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U.S. OFFICE OF STRATEGIC SERVICES
Research and Analysis Branch

R & A No. 1423

THE REGIONAL INCIDENCE OF DISEASE IN GERMANY

A comparison of the incidence rates of diphtheria, scarlet fever, dysentery, typhoid and paratyphoid fever for various regions of Germany.

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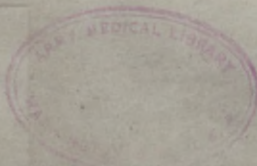
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Summary

There is no consistent pattern of uniform regional variations. Certain regions are more affected by specific diseases in a given year than others. In another year, there may be substantial changes.

While the war years have produced such changes, it has not been possible to establish any pattern of regional variation or wartime change.

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TABLE OF CONTENTS

	Page
Summary	111
I. Introduction	1
II. Incidence Rates of Specific Diseases	3
A. Diphtheria	3
B. Scarlet Fever	5
C. Dysentery	7
D. Typhoid Fever	9
E. Paratyphoid Fever	11
III. The Rank of the Regions of Germany According to the Incidence of Specific Diseases	13

TABLES

Table 1. Cases of Diphtheria per 10,000 Inhabitants.....	4
Table 2. Cases of Scarlet Fever per 10,000 Inhabitants..	6
Table 3. Cases of Dysentery per 10,000 Inhabitants.....	8
Table 4. Cases of Typhoid Fever per 10,000 Inhabitants..	10
Table 5. Cases of Paratyphoid Fever per 10,000 Inhabitants.....	12
Table 6. Seventeen German Regions, Ranked According to Incidence of Disease, 1938, 1939, 1941, 1942. 14-16	

THE REGIONAL INCIDENCE OF DISEASE IN GERMANY

I. INTRODUCTION

The diseases selected include diphtheria, scarlet fever, dysentery, typhoid, and paratyphoid, incidence rates of which are calculated per 10,000 inhabitants. Comparisons are presented for two pre-war years, 1938 and 1939, and two war years, 1941 and 1942.

More complete information pertaining to these diseases will be found in the relevant parts of Health in Axis Europe, R & A No. 1070, 6 October 1943. The present study concerns one aspect not treated there, the question of whether there is a consistent pattern of uniform regional variations in disease throughout the years. The war has changed the previous regional distribution of disease incidence but the changes have been of an erratic nature, precluding the formulation of general statements as to the evolution of a new pattern; nor has it been possible to ascertain the extent to which the findings presented in the following pages should be modified in the light of such factors as deficient reporting of diseases, recent population movements, or the effects of air raids. The scale on which population movements

occurred in 1942 is uncertain. It is also uncertain to what extent such movements are reflected in the population base of the rates and whether or not members of the armed forces are included.

The statistical data with respect to the incidence of the five diseases under study are presented in the tables on the following pages. The figures, which have been taken in their entirety from the Reichsgesundheitsblatt, the official publication of the Reich Health Office, are presented in two forms to illustrate different aspects of the problem.

There is first presented a series of 5 tables indicating the incidence of the respective diseases per 10,000 inhabitants in the various regions, in order to give a quantitative picture of the prevalence of disease.

Table 6, on the other hand, indicates the rank of the several regions of Germany according to the incidence of the diseases. The figures given are not of cases of disease, but show the rank of the given region among those of all Germany. Thus, Anhalt, which had the highest incidence of diphtheria in 1938, is assigned the numeral "1" under that year; by 1939 it had fallen to ninth place, and is assigned the numeral "9". This table would reveal, should they exist, any fixed patterns in the regional incidence of the diseases under study.

II. INCIDENCE RATES OF SPECIFIC DISEASES

A. Diphtheria

The data do not reveal a consistent regional pattern. During the war years, Baden, Sachsen, the Sudeten territory, Bayern, and certain parts of Prussia show a rather high incidence. Of the regions, before the war, Bayern, Sachsen and Baden had a lower-than-average incidence. There is thus a possibility that the more recent outbreaks have been heavier in those regions which in former years were less exposed to this disease and thus had acquired a lesser degree of immunization. Table 1 on the following page indicates the number of cases of diphtheria per 10,000 inhabitants.

Table 1. CASES OF DIPHTHERIA PER 10,000 INHABITANTS

	1938		1939		1941		1942
Anhalt	49.0	Sudetenland	40.1	Hessen	34.8	Thüringen	49.0
Bremen	38.6	Bremen	32.2	Baden	32.5	Baden	45.1
Preussen	26.2	Ostmark	27.8	Lippe	31.7	Sudetenland	44.4
Oesterreich	25.0	Hamburg	26.2	Sudetenl.	29.9	Anhalt	43.6
Germany a	22.0	Lippe	25.6	Sachsen	26.4	Sachsen	38.6
Lippe	21.5	Preussen	24.0	Bayern	26.1	Württemberg	38.0
Hamburg	19.8	Germany	22.0	Sch.-Lippe	23.9	Bayern	35.9
Thüringen	19.2	Bayern	18.0	Preussen	23.7	Braunschweig	35.2
Braunschweig	18.5	Hessen	16.7	Germany	22.8	Westmark	34.0
Bayern	17.5	Thüringen	16.3	Meckleng.	22.5	Mecklenburg	32.6
Hessen	17.0	Anhalt	16.2	Braunsch.	21.6	Hessen	31.8
Mecklenburg	14.8	Mecklenburg	15.2	Hamburg	21.4	Preussen	31.4
Sachsen	12.8	Sachsen	14.7	Ostmark	20.1	Oldenburg	31.2
Baden	12.3	Braunschweig	14.1	Oldenburg	18.6	Germany	31.2
Saarland	12.1	Baden	13.8	Anhalt	18.1	Lippe	27.2
Oldenburg	12.0	Schaumb-Lippe	8.5	Thüringen	17.1	Hamburg	24.0
Württemberg	7.5	Oldenburg	8.2	Saarland	14.9	Alpen- and	
Schaumb-Lippe	2.2	Saarland	6.5	Württemb.	14.1	Donau-	
		Württemberg	6.2	Danzig-		Reichsgaue	22.5
				Westpr.	13.7	Bremen	21.5
				Warthel.	9.9	Danzig-West-	
				Bremen	9.4	preussen	13.4
						Wartheland	9.4
						Schaumburg-	
						Lippe	9.4

a - Excluding Austria.

B. Scarlet Fever

Lippe, Bremen, Mecklenburg, Hamburg, Thüringen, Anhalt, the Sudeten territories, and some parts of Prussia show a high incidence of this disease throughout the years. The incidence is lower for the southern parts of Germany. Rates for Württemberg, Baden and Bavaria are consistently below the average. Table 2 on the following page indicates cases of scarlet fever per 10,000 inhabitants.

Table 2. CASES OF SCARLET FEVER PER 10,000 INHABITANTS

	1938		1939		1941		1942
Bremen	31.8	Sudetenland	30.2	Mecklenburg	68.1	Anhalt	84.5
Lippe	26.1	Hamburg	26.2	Sachsen	52.3	Hamburg	70.4
Anhalt	22.6	Bremen	25.0	Lippe	48.5	Mecklenburg	64.4
Mecklenburg	19.5	Mecklenburg	24.5	Sudetenland	40.5	Bremen	61.7
Preussen	18.9	Braunschweig	23.0	Anhalt	39.5	Braunsch-	
Oesterreich	18.6	Oldenburg	22.7	Thüringen	38.3	weig	60.1
Hamburg	18.5	Preussen	21.6	Hamburg	36.6	Sudetenland	59.8
Thüringen	17.9	Ostmark	21.6	Hessen	35.7	Sachsen	58.8
Germany a	16.8	Anhalt	20.7	Preussen	34.1	Hessen	55.9
Baden	16.1	Germany	19.3	Germany	31.0	Thüringen	52.5
Braunschweig	16.1	Lippe	17.3	Baden	29.2	Lippe	51.0
Württemberg	14.3	Thüringen	16.7	Bremen	27.9	Preussen	49.7
Hessen	14.0	Baden	14.2	Braunschweig	27.6	Oldenburg	45.8
Oldenburg	14.0	Württemberg	14.1	Württemberg	26.6	Germany	44.6
Sachsen	11.2	Sachsen	12.8	Bayern	23.9	Württemberg	43.8
Bayern	10.6	Schaumb.-Lippel	12.4	Oldenburg	23.2	Baden	39.8
Schaumb.-Lippe	9.0	Hessen	11.4	Saarland	21.9	Westmark	34.6
Saarland	8.6	Bayern	9.8	Schaumb.-Lippel	19.6	Bayern	31.4
		Saarland	7.0	Ostmark	18.0	Alpen-and	
				Danzig-West-		Donau-	
				preussen	12.2	Reichsgaue	27.7
				Wartheland	4.8	Schaumb.-	
						Lippe	24.1
						Danzig-	
						Westpr.	21.9
						Wartheland	7.0

a - Excluding Austria

C. Dysentery

Hamburg, Mecklenburg, the Wartheland, and some parts of Prussia show a high incidence of this disease. The incidence is low in Württemberg, the Sudeten territory, the Saarland and Hessen. The range within which variations of this disease take place is wider than in the case of diphtheria and scarlet fever and extends from .11 per 10,000 to 4.7 per 10,000. Table 3 on the following page indicates the number of cases of dysentery per 10,000 inhabitants.

Table 3. CASES OF DYSENTERY PER 10,000 INHABITANTS

1938		1939		1941		1942	
Mecklenburg	3.0	Hamburg	3.8	Hamburg	2.7	Mecklenburg	4.7
Hamburg	2.1	Mecklenburg	1.5	Mecklenburg	2.6	Wartheland	3.4
Bayern	1.1	Bayern	1.2	Wartheland	2.6	Bremen	3.2
Saarland	.83	Oldenburg	1.1	Baden	1.9	Baden	2.7
Preussen	.82	Preussen	.91	Oldenburg	1.5	Hamburg	2.6
Germany a	.78	Germany	.79	Bayern	1.4	Preussen	1.9
Oldenburg	.65	Thüringen	.65	Thüringen	1.3	Germany	1.7
Thüringen	.41	Sachsen	.46	Bremen	1.2	Oldenburg	1.6
Bremen	.34	Anhalt	.41	Preussen	1.2	Bayern	1.4
Baden	.29	Baden	.32	Germany	1.1	Thüringen	1.4
Sachsen	.28	Württemberg	.20	Anhalt	.76	Danzig-West-	
Hessen	.21	Braunschweig	.20	Sachsen	.67	preussen	1.3
Oesterreich	.12	Hessen	.18	Danzig-West-		Sachsen	1.3
Württemberg	.068	Bremen	.15	preussen	.58	Anhalt	1.1
Braunschweig	.058	Ostmark	.13	Saarland	.47	Braunschweig	.86
Lippe	.055	Saarland	.10	Hessen	.43	Alpen- and	
Anhalt	.0	Lippe	.053	Braunschweig	.41	Donau-Reichs-	
Sch.-Lippe	.0	Sudetenland	.003	Ostmark	.37	gaue	.78
		Sch.-Lippe	.0	Württemberg	.19	Hessen	.59
				Sudetenland	.11	Württemberg	.50
				Lippe	.0	Westmark	.48
				Sch.-Lippe	.0	Sch.-Lippe	.38
						Lippe	.21
						Sudetenland	.11

a - Excluding Austria.

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D. Typhoid Fever

This disease, which has increased greatly in recent years, occurs more widely in northern Germany than in the South. Regions showing a consistently high incidence include the Wartheland, Danzig and Western Prussia, Mecklenburg and certain other parts of Prussia. The incidence is low in Baden, Bayern, Thüringen and the Saarland. Table 4 on the following page indicates the number of cases of typhoid fever per 10,000 inhabitants.

Table 4. CASES OF TYPHOID FEVER PER 10,000 INHABITANTS

1938		1939		1941		1942	
Lippe	1.6	Ostmark	1.6	Wartheland	4.2	Wartheland	11.5
Mecklenburg	1.4	Lippe	1.5	Danzig-West-		Danzig-West-	7.9
Oesterreich	1.1	Mecklenburg	1.3	preussen	4.0	preussen	
Bremen	.79	Bremen	1.1	Mecklenburg	1.2	Mecklenburg	2.9
Braunschweig	.67	Anhalt	.80	Sudetenland	1.1	Germany	1.8
Anhalt	.51	Sudetenland	.74	Ostmark	1.0	Sudetenland	1.8
Preussen	.50	Germany	.50	Anhalt	.93	Preussen	1.4
Saarland	.46	Thüringen	.45	Germany	.86	Baden	1.4
Germany a	.43	Preussen	.43	Preussen	.68	Anhalt	1.32
Thüringen	.38	Hessen	.34	Braunschweig	.58	Alpen- and Donau	
Württemberg	.35	Braunschweig	.33	Bremen	.49	Reichsgaue	1.2
Hamburg	.30	Oldenburg	.31	Saarland	.28	Braunschweig	.99
Sachsen	.25	Bayern	.26	Sachsen	.26	Oldenburg	.93
Bayern	.23	Württemberg	.26	Hessen	.24	Bremen	.71
Baden	.23	Hamburg	.26	Thüringen	.23	Bayern	.44
Hessen	.23	Baden	.19	Hamburg	.23	Württemberg	.40
Oldenburg	.21	Sachsen	.16	Oldenburg	.19	Schaumburg-	
Schaumb.-		Saarland	.09	Württemberg	.18	Lippe	.38
Lippe	.0	Schaumb.-Lippe	.0	Bayern	.16	Lippe	.37
				Lippe	.16	Hessen	.35
				Baden	.13	Westmark	.34
				Schaumb.-Lippe	.0	Thüringen	.30
						Sachsen	.27
						Hamburg	.22

a - Excluding Austria

E. Paratyphoid Fever

Paratyphoid incidence is high in Austria, Oldenburg, Bremen, Mecklenburg and Hamburg. It is low in the Wartheland, Danzig and Western Prussia and Thüringen. Table 5 on the following page indicates the number of cases of paratyphoid fever per 10,000 inhabitants.

Table 5. CASES OF PARATYPHOID FEVER PER 10,000 INHABITANTS

	1938		1939		1941		1942
Württemberg	1.7	Ostmark	1.1	Oldenburg	2.2		
Oesterreich	1.3	Hessen	.77	Sachsen	1.8	Alpen- and Donau-	1.2
Saarland	1.2	Bremen	.75	Bremen	1.0	Reichsgaus	
Bremen	1.1	Baden	.62	Ostmark	.92	Oldenburg	.95
Baden	.62	Hamburg	.60	Braunschweig	.63	Preussen	.90
Bayern	.52	Mecklenburg	.53	Germany	.54	Bremen	.84
Mecklenburg	.51	Württemberg	.52	Hamburg	.52	Mecklenburg	.77
Hamburg	.50	Bayern	.47	Thüringen	.48	Lippe	.75
Germany a	.47	Germany	.45	Preussen	.47	Anhalt	.70
Preussen	.43	Oldenburg	.43	Bayern	.44	Hamburg	.68
Thüringen	.36	Preussen	.38	Sudetenland	.42	Germany	.68
Lippe	.33	Anhalt	.34	Saarland	.40	Braunschweig	.67
Sachsen	.15	Saarland	.32	Mecklenburg	.29	Hessen	.62
Braunschweig	.15	Lippe	.27	Hessen	.27	Baden	.60
Anhalt	.13	Braunschweig	.18	Anhalt	.23	Württemberg	.32
		Sch.-Lippe	.18	Württemberg	.22	Sudetenland	.29
		Sudetenland	.17	Baden	.21	Bayern	.26
		Sachsen	.15	Danzig-West-		Sachsen	.23
		Thüringen	.13	preussen	.17	Westmark	.20
				Wartheland	.068	Sch.-Lippe	.19
				Lippe	.0	Thüringen	.13
				Sch.-Lippe	.0	Danzig-West-	.10
						preussen	
						Wartheland	.05

a - Excluding Austria

III. THE RANK OF THE REGIONS OF GERMANY
ACCORDING TO THE INCIDENCE OF SPECIFIC DISEASES

From the data given in the preceding tables, it is possible to construct a table showing the pattern of the incidence of the five diseases in the various regions of the country. Table 6 on the following page presents this information. In the table a numeral indicating rank among all the regions is assigned to each region for each of the four years, the region of highest incidence being indicated by "1", the next highest by "2", and so on. It is thus possible to determine whether any part or parts of Germany have shown a uniformly high or low rank either with respect to one or more diseases or with respect to all diseases over time.

Study of the table fails to indicate any very consistent pattern of uniform regional variations.

Table 6. SEVENTEEN GERMAN REGIONS, RANKED ACCORDING TO
INCIDENCE OF DISEASE, 1938, 1939, 1941, 1942

A. Diphtheria					B. Scarlet fever				
	1938	1939	1941	1942		1938	1939	1941	1942
Anhalt	1	9	13	3	Bremen	1	2	10	4
Bremen	2	1	17	16	Lippe	2	9	3	9
Preussen	3	5	7	11	Anhalt	3	8	4	1
Oesterreich a	4	2	11	15	Mecklenburg	4	3	1	3
Lippe	5	4	3	13	Preussen	5	6	8	10
Hamburg	6	3	10	14	Oesterreich a	6	7	17	16
Thüringen	7	8	14	1	Hamburg	7	1	6	2
Braunschweig	8	12	9	7	Thüringen	8	10	5	8
Bayern	9	6	5	6	Baden	9	11	9	13
Hessen	10	7	1	10	Braunschweig	10	4	11	5
Mecklenburg	11	10	8	9	Württemberg	11	12	12	12
Sachsen	12	11	4	4	Hessen	12	15	7	7
Baden	13	13	2	2	Oldenburg	13	5	14	11
Saarland b	14	16	15	8	Sachsen	14	13	2	6
Oldenburg	15	15	12	12	Bayern	15	16	13	15
Württemberg	16	17	16	5	Sch.-Lippe	16	14	16	17
Sch.-Lippe	17	14	6	17	Saarland b	17	17	15	14

a - 1939, 1941: Ostmark; 1942: Alpen- and Donau-Reichsgaue

b - 1942: Westmärk

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C. Dysentery					D. Typhoid fever				
	1938	1939	1941	1942		1938	1939	1941	1942
Mecklenburg	1	2	2	1	Lippe	1	2	15	12
Hamburg	2	1	1	4	Mecklenburg	2	3	1	1
Bayern	3	3	5	7	Oesterreich a	3	1	2	5
Saarland b	4	15	11	15	Bremen	4	4	6	8
Preussen	5	5	8	5	Braunschweig	5	9	5	6
Oldenburg	6	4	4	6	Anhalt	6	5	3	4
Thüringen	7	6	6	8	Preussen	7	7	4	2
Bremen	8	13	7	2	Saarland b	8	16	7	14
Baden	9	9	3	3	Thüringen	9	6	10	15
Sachsen	10	7	10	9	Württemberg	10	12	13	10
Hessen	11	12	12	13	Hamburg	11	13	11	17
Oesterreich a	12	14	14	12	Sachsen	12	15	8	16
Württemberg	13	10	15	14	Bayern	13	11	14	9
Braunschweig	14	11	13	11	Baden	14	14	16	3
Lippe	15	16	16	17	Hessen	15	8	9	13
Anhalt	16	8	9	10	Oldenburg	16	10	12	7
Sch.-Lippe	17	17	17	16	Schaumb.-Lippe	17	17	17	11

a - 1939, 1941: Ostmark; 1942: Alpen- and Donau-Reichsgaus
 b - 1942: Westmark

E. Paratyphoid

	1938	1939	1941	1942
Württemberg	1	7	14	12
Oesterreich	2	1	4	1
Saarland	3	12	10	15
Bremen	4	3	3	4
Baden	5	4	15	11
Bayern	6	8	9	13
Mecklenburg	7	6	11	5
Hamburg	8	5	6	8
Preussen	9	10	8	3
Thüringen	10	17	7	17
Lippe	11	13	16	6
Sachsen	12	16	2	14
Braunschweig	13	14	5	9
Anhalt	14	11	13	7
Hessen	o	2	12	10
Oldenburg	o	9	1	2
Schaumburg-Lippe	o	15	17	16

o - Not reported

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