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HEALTH SECTION

EPIDEMIOLOGICAL INTELLIGENCE

EPIDEMIC DISEASES IN EASTERN AND CENTRAL EUROPE
JANUARY-JUNE 1922

N 4

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CONTENTS.

	Pages
I. THE CHOLERA EPIDEMIC OF 1922	5-7
Incidence of cholera in Eastern Europe, 1922	8-9
(a) Map of cholera cases notified up to July 8th, 1922	} Plate
(b) Cases of cholera notified on the Russian railways	
II. STATISTICAL TABLES AND DIAGRAMS OF EPIDEMIC DISEASES IN CENTRAL AND EASTERN EUROPE, JANUARY-JUNE 1922 :	
Table 1. Incidence of Typhus in Central and Eastern Europe 1922	10-11
Table 2. Incidence of Relapsing Fever in Central and Eastern Europe 1922	12-13
Map indicating the relative incidence of typhus and relapsing fever in Eastern Europe	
Jan.-May 1922	14
Chart of seasonal fluctuation of typhus and relapsing fever in certain governments of Northern Russia 1921-22	15
Chart of seasonal fluctuation of typhus and relapsing fever in certain governments of Southern Russia 1921-22	16
Table 3. Incidence of Smallpox in Central and Eastern Europe 1922	17-18
Table 4. Incidence of Dysentery in Central and Eastern Europe 1922	19-20
III. MORBIDITY STATISTICS FOR A GOVERNMENT OF THE EASTERN FAMINE AREA (WITH MAP)	21-25
IV. THE DEPOPULATION OF RUSSIA	26-28

I.

THE CHOLERA EPIDEMIC OF 1922

Among the epidemic diseases which are prevalent in Russia, Asiatic cholera is one of the most dangerous to the countries of Central and Western Europe. Nearly all of the more important outbreaks of cholera in Europe during the last half-century indicate a definite connection with preceding cholera epidemics in Russia, and their intensity has generally been greatest in territory adjacent to Russia. Since official notification of cholera cases was introduced in Russia in 1837, in no year has the disease been entirely absent, and the region of the lower and middle course of the Volga may be considered as an endemic cholera centre.

The most important cholera epidemic of recent times occurred in 1892, when 620,000 cases and 300,000 deaths were recorded in Russia; outbreaks of a certain magnitude took place shortly afterwards in Germany and even in France. During the years 1907-1909 a recrudescence of cholera was in evidence which culminated in 1910, when 230,000 cases and 110,000 deaths were notified. During that and the following year cholera epidemics broke out in Italy, Hungary, Austria and several other localities in Western Europe.

With the great War came new outbreaks, and thousands of cases occurred in the armies on the eastern front, particularly in 1915; the civilian population in Galicia and in White Russia was also seriously affected by the epidemic. In all Russia about 35,000 cases of cholera were notified, of which 6,000 occurred in the Government of Minsk (White Russia). In the part of Galicia which was free from Russian invasion, about 17,000 deaths from cholera were registered in 1915. In 1918, 41,000 cholera cases were notified in Russia, but the data are admitted to be very incomplete, particularly for the southern and eastern regions. The epidemic was most severe in Astrakhan, Saratov and Petrograd; in the latter city alone 8,500 cases were notified. During the following year there were only a few thousand cases of cholera in Russia, and no important outbreak occurred. In 1920, about 20,000 cholera cases were notified in Russia, and the disease has spread continuously since then over an ever-increasing area.

Recent outbreaks of cholera in Russia have been characterised by remarkable changes in geographical distribution from year to year. The 1920 epidemic centred in the region of the river Don and

its affluent, the Donetz; the four governments of this region each returned from 3,000 to 5,000 cholera cases. From this main area of infection, lesser epidemics radiated, mainly along the principal routes of communication, along the Black Sea littoral to Odessa, and along the railway lines Rostov-Voronej-Riazan-Moscow and Kharkov-Kursk-Orel-Tula-Moscow. Only sporadic cases were observed in the Volga basin, and the only outbreak of any magnitude in the east was the one in Ekaterinburg.

Very few cases occurred during the first five months of 1921, but, favoured by the very hot summer, a violent epidemic suddenly broke out in June and culminated in July. About 200,000 cases were notified in the whole of Russia. The geographical distribution was very different from the previous year, and while thousands of cases occurred in Eastern Ukraine and the Northern Caucasus, it was the Volga basin and Siberia which suffered the most. In the government of Ufa about 18,000 cases were notified, in the government of Samara there were 15,000 cases, in the Bachkir Republic 14,000, in the Kirghiz Republic 17,000, and in Siberia over 38,000 cases. (Data given by the Siberian Health Administration give 38,416 cases, while the official reports from Moscow indicate only 11,647 cases in Siberia.) In Western Russia only a few sporadic cases were observed. The epidemic spread eastwards, southwards and westwards, chiefly carried by the refugees from the famine region of the Volga.

It is a long-established fact that famine conditions predispose to cholera, and the chain of Indian cholera epidemics of this century commenced during the famine of 1900. With the aggravation of the Russian famine and the extension of the famine-stricken area over Southern Ukraine and the Crimea, in the course of the winter, the cholera outlook for the coming summer became, therefore, more serious.

In December 1921 a small cholera epidemic broke out at Kiev, and several hundred cases were bacteriologically confirmed. It is stated that the period of incubation was very long — 12 to 15 days — and the clinical features were variable. As the conditions in the hospitals were unsatisfactory and many of the cases were complicated by typhus, the disease was not at once recognised. The mortality was very high, about 70 %: there were 89 deaths among 127 cases bacteriologically confirmed; 94 deaths among 134 cases diagnosed only clinically, and a case fatality of 46 % among the suspected cases. The quarantine station at Rovno received during the same period a considerable number of refugees suffering from a very malignant enteritis, but no cholera vibrios were demonstrated.

Sporadic cases were reported during January and February from nearly all the Ukrainian governments, and particularly from points on the railway lines. Cholera infection is spread from place to place by human agency and the importance of the railways in propagating the epidemic is confirmed by the high proportion of the cases which occur on them, particularly in the development period of the epidemic:

	1922	Total Russia	On Railways	Per cent.
January		574	21	3.7
February		473	32	6.8
March		2,120	224	10.6
April		3,297	360	10.9
May		8,995	681	7.6
June		13,805	821	5.9

Details of the number of cholera cases registered on the various railway systems are indicated on the inserted map.

Cholera cases occurred in the city of Rostov on the Don, already from December, and it became soon another centre of infection. In April the entire Black Sea region as far south as the Caucasus

mountains was involved, and numerous cases occurred also on the middle Volga and in the governments to the north of the Ukraine. At the time of our latest reports — July 25th — cholera cases were occurring in all parts of Russia except in the region contiguous to the Arctic Ocean.

The epidemic is, this year, concentrated on the area of the Black Sea, in contrast to last year, when it was most severe in Eastern Russia. The cholera situation is most serious at Odessa, where the epidemic did not break out until the end of April, and at Rostov, but all the Russian Black Sea ports, with the possible exception of Batum, are now badly infected. From the region of the littoral the epidemic stretches towards north and east in decreasing intensity. North of about latitude 52° North the number of cases is, as yet, inconsiderable. Eastern Russia is less affected by the epidemic, and only the governments of Samara and Ufa each report as much as four hundred cases.

From the official data so far received it appears that the epidemic is more widespread than last year, but its intensity is far lower, excepting in a few localities. The great general outbreak which was feared in July did not materialise, and the danger is decreasing with every week of the summer which passes by. It is far too early, however, quite to discard the possibility of such an outbreak.

The relatively slow rate at which the epidemic has evolved may be explained perhaps by the relatively cool weather which has characterised this summer, and, secondly, the considerable number of anti-cholera vaccinations made in the infected regions.

It seems that the recommendations of the Sixth Pan-Russian Congress of Bacteriologists and Epidemiologists, held at Moscow on May 3rd to 8th inclusive, have been followed as far as the conditions have allowed. Among the resolutions passed by this Assembly, the following (III, 3) is of special importance:

“Taking into consideration the actual position of the campaign against cholera, which made it difficult to apply sanitary measures of a general character on a sufficiently large scale, and in view of the results obtained in preventive vaccination against cholera, the Congress insists on the necessity of the widest possible vaccination of the whole population...”

It appears from a statement by the Epidemic Section of the People's Commissariat of Health (Moscow) that by June 1st 950,000 men of the Red Army and over 50,000 of the railway personnel had been vaccinated, a fact which may explain the comparatively small incidence of cholera in the army. Vaccination has been rendered obligatory also for various other classes of the population such as cooks, waiters, laundry workers, nurses, etc. In various localities of the worst-infected regions, such as the Crimea, Rostov, etc., vaccination is obligatory for the whole population and severe fines are levied for disregarding this duty.

The continuous stream of refugees from Russia into Poland and, to a lesser extent, to Roumania, necessitates a vigilant control of the quarantine services in order to avoid importation of cholera similar to the typhus epidemic last winter in Eastern Poland, which has been due mainly to the great number of repatriates. There have been 40 cases of cholera, up to the end of July, at or near the quarantine station of Rovno. In Bessarabia there have been 12 cases up to July 24th, and near Bucarest 6 cases. It seems that all these cases have been quickly isolated. The epidemic has thus been kept away from Central and Western Europe so far, but severe precautions must be maintained, and it is necessary to follow closely the further developments of the cholera situation in Russia.

Cases of Cholera notified in Eastern Europe, 1922.

The Russian data¹ are according to information received by the People's Commissariat of Health (Moscow) up to August 8th, 1922.

Country or Government	January 1-28	February 29.1-25.11	March 26.11-1.1V	April 2-29	May 30.1V-3.VI	June 4.VI-1.VII	July 2-29	TOTAL
POLAND	0	0	0	0	0	11	29	40*
RUMANIA	0	0	0	0	0	0	18	18
RUSSIA:								
<i>Northern Russia:</i>								
City of Petrograd	0	0	0	0	1	0	0	1
Tcherepovetz	0	0	0	0	0	1	—	1
Tver	0	0	0	0	0	0	4	4
Vologda	0	0	0	0	0	81	5	86
Rybinsk	0	0	0	0	0	0	1	1
Yaroslavl	0	0	0	0	0	0	7 ¹	7
Ivanovo-Vozniessensk	0	0	0	0	0	0	2 ¹	2
Kostroma	0	0	0	0	1	0	6 ²	7
Total	0	0	0	0	2	82	25	109
<i>Western Russia:</i>								
Vitebsk	0	0	0	1	0	9	33 ²	43
Smolensk	0	0	0	0	2	2	5 ²	9
Gomel	0	0	0	0	21	10	13 ²	44
White Russia	0	0	0	0	0	0	18 ²	18
Total	0	0	0	1	23	12	69	114
<i>Central Russia:</i>								
City of Moscow	0	0	2	9	46	36	98	191
Government of Moscow	0	0	0	0	18	4	9	31
Riazan	0	0	0	2	11	5	41	59
Tula	0	0	0	7	21	2	—	30
Briansk	0	0	0	8	0	0	—	8
Orel	0	0	2	14	3	7	39	65
Tambov	0	18	17	23	13	10	35 ²	116
Voronezh	0	16	31	84	65	56	91	343
Kursk	0	0	24	139	103	115	118 ¹	499
Total	0	34	76	286	280	235	431	1,342
<i>The Ukraine:</i>								
Volhynia	0	83	42	2	6	85	3	221
Podolia	1	0	0	0	39	49	91	180
Kiev	272	0	78	66	85	158	368	1,027
Tchernigov	7	15	15	6	71	91	55	260
Poltava	10	52	337	527	327	211	109	573
Kremenchug	0	1	57	70	211	163	162	664
Ekaterinoslav	0	1	63	92	83	144	380	763
Kharkov	35	41	181	275	207	326	720	785
Donetz	4	11	144	58	415	661	961	2,254
Zaporozhe	0	0	0	34	891	702	1,504	3,131
Nicolaiev	0	30	71	141	494	313	376	1,425
Odesa	0	0	0	52	2,613	3,345	1,881	7,891
Total	329	234	988	1,323	5,442	6,248	6,610 ²	21,174

* During the three weeks ending August 15th, 68 cases of cholera with 13 deaths have been notified in Poland; 60 of these cases occurred at Rovno.

¹ Data for two weeks only.

² Data for three weeks only.

Cas de choléra déclarés jusqu'au 8 juillet 1922.
Cases of Cholera notified up to July 8th, 1922.



Cas de choléra asiatique déclarés sur les chemins de fer russes en mai 1922.

Cases of Cholera notified on the Russian Railways in May, 1922.



Cases of Cholera notified in Eastern Europe, 1922 (continued).

The Russian data are according to information received by the People's Commissariat of Health (Moscow) up to August 8th, 1922.

Country or Government	January 1-28	February 29.I-25.II	March 26.II-1.IV	April 2-29	May 30.IV-3.VI	June 4.VI-1.VII	July 2-29	TOTAL
RUSSIA (continued)								
<i>Crimea</i>	0	0	0	0	228	1,153	—	1,381
<i>South-Eastern Russia and Caucasus :</i>								
Region of the Don	18	37	121	207	316	557	662	1,918
Tzaritzin	0	0	28	23	32	155	171 ²	409
Astrakhan	0	0	0	13	54	841	281 ¹	1,189
Kalmuk Territory	0	0	0	0	7	9	141 ¹	157
Stavropol	0	0	41	29	156	191	145 ²	562
Kubano-Tchernamorsk.	0	4	83	91	528	1,483	1,506	3,695
Terek	0	0	0	14	184	193	44 ¹	435
Mountain Republic	0	0	12	33	192	104	27 ²	368
Daghestan	0	0	5	6	32	59	30 ²	132
Azerbeidjan	0	1	0	31	95	129	—	256
Tcherkasse Territory.	0	0	0	0	2	9	32	43
Total	18	42	290	447	1,598	3,730	3,039	9,164
<i>Eastern Russia :</i>								
German Community	0	0	0	0	0	0	3 ¹	3
Saratov	0	0	7	6	13	28	184	238
Samara	3	0	34	183	36	53	45 ²	354
Simbirsk	0	0	0	12	3	32	92	139
Penza	12	0	12	0	52	41	117 ²	234
Nijni-Novgorod	0	0	0	0	6	1	70 ²	77
Mariskaia Territory	0	0	0	0	0	1	—	1
Tchuvach Republic	0	0	0	4	—	—	—	4
Tartar Republic	0	0	0	0	1	2	88 ²	91
Viatka	0	0	0	0	0	1	14	15
Votjak Territory	0	0	0	0	0	40	84 ¹	124
Perm	0	0	0	0	11	11	28 ¹	50
Ufa	0	1	98	91	120	137	33 ²	480
Bachkir Republic	0	0	0	0	3	2	—	5
Tcheliabinsk	0	0	0	3	1	1	2 ¹	7
Ekaterinburg	6	0	0	16	64	118	—	204
Tiumen	0	0	0	0	0	15	32	47
Total	21	1	151	315	310	483	792	2,073
<i>Siberia</i>	0	0	0	25	106	529*	—	660
<i>Kirghiz Republic</i>	0	76	117	369	45	75	—	682
<i>Turkestan</i>	5	29	82	58	160	173	—	507
Railways	21	32	224	360	681	821	1,427	3,566
Waterways	0	0	0	0	41	4	2 ¹	47
Red Army	180	25	192	113	79	251	77	917
RUSSIA, total	574	473	2,120	3,297	8,995	13,805	12,472	41,736

* Data for June and July combined.

¹ Data for two weeks only.

² Data for three weeks only.

II.

STATISTICAL TABLES AND DIAGRAMS OF EPIDEMIC DISEASES
IN CENTRAL AND EASTERN EUROPE, JANUARY-JUNE 1922.

TABLE 1.

Incidence of Typhus in Central and Eastern Europe, 1922.

The figures in *italics* indicate the number of deaths; those in ordinary type indicate the number of cases notified.

Country or Region	Population	January	February	March	April	May	June
GERMANY	59,182,000	229	26	27	20	27	22
CZECHOSLOVAKIA:		30	9	5	10	4	13
West of the Carpathians	9,997,000	2	2	0	0	2	1
East of the Carpathians	3,599,000	34	11	148	90	23	3
.		2	4	8	6	2	2
CZECHOSLOVAKIA: total	13,596,000	64	20	153	100	27	16
.		4	6	8	6	4	3
AUSTRIA	• 6,420,000	10	2	3	1	2	2
.		1	0	0	0	1	1
HUNGARY	7,841,000	1	4	9	—	0	0
.		0	1	2	—	0	0
FINLAND	3,332,000	1	0	0	0	0	0
ESTHONIA	1,750,000	36	12	49	15	16	13
LATVIA	1,728,000	288	178	212	275	249	111
LITHUANIA	2,700,000	571	824	564	490	492	164
.		31	73	30	30	24	17
DANZIG	351,000	2	0	0	0	0	1
.		0	1	0	0	0	0
POLAND:		10	9	6	24	11	1
Western Zone	3,058,000	1	0	1	1	1	1
West-Central Zone	6,780,000	444	400	434	403	479	248
.		53	43	41	47	41	29
East-Central Zone.	9,191,000	1,612	2,354	2,569	1,576	1,688	1,089
.		153	211	239	152	155	100
of which City of Warsaw	931,000	245	237	185	101	85	65
.		38	36	22	15	13	6
Eastern Zone.	6,866,000	4,396	4,278	5,578	3,329	3,641	1,745
.		436	329	248	176	193	53
POLAND: total	25,895,000	6,462	7,041	8,587	5,332	5,819	3,083
.		643	583	529	376	390	183

TABLE 1 (concluded).

Incidence of Typhus in Central and Eastern Europe, 1922.

The figures in *italics* indicate the number of deaths, those in ordinary type indicate the number of cases notified.

Country or Region	Population	January	February	March	April	May	June
BULGARIA	4,861,000	37 <i>5</i>	107 <i>12</i>	57 <i>14</i>	— —	119 <i>9</i>	24 <i>7</i>
CONSTANTINOPLE	1,300,000	12 <i>0</i>	15 <i>0</i>	24 <i>1</i>	21 <i>0</i>	35 <i>2</i>	19 <i>0</i>
RUSSIA:							
Northern Region	3,106,000	2,183	2,786	3,730	2,607	3,017	—
North-Western Region	3,756,000	2,934	2,770	3,587	2,523	2,497	—
Western Region	5,362,000	5,024	5,540	8,178	2,249	2,355	—
Ukraine	26,002,000	24,937	35,033	33,794	42,238	13,020	—
Crimea	761,000	322	559	1,290	2,238	3,477	—
South-Central Region	11,668,000	7,079	10,874	14,925	10,892	8,001	—
Central Region	14,741,000	16,896	25,033	31,957	23,321	20,491	—
East-Central Region	7,519,000	9,631	12,511	21,210	14,075	18,037	—
Volga Region	13,619,000	26,314	32,638	34,188	22,294	10,184	—
Ural Region	9,526,000	14,672	16,051	25,525	19,803	15,536	—
Black Sea Region	4,075,000	1,693	2,776	3,836	3,225	4,395	—
Caucasus	5,316,000	3,283	3,227	3,423	2,027	1,589	—
Middle Asia	12,260,000	8,935	14,600	10,938	4,937	3,503	—
Siberia	9,258,000	10,910	9,551	13,283	6,640	—	—
Red Army	—	5,834	6,365	7,428	4,451	2,303	—
Red Navy	—	179	123	204	193	197	—
Railways	—	18,666	65,502	88,386	17,833	8,852	—
Waterways	—	513	732	263	—	—	—
Prisons	—	378	426	498	62	—	—
RUSSIA: total	126,969,000	160,383	247,097	306,643	181,608	117,454	—

Note: No data are available for Roumania, the Serb-Croat-Slovene State or Greece.

TABLE 2.

Incidence of Relapsing Fever in Central and Eastern Europe, 1922.

The figures in *italics* indicate the number of deaths; those in ordinary type indicate the number of cases notified.

Country or Region ¹	January	February	March	April	May	June
GERMANY	2	1	5	3	1	3
CZECHOSLOVAKIA:						
West of the Carpathians	1	2	3	2	0	4
East of the Carpathians	0	0	0	0	14	0
CZECHOSLOVAKIA: total.	1	2	3	2	14	4
AUSTRIA	0	0	0	0	0	0
HUNGARY	0	0	0	0	0	0
FINLAND	0	0	0	0	0	0
ESTHONIA	29	4	18	3	0	8
LATVIA	28	7	8	12	12	16
LITHUANIA	229	357	156	56	27	16
DANZIG.	8	12	3	0	0	1
	0	0	0	0	0	0
POLAND:						
Western Zone	3	0	0	0	0	1
	0	0	0	0	0	0
West Central Zone	23	25	63	43	26	14
	1	0	0	0	2	4
East Central Zone	910	2,669	1,288	433	470	435
	79	62	76	34	26	19
of which City of Warsaw	72	29	33	13	17	15
	9	0	5	0	0	1
Eastern Zone	5,363	6,534	7,053	3,484	3,070	2,068
	250	295	210	83	60	36
POLAND: total	6,299	9,228	8,404	3,960	3,566	2,518
	330	357	286	117	88	59
BULGARIA	0	0	0	—	—	—

¹ The figures of population are given in Table 1.

TABLE 2 (concluded).

Incidence of Relapsing Fever in Central and Eastern Europe, 1922.

Country or Region	January	February	March	April	May	June
RUSSIA:						
Northern Region	1.420	1.059	1.223	743	915	—
North-Western Region	1.866	1.205	1.330	751	880	—
Western Region	5.040	4.876	4.277	1.494	1.185	—
Ukraine	36.295	37.396	34.368	37.052	10.277	—
Crimea	233	388	551	1.045	1.542	—
South Central Region	12.676	15.163	17.576	10.999	9.974	—
Central Region	12.792	14.514	13.544	9.516	9.637	—
East-Central Region	5.666	6.418	7.791	6.095	5.926	—
Volga Region	19.513	20.432	21.908	12.400	7.948	—
Ural Region	13.350	11.609	19.873	13.095	10.621	—
Black Sea Region	2.984	5.263	5.592	4.392	5.987	—
Caucasus	3.250	4.204	4.931	4.300	3.299	—
Middle Asia	16.608	21.870	14.507	6.145	5.822	—
Siberia	10.192	8.925	11.321	6.056	—	—
Red Army	14.575	14.471	16.456	10.716	5.007	—
Red Navy	168	106	180	147	126	—
Railways	17.677	57.532	74.443	12.377	6.280	—
Waterways	450	339	202	—	—	—
Prisons	859	862	1.070	265	—	—
RUSSIA: total	175.614	226.632	251.143	137.588	85.426	—

Note: No data are available for Roumania, the Serb-Croat-Slovene State or Greece.

Incidence of Typhus and Relapsing Fever notified in Eastern Europe, January-May, 1922.

typhus exanthématique - typhus



fièvre récurrente - relapsing fever



Chart of Seasonal Fluctuation of Typhus and Relapsing Fever in certain Governments of Northern Russia 1911-1916



Chart of Seasonal Fluctuation of Typhus and Relapsing Fever in certain Governments of Southern Russia, 1921-1922.



TABLE 3.

Incidence of Smallpox in Central and Eastern Europe, 1922.

The figures in *italics* indicate the number of deaths; those in ordinary type the number of cases notified.

Country or Region ¹	January	February	March	April	May	June
SWITZERLAND	40	43	60	71	96	62
GERMANY	2	6	2	105	55	16
CZECHOSLOVAKIA:						
West of Carpathians	3 <i>0</i>	0 <i>1</i>	0 <i>0</i>	1 <i>0</i>	0 <i>0</i>	0 <i>0</i>
East of Carpathians	13 <i>1</i>	15 <i>3</i>	29 <i>4</i>	2 <i>1</i>	6 <i>1</i>	7 <i>1</i>
CZECHOSLOVAKIA: total	16 <i>1</i>	15 <i>4</i>	29 <i>4</i>	3 <i>1</i>	6 <i>1</i>	7 <i>1</i>
AUSTRIA	0	0	0	1	0	0
HUNGARY	2 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
FINLAND	0	36	29	9	11	3
ESTHONIA	15	1	3	0	3	0
LATVIA	22	16	16	24	30	21
LITHUANIA	51 <i>5</i>	46 <i>6</i>	60 <i>5</i>	58 <i>5</i>	89 <i>6</i>	16 <i>1</i>
DANZIG	0	0	0	0	0	0
POLAND:						
Western Zone	11 <i>1</i>	3 <i>0</i>	20 <i>4</i>	29 <i>2</i>	9 <i>1</i>	2 <i>0</i>
West-Central Zone	91 <i>12</i>	51 <i>12</i> ^m	136 <i>15</i>	75 <i>14</i>	89 <i>19</i>	36 <i>7</i>
East-Central Zone	63 <i>39</i>	104 <i>45</i>	156 <i>68</i>	252 <i>81</i>	184 <i>58</i>	100 <i>19</i>
of which the City of Warsaw	2 <i>1</i>	2 <i>1</i>	0 <i>0</i>	4 <i>0</i>	2 <i>2</i>	3 <i>2</i>
Eastern Zone.	54 <i>3</i>	39 <i>4</i>	88 <i>7</i>	90 <i>5</i>	155 <i>10</i>	79 <i>7</i>
POLAND: total	219 <i>55</i>	197 <i>61</i>	400 <i>94</i>	446 <i>102</i>	437 <i>88</i>	217 <i>33</i>

¹ The figures of population are given in Table 1.

TABLE 3 (concluded).

Incidence of Smallpox in Central and Eastern Europe, 1922.

The figures in *italics* indicate the number of deaths; those in ordinary type the number of cases notified.

Country or Region	January	February	March	April	May	June
BULGARIA	0 <i>0</i>	5 <i>0</i>	0 <i>0</i>	— —	6 <i>0</i>	0 <i>0</i>
CONSTANTINOPLE	— <i>5</i>	— <i>8</i>	— <i>8</i>	— <i>6</i>	— <i>6</i>	— <i>7</i>
RUSSIA:						
Northern Region	98	122	284	139	42	—
North-Western Region	64	56	63	33	25	—
Western Region	134	82	36	12	6	—
Ukraine	916	1,347	895	882	257	—
Crimea	123	98	122	128	72	—
South-Central Region	547	447	457	371	34	—
Central Region	1,278	866	806	523	186	—
East-Central Region	389	397	757	554	173	—
Volga Region	695	821	981	608	222	—
Ural Region	488	470	590	311	88	—
Black Sea Region.	104	446	212	325	277	—
Caucasus	120	134	230	179	116	—
Middle Asia	58	63	5	37	25	—
Siberia.	897	1,109	895	—	—	—
Railways	225	993	1,411	184	100	—
Waterways	24	36	16	—	—	—
RUSSIA: total	6,160	7,487	7,760	4,286	1,623	—

Note: No data are available for Roumania, the Serb-Croat-Slovene State or Greece.

TABLE 4.

Incidence of Dysentery in Central and Eastern Europe, 1922.

The figures in *italics* indicate the number of deaths; those in ordinary type indicate the number of cases notified.

Country or Region ¹	Year 1921	January	February	March	April	May	June
GERMANY:							
Eastern Prussia	695	1	4	7	4	7	6
Silesia	10,327	39	43	47	35	47	41
Central and Northern Provinces	3,726	47	60	104	81	87	116
Western Provinces	11,405	108	74	98	90	246	210
Southern Germany	2,513	15	48	32	21	43	54
GERMANY: total	28,666	210	229	288	231	430	427
CZECHOSLOVAKIA:							
West of the Carpathians	4,622	38	32	59	37	34	42
	<i>443</i>	<i>0</i>	<i>2</i>	<i>1</i>	<i>2</i>	<i>4</i>	<i>3</i>
East of the Carpathians	3,903	38	16	29	14	12	23
	<i>438</i>	<i>3</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>1</i>	<i>3</i>
CZECHOSLOVAKIA: total	8,525	76	48	88	51	36	65
	<i>881</i>	<i>3</i>	<i>2</i>	<i>3</i>	<i>2</i>	<i>5</i>	<i>6</i>
AUSTRIA	4,733	64	64	68	85	99	108
	<i>778</i>	<i>21</i>	<i>12</i>	<i>22</i>	<i>18</i>	<i>19</i>	<i>19</i>
HUNGARY	—	46	32	47	—	43	76
	—	<i>1</i>	<i>3</i>	<i>3</i>	—	<i>4</i>	<i>11</i>
FINLAND	391	4	2	3	0	9	5
ESTHONIA	1,199	15	1	6	0	1	5
LATVIA	1,162	4	2	2	4	9	24
LITHUANIA	1,155	2	23	3	4	4	20
	<i>103</i>	<i>0</i>	<i>2</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>
DANZIG	21	0	1	0	2	0	0
	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>

¹ The figures of population are given in Table 1.

TABLE 4 (concluded).

Incidence of Dysentery in Central and Eastern Europe, 1922.

The figures in *italics* indicate the number of deaths; those in ordinary type indicate the number of cases notified.

Country or Region	Year 1921	January	February	March	April	May	June
POLAND:							
Western Zone	4.783 <i>561</i>	13 <i>2</i>	19 <i>1</i>	35 <i>3</i>	19 <i>2</i>	48 <i>5</i>	53 <i>1</i>
West-Central Zone	13.505 <i>2,567</i>	27 <i>7</i>	26 <i>3</i>	37 <i>2</i>	20 <i>5</i>	45 <i>7</i>	77 <i>15</i>
East-Central Zone	8.804 <i>1,582</i>	42 <i>8</i>	59 <i>11</i>	50 <i>17</i>	23 <i>3</i>	32 <i>9</i>	54 <i>8</i>
of which City of Warsaw	589 <i>109</i>	8 <i>1</i>	16 <i>2</i>	10 <i>3</i>	17 <i>0</i>	17 <i>4</i>	13 <i>2</i>
Eastern Zone.	3.941 <i>190</i>	148 <i>17</i>	139 <i>9</i>	76 <i>7</i>	79 <i>9</i>	114 <i>2</i>	123 <i>7</i>
POLAND: total	31.033 <i>4,900</i>	230 <i>34</i>	243 <i>24</i>	198 <i>29</i>	141 <i>19</i>	239 <i>23</i>	307 <i>31</i>
BULGARIA	—	2 <i>0</i>	33 <i>0</i>	3 <i>0</i>	—	—	—
CONSTANTINOPLE	—	—	—	—	—	—	—
		4	4	6	4	2	1
RUSSIA:							
Northern Region	9.459	45	29	52	41	12	—
North-Western Region	8.278	51	63	51	55	33	—
Western Region	16.097	243	306	34	34	14	—
Ukraine	55.291	1.602	2.236	1.838	2.079	932	—
Crimea	520	17	30	73	118	41	—
South-Central Region	27.749	1.297	722	1.259	687	97	—
Central Region	64.728	608	666	516	484	286	—
East-Central Region	16.228	358	145	182	14	2	—
Volga Region	19.405	1.385	1.328	2.524	2.305	1.073	—
Ural Region	32.357	656	936	1.504	1.151	643	—
Black Sea Region.	603	189	552	413	207	243	—
Caucasus.	2.709	151	182	226	360	200	—
Middle Asia	1.008	2.350	2.328	1.965	1.063	—	—
Red Army and Navy	16.293	—	—	—	—	—	—
Railways.	13.980	269	1.423	1.517	1.010	627	—
Waterways	252	20	10	13	—	—	—
Prisons	845	53	128	82	10	—	—
RUSSIA: total	285.882	9.294	11.095	12.249	9.618	4.203	—

Note: No data are available for Roumania, the Serb-Croat-Slovene State or Greece.

III.

MORBIDITY STATISTICS FOR A GOVERNMENT OF THE EASTERN FAMINE AREA



Russian official morbidity statistics give no adequate indication of the extreme conditions of suffering known to exist in large parts of the country.* They are extremely incomplete, particularly for the rural districts which make up the three-fourths of Russia, and as a rule, refer only to a few diseases, notably typhus, relapsing fever and cholera. So much has been written lately about typhus that there is a general idea that this disease presents the only epidemic problem of magnitude in Russia.



The truth is, however, that nearly all diseases have increased enormously, in frequency as well as in virulence and fatality. Numerous infections are attaining a virulence never before known, and this may possibly result in new pandemics of inestimable danger to the entire world.

While the information contained in the official statistics is meagre — though the administration is apparently doing remarkably well in this respect, given the enormous difficulties under which it labours — interesting studies have been published indicating that good work has been done in many distant localities in spite of extreme hardships. This is true of bacteriology as of general epidemiology and also in the field of health administration. The lack of co-ordination and of facilities for exchange of results makes it difficult, however, to draw the full benefit from such scattered efforts.

We know that the famine is the fundamental factor in determining the present epidemic situation, but conclusive statistics are lacking from the most severely famine-stricken regions. Some data recently received from the local health administration of the government of Simbirsk are therefore of special interest. The data are not complete and could not possibly be so for the rural regions, but they are sufficiently exact to allow of an estimate of the actual number of contagious cases existing. No less than 26 diseases are included in the list and it is greatly to the credit of the local health administration, as well as of the practising physicians, that a fair proportion of cases of all these diseases has been registered.

The government of Simbirsk is situated on the right bank of the middle Volga, south of Kazan and west of Samara. It is estimated that sixty to eighty per cent. of the population were living under famine conditions, although the situation was not quite so extreme as in Kazan or Samara. Simbirsk is an entirely agricultural district with a population of 1,664,000. There are only two towns of any importance: namely, Simbirsk with 70,000 inhabitants, and Syzran — where the Trans-Siberian railway crosses the Volga — with 54,000. Data for the northernmost district, Kurmych, are not available, so that the area actually referred to here had a population of 1,455,000 at the census of 1920.

Some of the diseases are of little importance, but we give the complete list in order to show the entire morbidity as it was observed during the first four months of 1922:

Month	Typhus	Relapsing Fever	Typhoid Fever	Undiff. Typhus	Total of cols. 1-4	Asiatic Cholera
January	5,716	3,579	1,803	1,498	12,596	0
February.	8,587	4,685	1,748	3,624	18,644	0
March	9,022	4,349	1,747	2,485	17,963	0
April.	6,583	2,734	895	1,574	11,786	12

	Infantile Cholera	Epidemic Diarrhœa	Dysentery	Epidemic Jaundice	Smallpox	Scarlet Fever
January	620	518	436	970	257	399
February.	125	553	499	318	395	390
March	101	803	540	315	239	343
April.	69	767	565	254	143	119

	Diphtheria	Measles	Whooping Cough	Mumps	Erysipelas	Anthrax
January	133	697	489	994	335	38
February.	94	1,220	553	696	200	17
March	124	807	654	775	174	18
April.	72	487	487	560	132	15

Month	Malaria	Influenza	Pneumonia	Pulmonary Tuberculosis	Glandular and cutaneous Tuberculosis	Surgical Tuberculosis
January	2,037	4,082	817	1,181	403	289
February	2,770	4,779	643	693	726	197
March	5,084	4,542	636	674	182	99
April	6,193	2,830	407	679	212	133

	Syphilis	Gonorrhœa	Trachoma	Scurvy	Other diseases of starvation	All diseases
January	1,859	350	227	1,830	10,768	42,325
February	2,725	338	87	1,677	7,460	45,799
March	2,210	366	280	2,107	7,743	46,779
April	1,332	224	409	1,038	7,343	32,668

It appears from the above table that nearly all diseases furnished a far higher number of cases than under normal conditions. During the four months here considered, a total of 171,171 notifications were made among a population of 1,455,000, which means that during the six months December to May, in which the epidemic situation changed but little, more than one-sixth of the inhabitants have actually been reported sick. These figures are known to be too low because of incomplete registration, particularly in the rural districts. This appears readily from a comparison of the rate of incidence of the various diseases in the rural districts as compared with the aggregate of the six district-capitals (month of April only):

Diseases	Urban Districts		Rural Districts	
	Cases	Rate per 1,000 pop.	Cases	Rate per 1,000 pop.
Typhus.	2,100	13.5	4,483	3.5
Relapsing Fever.	953	6.1	1,781	1.4
Typhoid Fever	68	0.4	827	0.6
Undefined Typhus.	1,126	7.2	448	0.3
Total.	4,247	27.2	7,539	5.8
Cholera.	3	—	9	—
Diarrhœal Diseases	475	3.0	361	0.3
Dysentery	209	1.3	356	0.3
Epidemic Jaundice	41	0.3	213	0.2
Smallpox.	42	0.3	101	0.1
Malaria.	1,534	9.8	4,659	3.6
Influenza and Pneumonia	616	3.9	2,621	2.0
Tuberculosis	379	2.4	645	0.5
Syphilis	180	1.2	1,152	0.9
Scurvy.	36	0.2	1,002	0.8
Other Diseases of Starvation	3,423	21.9	3,920	3.0
Other Diseases	485	3.2	2,020	1.5
TOTAL	11,670	74.7	24,598	19.0

The number of cases notified in April were thus, in proportion to the population, four times higher in the urban than in the rural districts. Allowing for the number of refugees probably present in the towns and for the expected greater urban morbidity from certain diseases, it is evident that the rural figures are under-stated; this must be the case particularly as regards typhus, relapsing fever, malaria, tuberculosis and the diseases due to starvation.

Considering the urban data as complete — which they undoubtedly are not — we see that in April alone 7.5 per cent. of the population in the towns were officially notified as suffering from contagious diseases or typical diseases of starvation, and for the six months of winter and spring the number of sick must have been equal to one-half of the population.

Similar, if not worse, conditions existed throughout the Volga region and Southern Ukraine, a tract of territory the population of which outnumbers that of France or Great Britain. This area constitutes a breeding-ground for infectious diseases which Europe has not known for centuries, and it is most improbable that the consequences will remain localised to these regions. The entire epidemic constitution of Europe, which is only now restabilising itself after the great influenza pandemic, may become entirely changed by what is happening now on the Volga. The effects of the calamity will be felt by the Russian people for at least one or two generations.

Typhus and relapsing fever were the diseases most in evidence during the winter months and are therefore detailed below by districts for the month of April; a total has been made for these two diseases, together with typhoid fever and undifferentiated typhus because of the frequent diagnostic confusion between them—:

<i>Town</i>	Population	Typhus	Relapsing Fever	Typhoid Fever	Undiff. Typhus	Total	Rate per 1,000 pop.	Scurvy and other diseases of starvation	Rate per 1,000 pop.
Simbirsk . . .	70,467	899	480	59	413	1,851	26.3	1,723	24.5
Sengilei. . . .	6,718	174	7	2	37	220	32.7	188	28.0
Syzran.	53,723	792	238	6	676	1,712	31.9	1,357	25.3
Korsoun	2,843	52	69	1	0	122	42.9	8	2.8
Alatyr	16,410	150	148	0	0	298	18.2	132	8.0
Ardatov	6,078	33	11	0	0	44	7.2	51	8.4
<i>Rural District</i>									
Simbirsk	231,744	868	353	111	64	1,396	6.0	915	3.9
Sengilei.	157,198	958	289	32	39	1,318	8.4	779	5.0
Syzran.	297,523	1,095	541	41	185	1,862	6.3	1,021	3.4
Korsoun	240,033	644	243	449	53	1,389	5.8	871	3.6
Alatyr	157,939	463	193	129	83	868	5.5	873	5.5
Ardatov	213,927	455	162	65	24	706	3.3	463	2.2
Total.	1,454,603	6,583	2,734	895	1,574	11,786	8.1	8,381	5.8

Further detailed discussion regarding the relative incidence of epidemic disease in urban and rural areas, respectively, would hardly be justified without more detailed knowledge than we possess regarding the effects of famine and disease on the distribution of the population. One would expect that one of the first effects of famine would be the depopulation of remote villages and increased population in towns and on main lines of communication.

All the rates referred to are estimated on the population returns of the census of 1920; these figures are almost certainly in considerable excess of the actual population at risk, owing to the depopulation that has constantly been going on since that date. The rates therefore give an inadequate idea of the gravity of the situation.

Data for May for the city of Simbirsk indicated a slight increase of the affections due to starvation from 1,723 in April to 1,799 in May, an increase of diarrhoeal cases of epidemic nature from 468 to 538, and of malaria from 1,132 cases to 1,433. A recrudescence of influenza was in evidence, while cholera had not passed beyond the stage of sporadic cases owing to the cool weather of the early summer. Typhus had not begun to show any material decrease in incidence; there were 780 cases of typhus in May in the city as against 899 in April, and 470 cases of relapsing fever as compared with 480 in April.

Simbirsk was formerly one of the most progressive districts on the Volga, and the sanitary conditions were described as good before the war. It is almost certain, therefore, that the conditions revealed by the figures analysed above, appalling as they are, must have been even worse in other districts of the ill-fated Volga area.

IV.

THE DEPOPULATION OF RUSSIA.

Since the preliminary results of the Russian Census were published in No. 1 of this Bulletin, two interesting essays on this subject have been published in Russia, one by M.W. Mikhailovski, the Director of the Central Statistical Office, in the third Russian census publication, and another by Dr. A. N. Syssin, of the Epidemiological Section of the People's Health Commissariat.

It appears from Dr. Syssin's article that the official figure for the population of Russia and all federated republics and territories is 131,546,000. The population of various administrative divisions is as follows:

1. European Russia:		
(a) 42 governments		60,164,000
(b) 8 autonomous territories		6,322,000
2. White Russia		1,634,000
3. The Ukraine (12 governments)		26,002,000
4. Crimea		762,000
5. North Caucasus and the Don area (4 governments and 1 territory)		6,851,000
6. South Caucasus (4 republics)		6,482,000
7. Siberia (9 governments)		9,258,000
8. The Kirghiz Republic (6 governments)		5,058,000
9. The Turkestan Republic (6 territories)		7,201,000
10. The Far-Eastern Republic (4 districts)		1,812,000
Total		131,546,000

The total area of the Russian Soviet Federation is given as 8,166,000 square miles, while the lost territories aggregate 315,500 square miles with about 28 million inhabitants.

The disproportion of the sexes, which is quite unusual in the rural districts, is highly significant:

	Male	Female	Total
Urban	9,788,000	10,904,000	20,692,000
Rural	51,241,000	59,613,000	110,854,000
Total	61,029,000	70,517,000	131,546,000

M. Mikhailovsky bases his study on data for European Russia, Northern Caucasus, Siberia up to the Baikal Sea, the Kirghiz Republic and two governments of the Ukraine. He finds that in this area the population has declined from 102,793,000 in 1914 to 90,790,000 in 1920 (excluding the army, which was then estimated at 3 million men), or, allowing for the army, by nearly ten per cent. Instead of this decrease of 9 million inhabitants, there would have been an increase of about 12 millions if the rate of natural increase from before the war had continued.

European Russia has been the principal sufferer, while the population has diminished only slightly in the far-away Asiatic territories. The percentages of decrease given by M. Mikhailovsky are 14 % for European Russia, 9 % for the Ukraine, 5 % for Northern Caucasus, 3 % for Siberia, and 4 % for the Kirghiz Republic.

This decline is attributed to the following causes: (1) Emigration following the civil war, which is estimated as high as 2 millions; (2) military losses in the world war, 2 ½ millions; (3) loss of life in the civil war not less than one million; and (4) surplus mortality largely due to the great epidemics, about 3 ½ millions. The latter figure is probably an under-estimate.

The registration of births and deaths has been very incomplete in recent years, but below are given the rates per 1,000 population for 1920 for 15 governments which were considered by the Russian Central Statistical Bureau to be more or less complete; everywhere the death-rate exceeded the birth-rate:

	Birth rate	Death rate	Natural decrease
<i>In the North-West:</i>			
City of Petrograd	22.3	89.5	67.2
Cherepovetz	24.0	29.6	5.6
Novgorod.	24.0	25.3	1.3
<i>Central Region:</i>			
Tver.	26.1	27.0	0.9
Smolensk.	29.7	33.4	3.7
Government of Moscow.	27.5	40.8	13.3
City of Moscow	21.9	46.2	24.3
Riazan.	25.4	27.2	1.8
Orel	24.2	36.4	12.2
<i>East-Central Region:</i>			
Kostroma.	33.2	49.6	16.4
Ivanovo-Vosnessensk.	32.8	46.3	13.5
Nijni-Novgorod	24.9	33.8	8.9
Penza	28.0	40.8	12.8
<i>In the North-East:</i>			
Viatka.	16.2	24.1	7.9
Perm.	19.0	26.0	7.0

The birth-rate, which was extremely high in Russia, averaging about 45 per 1,000 population before the war, has declined by more than forty per cent.

The 1921 Annual Report of the Health Department of the Government of Orel contains interesting information regarding the causes of death. In the city of Orel (63,800 inhabitants in 1920 as against 97,200 in 1913) there were 1,044 births and 3,559 deaths in 1920, giving a birth-rate of 15.6 and a death-rate of 53.1 per 1,000 population as against 32.7, the mean birth-rate for the decennium 1905-14, and 25.4 the mean pre-war death-rate. More than half of the deaths were due to infectious diseases, of which typhus accounts for 27.4 % of all deaths. Among the other causes of death were pneumonia 9.1 %, pulmonary tuberculosis 6.5 %, dysentery 4.6 %, senility 10 % and starvation 4.4 %.

Attention is called to the fact that the census of Russia was taken in August, 1920; since then has occurred the famine, which in importance overshadows all the previous scourges from which the country has suffered. It is too early to give estimates of the number of lives lost by reason of the famine, but they may undoubtedly be counted in millions. It is hardly an exaggeration to say that one must go back to the position of Germany after the Thirty Years' War in order to find an example of depopulation of such magnitude as that met with in Russia to-day.

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