NOTES AND REPORTS

NOTES ET RAPPORTS

The most recent study published by the World Health Organization on typhoid and paratyphoid fever morbidity and mortality figures dates from December 1950.¹ The 1950 information available at that time was very incomplete and it seemed desirable to examine the data again in the present article, together with those for subsequent years.

The difficulties encountered in any attempt to compare the frequency of diseases in two different periods or in two different countries are well known. When making the comparison between different periods in the same country, it is not really the actual frequency of a disease or cause of death which is being compared but the frequency with which a particular term is used to describe a pathological condition by observers whose facilities for diagnosis or even whose medical training and outlook may have varied during the period in question.² The official data are even less suitable for comparison between countries.

As far as mortality statistics are concerned it is difficult not to agree with Pearl 3 when he writes:

"There is ever present in vital statistics, and from the beginning always has been, an attempt to make the incidence of mortality a measure or index of the incidence of morbidity. Mortality is not, and never can be, a good index of morbidity, generally speaking. What actually is done is to weaken and impair the value of the statistics for the study of mortality in the hope to make them a little better indices of morbidity."

The number of cases registered by national administrations represent only a variable fraction of the actual cases, the total number of which cannot be assessed. There are a number of reasons for this variability, some of the most important being: social and economic conditions; number of practising physicians; degree of co-operation with the health authorities on the part of the medical profession; the attitude of the public to the disease in question; differences of opinion as to what constitutes an epidemic.⁴ It often happens, for example, that an apparent tendency to a rise in incidence is, in fact, attributable to more efficient registration of cases.

In this paper, a broad outline of typhoid and paratyphoid infections in the world from 1950 to 1954 is given, based on data collected by the WHO epidemiological and statistical services. The tables presented are by no means exhaustive and the countries have been grouped in wide geographical

^{*} Prepared by the Epidemiological and Morbidity Statistics Section, World Health Organization.

¹ See Epidem. Vital Statist. Rep., 1950, 3, 296-313

⁹ World Health Organization (1948) Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, Geneva, vol. 1

Pearl, R. (1930) Introduction to medical biometry and statistics, Philadelphia and London, 2nd ed., p. 103

⁴ World Health Organization (1951) Annual epidemiological and vital statistics, p. 8

areas, in an attempt rather to show the spots where the disease prevails than to give all the information available.⁵

In general, it can be said that the downward trend shown by the typhoid and paratyphoid fevers continued in a number of countries, during the period under review. These infections being closely related to the environmental conditions of the countries concerned, it is only natural to expect that those countries with a high proportion of urban populations and with good sanitation should show a small incidence of the disease. Occasionally, small outbreaks still occurred in these areas, usually produced by carriers which were survivors from the days when the infection was widely spread. On the other hand, countries with a predominantly rural population and with rather poor sanitation facilities showed a relatively high incidence of the disease.

Europe

Northern Europe. The negligible death-rates from typhoid and paratyphoid for the four countries in this area are immediately apparent (see Fig. 1) and except for Sweden, the number of cases during the period under review was consistently below the 1943-49 median. In these countries, incidence of paratyphoid was higher than that of typhoid.

In Central Europe, the death-rates were somewhat higher than in Northern Europe and only in the Federal Republic of Germany were the cases below the 1947-49 median.⁶ The same is true of typhoid in Austria, and in varying degrees paratyphoid infections also appeared to be more frequent than typhoid ones.

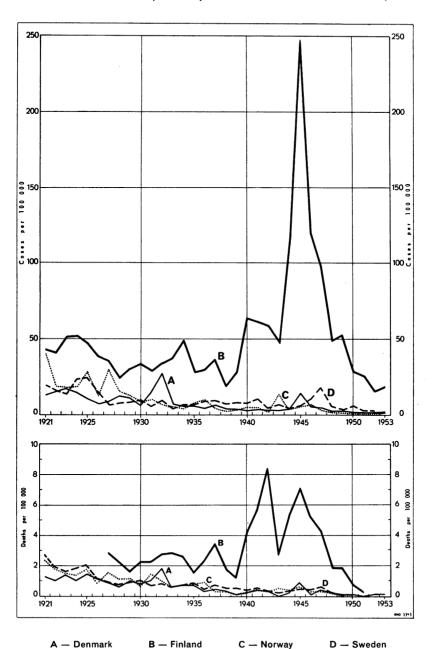
In Western Europe, England and Wales and Scotland showed the lowest death-rates. For all the countries in this region, the typhoid cases during the 1950-53 period were below the 1943-49 median. No separate data are available for France but, except for 1950, a remarkable drop in the number of typhoid and paratyphoid cases occurred in this country compared with the 1943-49 median. So far as paratyphoid is concerned, only the Netherlands showed figures below the median. Pre-eminence of paratyphoid over typhoid infections was noticeable in Scotland, the Netherlands, and England and Wales.

The highest death-rates of the continent were found in Southern Europe, and the difference in comparison with Northern Europe is particularly striking. However, for all the countries in this area, except for paratyphoid in Yugoslavia, the figures for the period reviewed were consistently below the 1943-49 median, and, also with the exception of Yugoslavia, a steady

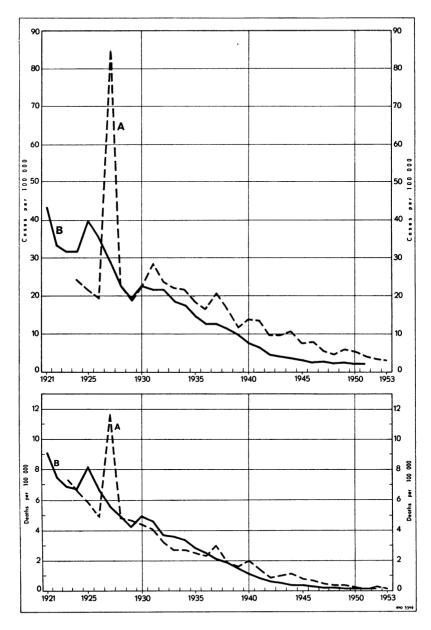
⁶ Those interested in more detailed information on cases of, and deaths from, typhoid and paratyphoid infections can refer to the Epidemiological and Vital Statistics Report and the Annual Epidemiological and Vital Statistics published monthly and annually, respectively, by WHO.

⁶ The recent epidemic in Germany is not covered by this report which deals only with the 1950-1954 period.

FIG. 1. ANNUAL INCIDENCE OF TYPHOID AND PARATYPHOID FEVERS:
NORTHERN EUROPE, 1921-53 (RATES PER 100 000 INHABITANTS)







 \mathbf{A} — Canada (excluding Yukon and North-West Territories. From 1950, including Newfoundland. Excluding Quebec Province in 1923)

B - USA (deaths: up to 1932, Deaths Registration Area)

downward trend for the four-year period was observed. In contrast to the other regions of Europe, typhoid infections appeared to be more prevalent by far than the paratyphoid ones.

America

For the countries for which data are presented, the USA and Canada showed the lowest (see Fig. 2), and Mexico the highest, death-rates of the American continent.

In Canada and the USA, the cases of typhoid fever reported between 1950 and 1953 were below the 1943-49 median. The reverse appears to be true—except for Canada in 1952—in so far as the reporting of paratyphoid cases is concerned. In Mexico and Canada, the typhoid cases outnumbered the paratyphoid ones, while in the USA in 1952 and 1953 about 1900 more cases of paratyphoid than of typhoid fever were reported.

For the Central American countries, no separate data are available and except for Costa Rica no decrease in the figures as compared with the median was seen. In the Caribbean area, with the exception of Haiti in 1952, Martinique in 1950, and the Dominican Republic, the figures were also consistently below the 1943-49 median.

In the rest of the continent, Ecuador, Peru, and Chile (Fig. 3) showed, for the period 1950-53, figures above the median. Perhaps this fact could be at least partially explained by better reporting.

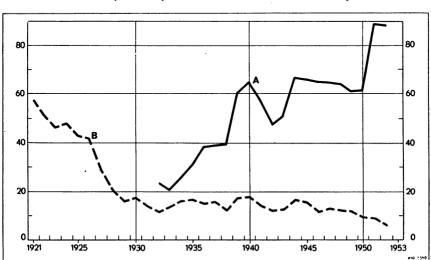


FIG. 3. ANNUAL INCIDENCE OF TYPHOID AND PARATYPHOID FEVERS:
CHILE, 1921-53 (RATES PER 100 000 INHABITANTS)

A - Cases per 100 000

B - Deaths per 100 000

Africa

Northern Africa. Except for Egypt, where the number of cases in 1953 doubled the 1943-49 median, the number of cases of typhoid and paratyphoid in the countries reported were below the median.

In the rest of the continent, with the exception of Madagascar and Mauritius, the cases reported were consistently above the median.

Asia

In Western Asia, except for Lebanon and Cyprus (excluding 1950) the countries listed showed an increase—in some cases quite important—as compared with the 1943-49 median.

FIG. 4. ANNUAL INCIDENCE OF TYPHOID AND PARATYPHOID FEVERS:
JAPAN, 1921-53 (RATES PER 100 000 INHABITANTS)

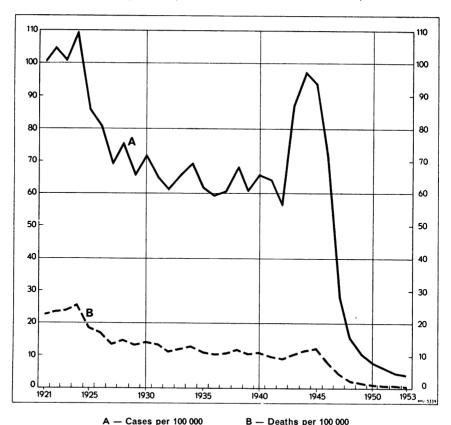
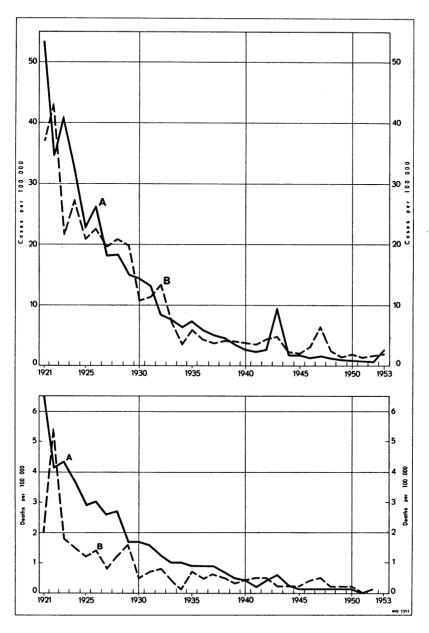


FIG. 5. ANNUAL INCIDENCE OF TYPHOID AND PARATYPHOID FEVERS: AUSTRALIA AND NEW ZEALAND, 1921-53 (RATES PER 100 000 INHABITANTS)



A — Australia (deaths : excluding full-blood aboriginals)

B — New Zealand (excluding Maoris)

In South-Eastern Asia, the situation appeared stationary in Ceylon, Federation of Malaya, and Singapore Colony. Sarawak and the Philippines (except for 1950) showed a decrease as compared with the median.

In Far-Eastern Asia, a remarkable drop in the number of cases for the 1950-54 period as compared with the 1943-49 median was seen in Japan (see Fig. 4). This fact could be linked to the mass vaccination campaign undertaken in that country. Of the other countries in the area, Hong Kong showed a sharp increase as compared with the median, while Formosa had figures consistently below it.

For all the countries in Asia for which data are presented, the typhoid cases considerably outnumbered the paratyphoid ones.

Oceania

Except perhaps for Western Samoa in which the number of typhoid cases was below the 1947-49 median, no definite trend could be seen in the countries listed in this area. Here also the number of typhoid cases outnumbered those of paratyphoid.

Conclusions

In so far as a conclusion may be drawn from such a large array of countries and territories under widely varying conditions, it would appear that in countries with a large urban population enjoying protected water-supplies, under a temperate climate, the prevalence of water-borne typhoid fever was very low and tending to zero; whereas food-borne paratyphoid infections, while generally decreasing, had not yet reached a negligible level.

In predominantly rural areas, under a temperate climate and in tropical countries and territories, typhoid fever prevalence remained high, and judging from the mortality data available, this infection was definitely more important as a public health problem than the paratyphoid fevers.

A. EUROPE

Country		Ca	ses	Deaths	Death rate
Country		Т	P	T&P	per 100 00
NORTHERN EUROPE					
Norway	. M. '43-49 1950 1951 1952 1953	38 11 15 10 17	72 12 3 12 24	1 - 2 1_	0.03 0.06
Sweden	. M. '43-49 1950 1951 1952 1953	81 31 20 18 10	306 360 140 129 *8 760	7 2 3	0.1 0.03 0.04
Finland	. M. '43-49 1950 1951 1952 1953	560 138 129 59 90	2 957 1 017 935 557 649	29 7 18	0.7 0.2 10.2
Denmark	. M. '43-49 1950 1951 1952 1953	42 17 18 15 31	98 42 51 40 35	3 2 3 6	0.07 0.05 0.07 0.1
CENTRAL EUROPE					
Germany (Federal Republic)	M. '47-49 1950 1951 1952 1953	12 152 5 472 4 086 3 355 3 628	6 125 5 428 5 114 3 790 3 545	548 295 204 217	1.1 0.6 0.4 0.4
Austria	M. '43-49 1950 1951 1952 1953	1 426 1 079 1 138 680 582	1 180 1 132 1 320 1 186 1 021	146 116 63 51	2.1 1.7 0.9 0.7
Switzerland	M. '43-49 1950 1951 1952 1953	81 71 84 74 90	123 176 90 108 159	12 4 7 11	0.3 0.08 0.1 0.2

A. EUROPE (continued)

Country		Cas	ses	Deaths	Death- rate
Country		Т	Р	T & P	per 100 000
WESTERN EUROPE					
	!	527 163 137 123 160	1 120 925 \$290 \$262 \$339	20 12 13 4	0.2 0.1 0.1 0.04
Belgium M. ' 1950 1951 1952 1953	!	454 318 318 356 235	262 187 267 317 157	68 25 18	0.8 0.3 0.2
France	:	5.5		²348 ²209 ²167 ²128	°0.8 °0.5 °0.4 °0.3
UNITED KINGDOM					
England and Wales • M. ¹ 1950 1951 1952 1953	:	311 236 206 135 101	373 293 1 095 1 039 353	16 21 21 5	0.04 0.05 0.05 0.01
Scotland •	:	53 25 12 13 34	77 39 124 80 64	- 1 3 3	 0.02 0.06 0.06
Northern Ireland M. ' 1950 1951 1952 1953		79 23 22 38 17	10 6 47 5 3	² 6 ² 11 ² 4 ² 4	² 0.4 ² 0.8 ² 0.3 ² 0.3
Ireland M. '- 1950 1951 1952 1953		223 83 46 47 44	16 24 15 14 10	10 4 2 4	0.3 0.1 0.07 0.1

A. EUROPE (continued)

Country		Ca	ases	Deaths	Death- rate
		Т	Р	T&P	per 100 000
SOUTHERN EUROPE					
Portugal (mainland)			674		
	1950 1951	4 199 3 005	213 211	360 203	4.6 2.6
	1952	2 500	188	¹142	¹1.8
	1953	2 635	135	¹120	¹1.5
Spain	M. '43-49	1	984		
	1950	1	238	1 180	4.2
	1951 1952	1	950 938		
	1953		384		
Italy	M. '43-49		6 894		
italy	1950	22 219	6 356	1 347	2.9
	1951	26 125	6 352	1 267	2.7
	1952	22 072	6 152	958	2.0
	1953	21 256	5 872		• • • •
Yugoslavia	M. '45-49	6 828	963		
	1950	4 583	966	262	1.6
	1951 1952	5 465 4 703	1 619 1 197	304 193	1.8 1.2
	1953	3 679	928		
Greece	M. '43-49	4	762		
	1950		559	69	0.9
	1951	ļ.	891	30	0.4
	1952 1953		949 455	57 7	0.7 0.1
	1900	3	400	,	0.1
	B. AN	IERICA			
NORTH AMERICA					i
Canada 5 🔘	M. '43-49	681	111		
	1950	536	182	24	0.2
	1951	437	122	15	0.1
	1952 1953	459	50 439	22 ²13	0.2 ²0.1
				10	0.1
USA ⊚	M. '43-49	3 268	731	444	0.00
	1950 1951	2 484 2 128	1 233 1 773	114 95	0.08 0.06
	1952	2 341	2 596	88	0.06
	1953	2 252	3 946		

B. AMERICA (continued)

	Cases	1	Death-
Country	ТР	Deaths T&P	rate per 100 000
MEXICO ◎ M. '43-49 1950 1951 1952 1953	8 178 5 071 921 5 901 878 5 334 852 6 030	2 4 439 2 5 080 2 4 570 2 4 409	² 17.2 ² 19.1 ² 16.8 ² 15.7
· CENTRAL AMERICA			
Guatemala ◎ M. '43-49 1950 1951 1952 1953	817 651 826 1 052 668	1 222 1 209 1 270 1 227	¹ 7.9 ¹ 7.2 ¹ 9.1 ¹ 7.4
Salvador (1950)	*284 *578 *1 362 *665	64 70 73	3.4 3.6 3.7
Nicaragua M. '43-49 1950 1951 1952 1953	219 232 394 616	142 157 111 115	13.5 14.4 9.8 9.9
Costa Rica M. '43-49 1950 1951 1952 1953	256 154 212 68 168	28 18 27 123	3.5 2.2 * 3.2 1 2.6
CARIBBEAN AMERICA			
Cuba M. '43-49 1950 1951 1952 1953	2 647 762 563 820 1 021		
Jamaica ③ M. '43-49 1950 1951 1952 1953	1 038 727 763 621 409	144 123 41	10.3 8.6 2.8

B. AMERICA (continued)

	С	ases	Dootho	Death-
Country	Т	Р	Deaths T & P	rate per 100 000
CARIBBEAN AMERICA (continued) Haiti		222 198 140 302	• 50 • 31 • 40 	* (1.6) * (1.0) * (1.3)
Dominican Republic ^(a) . M. '43-49 1950 1951 1952 1953			¹ 333 ¹ 380 ¹ 389	¹ 15.6 ¹ 17.4 ¹ 17.4
Puerto Rico ② M. '43-49 1950 1951 1952 1953	89 77 74	182 69 10 216 4	6 ² 11 	0.3 °0.5
Martinique M. '43-49 1950 1951 1952 1953	9 ,	294 449 180 109 78	10	* 3.4
SOUTH-WESTERN AMERICA				
Colombia	* 7 633 * 7 361 * 6 876 * 9 302	• 3 670 • 3 376 • 3 270	1 395 1 183 1 033 1 801	12.4 10.2 8.7 16.6
Ecuador ¹⁰ M. '45-49 1950 1951 1952 1953	2 (1 4 1 5	579 000 460 584 928	191 124 119	
Peru ◎ M. '43-49 1950 1951 1952 1953	2 5 3 2 3 5	292 551 290 574 200	792 813 844 	9.8 9.8 10.0

B. AMERICA (continued)

Country	Ca	ises	Deaths	Death- rate
Country	Т	Р	T&P	per 100 000
SOUTH-WESTERN AMERICA (cont.)				
Bolivia M. '43-49 1950 1951 1952 1953		599 486 520 879	¹ 76 ¹ 80 ¹ 121 ¹ 98	¹ 2.5 ¹ 2.6 ¹ 3.9 ¹ 3.1
Chile ◎ M. '43-49 1950 1951 1952 1953	3 5 5	499 561 257 151	546 473 334 1 210	9.4 8.0 5.6
SOUTH-EASTERN AMERICA				
Venezuela ⁶ M. '43-49 1950 1951 1952 1953	942	638 551 983 187 007	161 112 119 102	6.1 * 4.3 * 4.5 * 3.9
Brazil "	2 1 1	 658 051 947 716 468	316 252 235	5.5 4.3 3.9
Paraguay ③ M. '43-49 1950 1951 1952 1953		169 214 133 159	8 12 16 7	0.6 0.8 1.1 0.5
Uruguay ◎ M. '43-49 1950 1951 1952 1953	1	154 598 618 726 620	74 46 	3.1 1.9

C. AFRICA

Country		Ca	ses	Deaths	Death- rate
Country		Т	Р	T&P	per 100 000
NORTHERN AFRICA					
Morocco (French Zone) .	M. '43-49 1950 1951 1952 1953	1 191 896 501 638	162 119 83 66 854	· •	
Algeria	M. '43-49 1950 1951 1952 1953	1 809 1 030 853 891 776			
Tunisia	M. '43-49 1950 1951 1952 1953	605 331 470 457			
Egypt	M. '43-49 1950 1951 1952 1953	7 6 8	019 886 794 606 086	836 662 545	4.1 3.2 2.5
WEST CENTRAL AFRICA					
Cameroons (French)	M. '43-49 1950 1951 1952 1953	2	17 122 222 523 462	31 23 ¹² 41	1.0 0.7
Belgian Congo	M. '43-49 1950 1951 1952 1953		334 311 496 954 317	34 29 31 84	0.3 0.3 0.3 0.7
EAST CENTRAL AFRICA					
Uganda	M. '47-49 1950 1951 1952 1953	13 7 2,18	359 344 380 385	12 60 12 39 2,12 32	

C. AFRICA (continued)

	Ca	ases		Death-
Country	Т	Р	Deaths T & P	rate per 100 000
EAST CENTRAL AFRICA (cont.)				
Kenya M. '45-49 1950 1951 1952 1953	7571 13 6 13 648 13 511 1 2	18 48 18 137	12 132 12 120 12 112 126	
Tanganyika M. '43-49 1950 1951 1952 1953	7 2		7 56 7 67 13 47	
SOUTHERN AFRICA				
Northern Rhodesia M. '43-49 1950 1951 1952 1953	1	19 45 88 60 27	36 7 5 7	1.9 0.4 0.3 0.3
Southern Rhodesia M. '43-49 1950 1951 1952 1953	126 360 299 202 183	5 15 4 4 7	45 36 34 18	2.2 1.7 1.6
Union of South Africa 4 . M. '43-49 1950 1951 1952 1953	3 4 3 8 4 9 3 8 3 4	310 998 355	254 372 195	2.1 2.0 1.5
Madagascar M. '43-49 1950 1951 1952 1953	2 2 2	102 118 109 101 138	12 25 12 33 12 14	
Mauritius M. '43-49 1950 1951 1952 1953	3 3 2	68 119 126 152 10	© 51 © 52 © 19 © 11	11.0 10.7 3.8 2.1

D. ASIA AND OCEANIA

	Cases		Dootho	Death- rate	
Country		Т	Р	Deaths T&P	per 100 000
WESTERN ASIA					
Turkey	. M. '43-49 1950 1951 1952	3 310 4 284 6 583 6 850	159 324 465 627	345 453 542	1.6 2.1 2.5
	1953	4 694	442	310	1.4
Cyprus ❷	. M. '43-49 1950 1951 1952 1953	50 59 37 23 13	96 71 31	13 * 14 * 8 * 3	2.7 *2.8 *1.6 *0.6
Syrıa	. M. '43-49 1950 1951 1952 1953	37 66 64 77 90	58 40 70	62 79 68 56	1.9 2.4 2.0 1.5
Lebanon ❷	. M. '43-49 1950 1951 1952 1953	849 562 571 391 328		83 64	6.6 4.8
Israel ⁴ ⊚	. M. '43-49 1950 1951 1952 1953	707 874 1 035 551	617 494 615 625	15 25 15 35 33	¹⁵ 1.9 ¹⁵ 2.6 2.1
SOUTH-EASTERN ASIA		1			
Ceylon ❷	. M. '43-49 1950 1951 1952 1953	2 51 2 52 2 29 2 10 2 46	04 92 01	² 671 ² 691 ² 547 ² 403	* 8.9 * 8.9 * 6.9 * 4.9
Burma 🕲	. M. '43-49 1950 1951 1952			16 336 16 340 16 440	16 24.2 16 24.5 18 31.7

D. ASIA AND OCEANIA (continued)

Country	Cases	Deaths	Death- rate
Country	T P	T&P	per 100 000
SOUTH-EASTERN ASIA (cont.)			
Federation of Malaya ③ . M. '47-49 1950 1951	864 887 29 1 064 59	96 136	1.8 2.5
1952 1953	770 48 809 32	² 72 ² 76	² 1.3 ² 1.3
Singapore (Colony) ◎ M. '47-49 1950 1951 1952 1953	13 131 13 3 13 157 13 13 13 13 13 13 13 13 13 15 163 13 15 163 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 163 15 16	28 19 13 12	2.8 1.8 1.2 1.1
Sarawak	153 76 70 67		1.4
Philippines M. '47-49 1950 1951 1952 1953	763 74 805 67 572 33 525 17 415 6	235 242 232 141	1.2 1.2 1.1 0.7
FAR-EASTERN ASIA			
Hong Kong @ M. '47-49 1950 1951 1952 1953	311 907 1 024 1 230 1 434	² 160 ² 134 ² 158 ² 128	* 7.3 * 6.0 * 7.0 * 5.7
China : Formosa M. '47-49 1950 1951 1952 1953	276 221 213 217 196	30 20 21 14	0.4 0.3 0.3 0.2
Japan ❷ M. '43-49 1950 1951 1952 1953	53 812 4 883 1 711 3 878 1 302 2 898 835 2 496 1 097	710 400 222 179	0.9 0.5 0.3 0.2

D. ASIA AND OCEANIA (concluded)

Country		Ca	ses	Deaths	Death- rate
Country		Т	Р	T&P	per 100 000
OCEANIA					
Western Samoa	M. '47-49 1950 1951 1952 1953	81 69 52 43 36	7 20 3 3 4		: : :
Fiji	M. '43-49 1950 1951 1952 1953	140 89 68 32	66 22 14 3	3	1.0
Australia 🕲	M. '43-49 1950 1951 1952 1953	!	11 68 58 46 23	5 4 6 	0.1 0.05 0.1
New Zealand ⊚ (white population)	M. '43-49 1950 1951 1952 1953	24 24 17 21	11 10 7 10	- - -	0.2 — —
Maoris	M. '43-49 1950 1951 1952 1953	40 36 40 32	12 9 22	6 2 — 	5.3 1.7 —

M = Median

- T = Typhoid fever
 P = Paratyphoid fevers
- = Nil
- . = Data not available .. = Data not yet available
- * Incomplete data
- © Deaths (registered by the Central Statistical Services on the basis of death certificates) ¹ Typhoid fever only

- Including other salmonella infections

 Excluding paratyphoid fever "gastroenteritis form" (400 cases in 1950)

 Confirmed cases (Scotland: 1953 excluded—notified cases in 1952: typhoid fever, 23; paratyphoid fevers, 95)

 5 Excluding Yukon and North-West Territories; from 1950, including Newfoundland

 - Notification area
 Cases treated in hospitals and dispensaries
 Cases treated in hospitals or reported to hospitals

 - ° 11 months

 - 10 Capital cities of provinces
 11 Federal District and State capitals. Cases from 1944, deaths from 1948; Excluding São Paulo
- 12 Deaths in hospitals
 13 Cases treated in hospitals
 14 1943-50: Fiscal year ending 30 June of the indicated year; 1951: 18 months (July 1950 to December 1951)

 - 18 Jewish population 16 70 urban areas (1,387,000 inhabitants in 1947)