>1 unknown<br>Texas 7 1 Child, 6 unk                                     | unknown |
| Tennessee51 Child, 3 adu<br>1 unknownTexas71 Child, 6 unkOtherChild1  |         |
| Texas 7 1 Child, 6 unk  | ilts,   |
| Other Coldformic 1 Child  | nown    |
| other California I Child  |         |
| Connecticut 1 Child   |         |
| Illinois 1 Unknown  |         |
| Michigan 1 Unknown  |         |
| Rhode Island 1 Adult  |         |
| Total Children (under 12)   | 30      |
| Adults (over 20)  | 5       |
| Unknown   | +9      |

<u>S. javiana</u> isolations have been reported during April and May with a frequency which is considerably higher than would be expected, based on past Salmonella Surveillance experience. In addition, since children are primarily affected, it is suggested that all isolations of <u>S. javiana</u> be investigated in an attempt to determine the source of these infections. The numbers of <u>S. javiana</u> isolations reported from the fifty States since January 1, are as follows:

| Month    | Number of S. | javiana | <u>isolates</u> | Per Cent of Monthly<br>Total |
|----------|--------------|---------|-----------------|------------------------------|
| January  |              | 2       |                 | 0.18                         |
| February |              | 3       |                 | 0.28                         |
| March    |              | 7       |                 | 0.75                         |
| April    |              | 12      |                 | 0.90                         |
| May      |              | 20      |                 | 1.15                         |

#### IV. REPORTS FROM STATES

## A. California

Preliminary report of an outbreak of <u>Salmonella newport</u> gastroenteritis following a mother-daughter banquet. Dr. I. D. Litwack, Health Officer, City of Long Beach, Dr. M. H. Merrill, Director, State Department of Public Health and Dr. H. L. Bodily, Director of Laboratories, State Department of Public Health, Berkeley, California.

Approximately ten per cent of 300 guests at a mother-daughter church banquet in Long Beach developed febrile gastroenteritis 12-24 hours following a meal served May 10, 1963. Eight patients were sufficiently ill to require hospitalization.

The menu included turkey, dressing, potato salad, tuna spread and pumpkin pie. At present no convincing epidemiological data is available to incriminate a single menu item as the common vehicle of infection. Thus far, <u>S. newport</u> has been isolated from 21 of those who became ill. Results of further epidemiologic investigation are not yet available.

## B. Connecticut

Report of investigation of an unusual cluster of infections due to <u>Salmonella blockley</u>. Dr. Mila E. Rindge, Chief, Epidemiology Section, Connecticut State Department of Health.

During April, the Connecticut State Department of Health received notification of the isolation of <u>S</u>. <u>blockley</u> from 4 patients in two small communities. Since these recoveries were the first of this serotype this year, a field investigation was undertaken to attempt to link the cases to a common factor.

Three of the isolations were from symptomatic infants, and one was from an asymptomatic adult, the mother of one of the children. Two of these were cousins and shared a common dwelling at the presumed time of infection. The third infant was unrelated to the others and no possible contact between them could be uncovered.

An extensive review of dietary habits, food items consumed, sources of food, prior hospitalizations, water supplies, and waste disposal facilities revealed no factor common to all four cases.

## Editor's Comment:

This "negative" report is included as an example of the possible frustration encountered following a thorough field investigation of a cluster of isolates that at the outset appear to offer chance of linking the patients involved. However, the increasing number of reports submitted to the Salmonella Surveillance Section that define common source foods or carriers are testimonial to the value of thorough investigations such as that reported above.

# C. Kansas

Foodborne outbreak of <u>Salmonella oranienburg</u> gastroenteritis with presumed person-to-person spread of secondary cases. Dr. Rosemary B. Harvey, Wichita-Sedgwick County Department of Public Health and Dr. Donald Wilcox, State Epidemiologist, Kansas State Board of Health.

On March 31, 4 adults and one child, members of a Sedgwick County, Kansas family went on a day's outing. The adults consumed barbeque chicken, cheese spread, cocoanut cream pie, weiners, cookies, beans and mustard taken from their home. Within 48 hours of their return, the 4 adults suffered severe gastrointestinal symptoms. Three of the adults noted associated fever and chills. The child did not become ill until 5 days after the outing. However, the onset of his illness followed by 24 hours that of his grandmother, whose home he had visited one day previously. The grandmother had not attended the outing, but had visited the home of 2 of the adults who were ill earlier. She had not eaten during this visit.

During the ensuing 9 days, 5 additional individuals contracted febrile gastroenteritis, in each instance following contact with one or more of the above patients who were experiencing acute illness at the time of contact. Only one of these secondary cases is reported to have ingested food at the home of the acutely ill individual visited.

In total, there were 10 cases of febrile gastroenteritis consistent with salmonellosis. Stool cultures were obtained from all of these. <u>Salmonella oranienburg</u> was isolated from five (4 index cases and 1 secondary case). In addition, <u>S. typhimurium</u> was recovered from the stools of an asymptomatic patient contact. None of the food, presumed responsible for the initial cases was available for culture. Because of the lack of known food ingestion at the time of contact between index and secondary cases, the local health department has concluded that the secondary cases resulted from person-to-person spread.

#### D. Massachusetts

Preliminary report of <u>Salmonella heidelberg</u> induced illness in the North Shore Area of Massachusetts. Dr. Joseph P. Reardon, Epidemiologist and Dr. Robert A. MacCready, Director, Division of Diagnostic Laboratories, Massachusetts Department of Public Health.

During May, the Massachusetts Department of Public Health received reports of salmonellosis due to <u>S</u>. <u>heidelberg</u> among 17 children, 2 to 12 years of age, from the North Shore area of the State. All 17 children required hospitalization. Blood cultures obtained from 5 grew <u>S</u>. <u>heidelberg</u>. Early reports indicated that an unspecified number of additional cases appeared in the same area. Preliminary field investigation has indicated that the involved families may have all shared a common local bakery, which is currently the subject of intensive study.

## Editor's Comment:

The authors suggest an unusual virulence of the particular strain of <u>S. heidelberg</u> involved in this outbreak because of the high incidence of septicemia in hospitalized cases. In addition, this outbreak is reminiscent of a similar occurrence reported from Massachusetts in Salmonella Surveillance Report Number 6 (October 29, 1962), in which <u>S. heidelberg</u> was recovered from members of 12 families who consumed eclairs prepared with frozen eggs shown to have contained the same organism.

Outbreak of Gastroenteritis due to <u>Salmonella muenchen</u> in a general hospital. Dr. S. Groton and Dr. R. A. MacCready, Massachusetts Department of Public Health.

Febrile gastrointestinal illness appeared abruptly, Tuesday evening, May 7, among patients on two wards of a 634 bed general hospital in Massachusetts. A total of 18 cases occurred, all with onset within a 48-hour period, indicating a common source of infection.

Investigation revealed that all patients were elderly men or women confined to two wards reserved for convalescent diabetic or cardiac patients. The census on the two wards at the time of the outbreak was 96 patients, resulting in an attack rate of 18.7 per cent. None of the hospital's remaining wards (538 patients) reported gastrointestinal illness during the same period.

Epidemiological investigation was hampered by the inability of many of the severely ill patients to give adequate food histories. However, prepared with raw eggs stood out as the most likely food item consumed in common by the affected patients. It was learned that egg nog was also served on the wards without cases; however, eggnogs were prepared in gallon batches and sent individually to the wards. Thus, were only 2 batches contaminated, the presence of cases in only two wards where eggnog was consumed is explanable. Though none of the suspect eggnog was available for culture, the local health department recommended pasteurization of all eggnogs prepared in the future.

#### E. Michigan

Infant diarrhea presumably acquired from Easter chicks shedding <u>Salmonella chester</u>. Dr. D. B. Cochon, Division of Epidemiology, Michigan Department of Health.

A three-month-old male, one of seven siblings, living in the Detroit area, developed profuse diarrhea April 27 which continued intermittently for at least 3 weeks, eventually necessitating hospitalization. <u>Salmonella chester</u> was recovered from the stools of the infant early in the course of his illness.

Epidemiological investigation revealed no illness in siblings or other members of the family. The patient's grandmother had obtained 2 baby chicks for her grandchildren just prior to Easter. Apparently the patient had had intimate contact with the two chicks. Droppings

# Editor's Comment:

This report again emphasizes the potential dangers inherent in the purchase of chicks as household pets, reported by Dr. John E. McCroan and Mr. Thomas W. McKinley, Georgia Department of Public Health (Salmonella Surveillance Report Number 2, June 25, 1962), and A. S. Anderson (Salmonellosis due to <u>Salmonella typhimuriuu</u> with Easter chicks as likely source, Anderson, A. S., Bauer, H., and Nelson, C. B., in J. <u>Amer. Med. Ass.</u>, 158: 1153-1155, 1955).

## F. Minnesota

Follow-up of an epidemic of <u>Salmonella saint paul</u> infections in a convalescent home in Minneapolis. Dr. Karl R. Lundeberg, Commissioner of Health, Dr. F. G. Gunlaugson, Director of Preventable Diseases, Mze. Mildred Moe, Public Health Nurse, Minneapolis, and Dr. S. P. Gotoff, EIS Officer.

An epidemic of gastroenteritis associated with <u>Salmonella saint paul</u> was described in Salmonella Surveillance Report Number 11. During the subsequent three months, the entire convalescent home population was cultured bimonthly and anti- 0 and anti- H antibody titers determined by routine agglutination and hemagglutination tests.

During a seven week period, fifteen patients had symptoms of gastroenteritis. Nine of 13 cultured harbored S. saint paul. Three of seven symptomatic patients with positive cultures had significant anti- 0 and anti- H antibodies to S. saint paul, and two more with negative cultures had serologic evidence of infection. An additional 36 patients had S. saint paul isolated from stool cultures taken during the month following the epidemic. Two of 41 employees cultured had positive cultures and ten others had anti- 0 or anti- H titers of 1:40 or greater which may indicate recent infection. Only one employee was symptomatic, the morbidity of the patients with positive cultures was only 20 per cent. Five more patients had serologic evidence of infection but negative cultures. In general, the antibody response to S. saint paul infection with or without symptoms was quite poor, confirming previous investigations of antibody response in salmonella cutbreaks.

Thirty-five per cent of the 20 carriers treated with oral colistin continued to excrete salmonellae after treatment. Disappearance of the pathogen from stools correlated with high fecal concentrations of colistin. Overall there was a gradual decline in the carrier rate for these 20 carriers, and on May 22 only four patients continued to excrete salmonella (9 per cent at 3 months).

None of the patients admitted to the home after the symptomatic period had clinical, bacteriological or serological evidence of infection although they were continually exposed to carriers. Air samples were negative. It is evident that spread took place only during the period when patients were symptomatic and that the symptomless, nonfoodhandling carrier perhaps played little role in this epidemic.

## G. Nebraska

Unusually severe gastroenteritis due to <u>Salmonella typhimurium</u> in previously healthy enlisted Air Force Personnel. Dr. R. C. Eelkema, EIS Officer, Lt. Ryland Edwards, Offutt Air Force Base, and Captain William Hillis, 6570th Epidemiology Laboratory, Lackland Air Force Base, Texas.

Nineteen culturally proved cases of <u>S. typhimurium</u> gastroenteritis occurred among Air Force enlisted men at Offutt Air Force Base, Nebraska, from April 4 to April 19. Fifteen of the patients (79 per cent) were sufficiently ill to require hospitalization. Perhaps as many as 30 additional men experienced diarrheal illness during this period. Many of these were confined to their barracks for a variable period of time. If one includes the additional 30 cases, the percentage hospitalized is 30.6, still an unusually high figure for a gastroenteritis outbreak of this sort (1).

Epidemiological investigation revealed that all culturally proved cases were among enlisted men eating at a common dining hall that normally serves 1600 men daily. Those who became ill had eaten only beef, turkey and/or eggs and egg salad in common. Rectal swabs and repeated stool cultures of 46 food handlers revealed one persistent carrier of <u>S. typhimurium</u>. Cultures of work tables, gravy tray, milk dispenser, mayonnaise, cutting boards, and raw egg products failed to uncover salmonellae.

Further investigation failed to define a common food source. The role of the asymptomatic food-handler in the epidemic remains speculative.

## Editor's Comment:

The relatively high hospitalization rate highlights the potentially dime consequence resultant from simultaneous incapacitation of large numbers of previously well, functional adults, particularly in operations vital to national defense (Offutt Air Force Base is an arm of the Strategic Air Command).

 Sanders, E., et al., Public Health Implications of an Outbreak of <u>S. typhimurium</u> gastroenteritis in Wichita, Kansas, <u>J. Kansas</u> <u>State Med. Soc.</u>, in press.

Typhoid-like illness among siblings due to <u>Salmonella</u> <u>typhimurium</u>. Mr. H. E. McConnell, Director, Division of State Laboratories and Dr. R. C. Eelkema, EIS Officer, Nebraska.

Four siblings, age 7 years, 5 years, 2 years, and 5 months, developed gastroenteritis and fever (103 - 105°) April 28-29, 1963, in Lincoln, Nebraska. Trial of penicillin and empirical diarrhea-therapy did not

During hospitalization, the youngest child had an evanescent macular rash over proximal extremities. One sibling, age 2, developed a 1/160 <u>S. typhosa</u> 0 agglutination titre May 8, though the remaining siblings had negative titres. Two siblings exhibited leukopenia and relative lymphocytosis upon admission. All had 2-10 per cent atypical lymphocytes in peripheral blood smears. One child, age 4, was noted to have a bradycardia on admission. No pneumonia, lymphadenopathy, or splenomegaly was noted in the siblings. Duration of fever and diarrhea was approximately 13 days, and 15 days respectfully for each child. Stool cultures obtained from 3 of the siblings yielded an organism that agglutinated polyvalent salmonella antiserum. Typhoid fever was suspected; however, the State Laboratory identified each of the organisms recovered as <u>Salmonella typhimurium</u>.

Epidemiologic investigation has not indicated a common source of this infection.

## Editor's Comment:

Many references have been made to the occasional instances of typhoid-like illness, produced by salmonella organisms other than <u>S. typhosa</u>. The above well documented cases of prolonged gastroenteritis, fever, and a peripheral leucocyte examination consistent with typhoid fever, again emphasize the need for further defining those characteristics of both organism and host that determine the type of clinical illness that results from infection.

#### H. New Jersey

Widespread outbreak of gastrodntestinal illness traceable to pork sandwiches contaminated with <u>Salmonella heidelberg</u>. Mr. Robert Genduso, Health Officer, West New York, New Jersey.

Beginning Sunday evening, May 12, State and local health officials in Northern New Jersey received phone call reports of febrile gastrointestinal illness among residents of the region. Reports eminated from police, private physicians, patients, and local hospitals. One county hospital admitted 11 patients and prescribed treatment for an additional 36 out-patients in a 24-hour period. Four additional hospitals in the area reported admitting patients with similar illness. The West New York Health Department immediately launched an investigation.

Approximately 100 patients predominantly of Cuban extraction, were found to have developed acute abdominal pain, non-bloody diarrhea, vomiting, and fevers of  $101^{\circ} - 104^{\circ}$ F, within 10-14 hours of ingesting pork sandwiches at a local sandwich shop. The shop was promptly closed and samples of food on hand were obtained for culture.

Inspection of the shop revealed it to be a small concern with a very limited menu. The staff consisted of a proprietor and two employees. The pork sandwiches were prepared from six "split" and one whole pig.

The pork was barbequed using a sauce containing lemon, oregano, garlic and cumino. The sauce was added both before and after cooking. The pork was then allowed to cool sufficiently to handle and was chopped on a pine cutting board. Between 2 and 3 hours elapsed between cutting and refrigeration of the pork. On order, the pork was then warmed with a roll on a grill.

The chopping board was shown to contain crevices with imbedded old and decomposing food residues. No handwashing facilities were provided for employees apart from a single sink used for dishwashing and food preparation. There was no evidence of rodent or insect infestation.

Results of bacteriological examinations revealed that <u>Salmonella</u> <u>heidelberg</u> was isolated from approximately 70 patients, the sample of pork samdwich, the cutting board, the proprietor of the shop and one of the two employees. The sandwich shop remained closed until specific, corrective sanitary procedures were instituted by the proprietor and until he and his employee were free of <u>S. heidelberg</u>.

The health department concluded that the oubreak was spread through barbequed pork, probably contaminated while being chopped on an unclean cutting board. The original source of introduction of the organism into the shop was held speculative. Two alternatives seemed likely: (1) an asymptomatic carrier, either the proprietor or his employee, or (2) contaminated raw pork.

## I. New York

Increase in Salmonella isolations in a New York Veteran's Hospital. Dr. Robert Albrecht, Director, Office Epidemiology, New York State Health Department and Virginia D. Hines, Nurse Office, Communicable Disease Center.

An unusual cluster of salmonella infections in a Veteran's Hospital in upstate New York came to the attention of the Communicable Disease Center through the salmonella surveillance reporting mechanism. The usual occurrence of salmonellosis in this hospital is from three to five cases per year; however, over a two-month period, January 2 to March 12, 1963, salmonellae were isolated from the stools of seven patients. Four of these isolates were of one serotype, <u>Salmonella enteritidis</u>. The other isolations were <u>Salmonella</u> <u>montevideo</u>, and <u>Salmorella typhimurium</u>.

This hospital has a bed capacity of approximately 1,000 patients with a working census of 900 patients. During the months preceding the study, the daily census averaged 850 patients. There are six floors, each with four wings plus one wing of an additional floor utilized for patient care.

During the month of February <u>Salmonella enteritidis</u> was isolated from the stool cultures of four hospitalized patients. These were confirmed by the New York State Department of Health Laboratory (See Table VIII). Investigations into the activities of these patients, such as in the x-ray or physical therapy departments, lunchroom, etc., failed to reveal a common source for the infection or to give any evidence of patient-to-patient spread. All were on special diets, but food used for special diets was the same as food used for general diets. During the period February 17, through February 21, 80 patients were served the same special diets. It could not be ascertained that any of these patients had supplementary feedings or that food was brought to the patients from an outside source. Powdered eggs and commercial cake mixes, which have often been incriminated in salmonella infections, are not used in this hospital. No special group of dietary workers were responsible for the preparation of certain foods. Food is served by the personnel on each respective ward.

A careful review of medications and treatment did not reveal any common factor. All were on bed rest or confined to their rooms; therefore, person-to-person spread by the infected patients was not likely.

No similar illness was reported among other patients or staff during this period. There was no indications that an infected hospital employee was common to any of the patients.

> Outbreak of <u>Salmonella newport</u> induced gastroenteritis in two families following a lasagna meal. Dr. Robert M. Albrecht, Director, Office of Epidemiology, New York State Department of Health.

Six members of one family and five members of another, developed severe, febrile gastroenteritis 12-36 hours after eating lasagna on April 13 at the home of one of the families. Four of the 11 who became ill required hospitalization for four days each. The lasagna was prepared from Ricotti cheese, eggs, meat balls, tomato paste, parsley, salt, pepper, and grated parmesan cheese. The food was prepared on April 12 and heated in the oven for 20 minutes. It was then cooled at room temperature for one hour before being placed in the freezer. On April 13, it was thawed and reheated for one hour. Cultures of stools of several patients and from the lasagna grew <u>Salmonella newport</u>. There is no indication which, if any, of the ingredients introduced the organism into the lasagna.

J. <u>Texas</u>

Recurring outbreaks of Salmonellosis due to <u>Salmonella</u> <u>braenderup</u> in a restaurant specializing in barbeque. Dr. J. M. Pickard, Director, Dallas County Health Department and Dr. Van Tipton, Director, Communicable Disease Division, State of Texas Department of Health.

Following consumption of barbequed beef (May 24, 1962), purchased at a well known food establishment specializing in barbeque, the son of a physician suffered a moderately severe attack of gastroenteritis. A stool specimen on this patient yielded <u>S. braenderup</u>, as did portions of the barbeque still retained by the family. This was

## Table VIII

# Analysis of Cases of <u>S. enteritidis</u> gastroenteritis in New York State Hospital - February, 1962

| Name | Age | Sex | Ward | Diagnosis                         | Onset<br>Diarrhea | Date Specimens<br>Submitted to<br>Laboratory | to<br>Diarrhea |
|------|-----|-----|------|-----------------------------------|-------------------|--|----------------|
| D.A. | 68  | М   | 5 D  | Acute Thrombophlebitis            | 2-13-63           | 2-22-63                                      | Ward           |
| A.P. | 70  | M   | 7 D  | Introchanteric Fracture           | 2-22-63           | 2-25-63                                      | Soft<br>Dental |
| L.D. | 63  | M   | 8 A  | Partial Intestinal<br>Obstruction | 2-21-63           | 3-1-63                                       | Ulcer          |
| C.D. | 70  | M   | 5 D  | Partial Intestinal<br>Obstruction | 2-22-63           | 3-12-63                                      | Low<br>Residue |

reported to the Dallas County Health Department who made a thorough sanitary inspection of the establishment and corrected a number of the deficiencies. Stool specimens examined from all food-handlers revealed one carrier. He was removed from food-handling duties and was treated by his private physician.

The private physician declared the above mentioned food-handler no longer to be a carrier and he was permitted to resume food-handling duties on July 18. On this date the Health Department collected a repeat stool specimen which subsequently was reported as positive for <u>S</u>. <u>braenderup</u>. Prior to knowledge of the results of the second culture, a second case was traced to this establishment, the patient being an adult male who purchased barbeque on the evening of July 18. His stool and remnants of barbeque both yielded <u>S</u>. <u>braenderup</u>. Additionally, a stool culture from another employee in this establishment was positive for <u>S</u>. <u>braenderup</u>.

No further cases were reported to the Health Department until the first of August; three families who had eaten barbequed beef from this establishment on July 29 became ill on July 30. The attending physician of one family did not feel that they were suffering from salmonellosis; consequently, no cultures were made on this family. However, 8 members of the other two families were confirmed as cases of salmonellosis due to <u>S</u>. <u>braenderup</u>. The following day an additional case was reported and yielded <u>S</u>. <u>braenderup</u> as did two siblings who were not ill.

Following this episode, all workers of the establishment were again cultured and 6 were found to be carriers of <u>S</u>. <u>braenderup</u>. Only two of these workers admitted having diarrhea at any time. The General Manager of this chain of restaurants employed a consultant who performed antibiotic sensitivity tests on all salmonella isolates from their stools, and a private physician treated all of these cases beginning about October 8, 1962. All became negative as thereafter, no further isolations of <u>S</u>. <u>braenderup</u> have been made, except for one patient who became ill following the consumption of barbequed beef there in the latter part of July.

As stated above, a number of sanitary deficiencies were noted upon first sanitary inspection of this establishment. One was the sanitarizing of the cutting block at night with no further treatment prior to resumption of use the following day. If mice were involved in the transmission of <u>S</u>. <u>braenderup</u>, they had ample opportunity to contaminate the cutting block between closing hours of evening and opening the following day.

Foods served include barbequed beef, barbequed chicken, barbequed sausage, and potato salad. Cultures of the uncooked barbequed beef were repeatedly negative for salmonella. The chicken, which is received as ready-to-cook halves, unfrozen, was not cultured. The sausage is cooked prior to delivery to the establishment. One likely source of introduction of salmonella not investigated was the chicken which, in all probability, could easily have contaminated the cutting block where barbequed beef was cut as ordered by individual customers. No frozen eggs are used in the establishment. The only food common to all cases was barbequed beef. One interesting possible source investigated was the fact that the first carrier found in the investigation had two pet monkeys at home. Unfortunately, these pet monkeys were killed in August, 1962 and were not available for culturing when the State Health Department first became aware of the situation. During the month of September and after the last reported case attributable to this food establishment, mouse droppings from the food serving area yielded <u>S</u>, <u>braenderup</u>. It is not known whether the mouse was an innocent victim or was a possible source of any of these cases.

In January, 1963, food-handlers and other employees in this establishment were found to be carriers of <u>S</u>. <u>anatum</u>, On January 19, 1963, customers of this establishment and one other of its clain for whom the establishment provides barbequed foods, were involved in three family outbreaks involving some 9 cases. No further reports are available on these outbreaks.

> Analysis of recoveries of <u>Salmonella saphra</u> in Texas, 1961, to the present. Dr. Van C. Tipton, Director, Communicable Disease Division, State of Texas Department of Health.

The first human isolation of <u>Salmonella saphra</u> (1) reported to the Communicable Disease Center was included in Salmonella Surveillance Report Number 12 (March, 1963). The organism was recovered from the stools of a 9-month-old Texas girl in February, 1963. Because of the infrequency of recoveries of <u>S. saphra</u>, Dr. Tipton reviewed the history of 4 additional human isolations of <u>S. saphra</u> during the past three years in the Texas Department of Health.

Data on the 5 isolations of <u>S</u>. <u>saphra</u> from Texas is presented in Table IX. Certain epidemiological features of these cases, representing the only human isolations reported to the Communicable Disease Center, are striking. All cases were white infants, under age 1. Four of the 5 originated in Harris County (Houston area) and the fifth originated from a nearby county (Jefferson). Four of the 5 cases were sufficiently ill to require hospitalization. Only limited epidemiological data was available, thus no explanation is readily available to explain the appearance of this extremely rare serotype in 5 white infants in a very limited geographic area.

 Post-humously named for Dr. Saphra who contributed widely to the knowledge of epidemiology and bacteriology of salmonellosis.

#### V. INTERNATIONAL

#### A. Great Britain

Report of an outbreak of typhoid fever in Harlow, Great Britain. Abstracted from the <u>London Times</u> and <u>Manchester Guardian</u>, June 5-13.

During early June, 18 bacteriologically confirmed and one suspect case of typhoid fever occurred in Harlow, Great Britain. Epidemiological investigation has thus far shown that the cases

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involve eight families, living in the region of a main shopping center. The limited nature of the outbreak has been thought to rule out water or contaminated milk as vehicles of infection. None of the families had any recent personal contact with one another, and no link with known cases related to the Zermatt, Switzerland outbreak has been uncovered. All families involved use the main shopping center for food purchases. An initial stool culture survey of 294 employees at the center failed to uncover a typhoid carrier.

More recent information indicates that seven of the eight families consumed "tinned" (canned) corn beef from South America. The remaining family had cooked meat that could have been sliced by the same cutting knife as that used for the suspect canned beef. Results of bacteriologic examination of the beef have not been completed as of this date.

Another typhoid fever outbreak has been reported in the London Times, concerning 17 cases in South Shields County, Durham. Three of these cases are suspect. Medical teams are conducting investigations to identify the source which is felt to be common to all of these patients.

# TABLE IX

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# Summary of Human Isolations of Salmonella saphra in Texas, 1961 to Present

| Patient | Age       | Sex | Race | Location            | Date Onset        | Hospitalized | Comments   |
|---------|-----------|-----|------|---------------------|-------------------|--------------|--|
| 1       | 7 Months  | м   | W    | Harris County       | 10-23-61          | +            | Duration illness at least 12 days  |
| 2       | 4 Months  | F   | W    | Harris County       | 8-12-62           | +            | Duration unknown. Ten of 30 contacts<br>were cultured and found free of<br>salmonellae.  |
| 3       | 11 Months | м   | W    | Harris County       | 9-12-62           | +            | Had contact with a visiting African<br>missionary who had been plagued with<br>salmonellosis (type unknown) during<br>his stay in Africa. He was not<br>available for culture. |
| 4       | 5 Months  | М   | W    | Harris County       | 11 <b>-</b> 12-62 | +            | Possibly hospital acquired, though<br>little epidemiclogical data is<br>available.   |
| 5       | 9 Months  | F   | W    | Jefferson<br>County | 5-19-63           | 0            | Contacts culture negative.   |

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