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APPENDIX C

Basic Series on Soviet Transportation

BY GEORGE NOVAK

REVISED AND EXTENDED BY HOLLAND HUNTER

General Note

Most of these data were assembled in the mid-1950's from primary Soviet sources published during the 1920's and 1930's. Since 1956 many series have been republished and extended in new statistical publications, the most important for transportation being the USSR Central Statistical Administration's *Transport i sviaz'* [Transportation and Communications in the USSR] published in 1957. The new figures generally correspond to those released contemporaneously, and absolute data now available for postwar years generally fall very close to our previous estimates derived from indirect percentage or other relationships.

In all series below, the newly available Soviet figures are given in column 1, with alternative figures given in column 2 only where significant discrepancies appear.

The series cover the Soviet territory as it existed in the given years. For 1913, they cover the pre-World War II territory; and for 1940, the post-World War II territory. At the head of the stub there is a special entry, 1913A, which refers to Tsarist territory for 1913 excluding Finland.

A dash (—) means that there was no production or that it was negligibly small. A blank space means that no definite information was found. Estimates and adjustments of other types are indicated by square brackets. A single asterisk (*) indicates that the figure refers to the calendar year in which the fiscal year given in the stub ended. A double asterisk (**) indicates that the figure refers to the fiscal year ending in the calendar year given in the stub.

I. Railroad Freight Traffic[a]

	C-1 Tariff Ton-Kilometers (billions)		C-2 Tons Originated	C-3 Average Length of Haul (kilometers)	
	(1)	(2)		(1)	(2)
1913A	76.8	76.0	158.2	485	
1913	65.7		132.4	496	
1914	62.9	74.7	122.9	512	
1915	75.6	83.1	126.1	600	
1916	91.2		147.4	619	
1917	63.0	63.0	115.2	547	
1918	14.1	14.2	37.2	381	380
1919	17.5	17.5	30.5	574	
1920	14.4	13.5	40.3	357	
1921	15.7		37.4	415	399
1921/22	16.1		39.9	402	
1922/23	23.5		58.0	405	407
1923/24	33.7		67.5	500	
1924/25	47.4		83.5	568	
1925/26	68.9		116.7	590	500
1926/27	81.7		135.9	601	
1928	93.4		156.2	598	
1929	113.0		187.6	602	612
1930	133.9		238.7	561	
1931	152.1		258.3	589	
1932	169.3		267.9	632	
1933	169.5		268.1	632	635
1934	205.7		317.1	649	669
1935	258.1		388.5	664	
1936	323.4		483.2	669	
1937	354.8		517.3	686	
1938	370.5		516.3	718	
1939	391.7		553.6	708	
1940	415.0		592.6	700	705
1941	[402]		[549]	732	[693]
1942	[228]		[290]	786	
1943	[256]		313.0	[818]	
1944	[297]		371.0	[801]	
1945	314.0		395.2	794	
1946	335.0		452.6	740	745
1947	350.5		491.1	714	709
1948	446.0		619.8	720	
1949	523.8		735.3	712	728
1950	602.3		834.3	722	727
1951	677.3		909.2	745	
1952	741.3		997.0	744	749
1953	798.0		1,067.4	748	752
1954	856.8		1,131.4	757	762
1955	970.9		1,267.0	766	771
1956	1,079.1		1,371.0	787	
1957	1,212.8		1,487.7	815	
1958	1,302.0		1,616.9	805	
1959	1,429.5		1,763.8	810	
1960	1,504.3		1,884.9	798	

[a] Excluding company material hauled in nonrevenue trains.

	C-4 Average Daily Carloadings (thous. 2-axle units)	C-5 Average Load per Car (metric tons)	C-6 *Operating Ton-Kilometers* (billions) (1)	Excess of Operating over Tariff Ton-Kms (per cent) (2)	(3)
1913A	33.0	13.1			
1913	27.4	13.2	[67.7]	[3.0]	
1914					
1915					
1916					
1917	25.8	12.7			
1918	[8.90]	[11.5]			
1919	7.91	10.3			
1920	10.7	9.87			
1921	10.2	10.2			
1921/22	9.59	11.5			
1922/23	11.7	13.6			
1923/24	13.5	13.7			
1924/25	17.4	13.1			
1925/26	24.0	13.3			
1926/27	27.9	13.4			
1928	32.3	13.2	95.4	2.15	
1929	38.6	13.3	117.5	4.03	
1930	46.3	14.1	142.6	6.46	6.5
1931	49.3	14.3	164.0	7.81	8.0
1932	51.4	14.3	177.1	4.60	5.0
1933	51.2	14.3	176.7	4.25	5.0
1934	55.7	15.6	217.4	5.67	5.7
1935	68.1	15.6	268.8	4.14	4.2
1936	86.2	15.4	332.5	2.82	3.3
1937	89.8	15.8	367.8	3.65	3.7
1938	88.0	16.1	384.4	3.75	3.8
1939	93.4	16.2	404.6	3.3	3.3
1940	97.9	16.6	432.5	4.2	4.6
1941	[86.0]	[17.4]	[419.0]	[4.3]	
1942	42.8	[18.6]	[238]	[4.4]	
1943	45.7	18.8	[269]	5.2	
1944	55.7	18.3	[321]	7.99	
1945	62.2	17.5	348.8	11.1	8.0
1946	69.8	17.8	[361.0]	[7.7]	
1947	75.7	17.9	365.2	4.2	
1948	90.3	18.8	[461.2]	[3.4]	
1949	104.7	19.2	[537.4]	[2.6]	
1950	118.1	19.3	613.7	1.9	
1951	127.5	19.5	[689.5]	[1.8]	
1952	138.2	19.8	[753.9]	[1.7]	
1953	147.6	19.8	810.8	1.6	
1954	156.5	19.8	867.9	1.3	
1955	169.3	20.5	980.0	1.1	
1956	[181.5]	[20.7]	1,093.8	1.4	
1957	[195.0]	[20.9]	1,230.1	1.4	
1958	[209.9]	[21.1]	1,319.4	1.3	
1959	[226.9]	[21.3]	1,452.4	1.6	
1960	[240.2]	[21.5]	1,536.4	2.1	

C-7
Commodity Composition, Tons Originated (millions)

Commodity	1930 (1)	1935 (2)	1940 (3)	1945 (4)	1950 (5)	1955 (6)	1958 (7)	1960 (8)
Coal and coke	41.4	94.7	152.5	142.3	266.1	389.0	478.8	492.5
Building timber	30.9	42.2	42.8	26.5	72.4	94.1	121.5	140.7
Oil and oil products	13.2	22.4	29.5	21.3	43.2	77.6	112.5	151.0
Mineral building materials	—	61.2	111.7	41.9	157.5	245.6	324.2	430.4
Iron and steel	8.3	19.1	27.1	21.3	43.3	71.8	88.3	106.4
Grain	24.3	30.0	44.6	20.2	38.8	58.0	71.5	78.8
Ores	9.9	26.0	35.2	17.8	48.4	83.8	108.1	127.4
Firewood	15.1	18.3	23.1	17.4	18.9	16.4	18.1	19.7
All other	—	74.7	126.1	86.6	145.7	230.7	293.9	338.0

C-8
Commodity Composition, Ton-Kilometers (billions)

Coal and coke	25.4	61.0	106.9	98.7	178.2	266.7	348.9	333.8
Building timber	20.3	33.8	43.6	20.7	72.2	119.9	178.4	213.6
Oil and oil products	10.4	22.8	36.4	23.8	52.0	101.6	154.0	205.4
Mineral building materials	—	—	28.2	9.6	46.7	82.1	113.9	155.6
Iron and steel	6.7	18.7	26.2	23.9	47.5	75.7	90.6	110.4
Grain	14.6	20.6	32.8	23.3	30.9	55.1	80.8	90.7
Ores	3.9	16.0	21.5	12.5	27.8	45.0	59.9	71.6
Firewood	3.8	4.7	5.8	2.7	4.5	5.2	6.8	8.2
All other	—	—	113.6	98.8	142.5	219.6	268.7	315.0

	C-9 Total Passenger-Kilometers (billions)	C-10 Total Passengers (millions)	C-11 Average Length of Total Trip (kilometers)	C-12 Long-Distance Passenger-Kilometers (billions)
1913A	29.7	244.3	122	27.8
1913	25.2	184.8	136	23.7
1914		234.8		
1915		264.4		
1916		347.9		
1917		353.5		
1918		385.5		
1919		201.6		
1920		142.6		
1921	11.3	83.6	136	
1921/22	9.87	76.6	129	
1922/23	13.9	121.8	114	
1923/24	15.4	154.4	100	13.3
1924/25	19.0	211.8	90	16.4
1925/26	23.4	262.7	89	20.2
1926/27	22.1	254.2	87	18.9
1928	24.5	291.1	84	20.6
1929	32.0	365.2	88	27.4
1930	51.8	557.7	93	44.3
1931	61.8	723.7	85	50.2
1932	83.7	967.1	87	67.0
1933	75.2	927.0	81	59.1
1934	71.4	945.2	76	54.6
1935	67.9	919.1	74	51.1
1936	77.2	991.6	78	59.3
1937	90.9	1,142.7	80	69.5
1938	84.9	1,173.2	72	69.4
1939	93.7	1,267.2	74	[69.2]
1940	98.0	1,343.5	73	73.2
1941				
1942				
1943				
1944				
1945	65.9	843.0	78	50.9
1946	97.9	1,078.1	91	
1947	95.1	1,094.7	87	
1948	82.5	1,049.3	79	
1949	81.3	1,080.1	75	61.4
1950	88.0	1,163.8	76	66.8
1951	98.5	1,315.3	75	73.4
1952	107.4	1,440.7	75	79.6
1953	118.3	1,504.3	79	89.4
1954	129.1	1,573.6	82	98.5
1955	141.4	1,641.4	86	109.1
1956	142.4	1,658.3	86	109.9
1957	153.4	1,754	87	118.7
1958	158.4	1,834	86	121.6
1959	164.4	1,883	87	126.0
1960	170.8	1,950	88	130.1

	C-13 Long-Distance Passengers (millions)	C-14 Average Length of Long-Distance Trip (kilometers)	C-15 Suburban Passenger-Kilometers (billions)	C-16 Suburban Passengers (millions)	C-17 Average Length of Suburban Trip (kilometers)
1913A	169.4	164	1.91	74.9	26
1913	125.5	189	1.54	59.3	26
1914					
1915					
1916					
1917					
1918					
1919					
1920					
1921					
1921/22					
1922/23					
1923/24	74.3	180	2.08	80.1	26
1924/25	105.5	155	2.68	106.3	25
1925/26	131.9	153	3.21	130.8	25
1926/27	122.4	154	3.24	131.8	25
1928	134.1	154	3.84	157.0	24
1929	173.4	158	4.61	191.8	24
1930	240.5	184	7.43	317.2	24
1931	245.9	204	11.6	477.8	24
1932	303.1	221	16.7	664.0	25
1933	297.6	199	16.0	629.4	25
1934	258.3	211	16.9	686.9	25
1935	228.1	224	16.8	691.0	24
1936	249.0	238	17.9	742.6	24
1937	273.4	254	21.4	869.3	25
1938	272.6	255	22.3	905.2	25
1939	286.2	[242]	[24.5]	980.9	[25]
1940	340.4	215	24.7	1,003	24.6
1941					
1942					
1943					
1944					
1945	254.0	200	15.0	590	25.4
1946					
1947					
1948					
1949	202.5	303	19.9	877.6	22.7
1950	209.1	319	21.2	954.7	22.2
1951	214.3	343	25.1	1,101	22.8
1952	222.7	357	27.8	1,218	22.8
1953	229.3	390	28.9	1,275	22.7
1954	235.6	418	30.6	1,338	22.9
1955	249.4	437	32.3	1,392	23.2
1956	244.3	450	32.5	1,414	23.0
1957	248.0	479	34.7	1,506	23.0
1958	251.0	484	36.8	1,583	23.2
1959	248.0	508	38.4	1,635	23.5
1960	237.0	549	40.7	1,713	23.8

III. Freight Train Performance

	C-18 Average Section ("Commercial") Speed (kms-hr.)	C-19 Average "Technical" Speed (kms-hr.)	C-20 Average Gross Train Weight (metric tons)	C-21 Average Net Train Weight (metric tons)	C-22 Total Train-Kilometers (millions)
1913A				302	244.7
1913	13.6	16.5	573	[302]	211.9
1914				269	
1915				279	
1916					
1917	13.1				
1918	13.0				
1919	12.5			162	
1920	12.2			196	
1921	12.7			209	
1921/22	12.3			228	65.1
1922/23	13.3	18.3		272	81.4
1923/24	13.5	20.4		320	101.7
1924/25	13.2	20.6	740	371	124.2
1925/26	13.2	20.9	765	395	170.6
1926/27	13.3	20.9	818	411	194.9
1928	14.1	21.1	817	420	218.8
1929	13.3	21.1	854	443	252.5
1930	12.2	21.8	937	523	266.9
1931	13.2	22.3	967	549	293.0
1932	14.3	23.0	966	543	320.3
1933	13.8	22.3	959	533	326.4
1934	14.2	23.5	994	556	386.2
1935	15.6	24.4	1,035	590	450.0
1936	18.3	29.8	1,160	661	503
1937	19.5	31.4	1,199	677	543.3
1938	19.1	31.9	1,262	[703]	[546.8]
1939	19.3	32.7	1,296	711	569.1
1940	20.3	33.0	1,298	726	595.7
1941			[1,315]		
1942					
1943					
1944					
1945	17.2	29.2	1,249	686	508.5
1946	17.9		1,221	[670]	[538.8]
1947	18.9	32.9	1,238	[687]	[531.6]
1948	17.4		[1,340]	[750]	[614.9]
1949	18.4		[1,390]	[785]	[684.6]
1950	20.1	33.8	1,430	815	753.0
1951	22.0	34.5	1,478	839	[821.8]
1952	23.3	34.9	1,521	859	[877.6]
1953	23.5	35.0	1,579	894	906.9
1954	22.9	35.2	1,660	936	927.2
1955	24.7	37.1	1,758	1,002	978.0
1956	24.8	37.6	1,831	1,052	1,039.7
1957	25.6	37.8	1,887	1,089	1,129.6
1958	26.6	38.5	1,972	1,126	1,171.7
1959	27.2	39.2	2,037	1,167	1,244.6
1960	28.3	40.4	2,099	1,201	1,279.3

	C-23 Locomotives in Inventory Fleet (thousands)	C-24 Total Tractive Effort of Locomotives in Inventory Fleet (th. m. tons)	C-25 *Average Daily Kilometers per Locomotive-Day (kilometers)*			
			All (1)	Steam (2)	Electric (3)	Diesel (4)
1913A	20.0	204.3	119.1			
1913	17.0	174.0	119.1			
1914						
1915						
1916						
1917			91.5			
1918			58.6			
1919			67.9			
1920			59.5			
1921			84.2			
1921/22	19.1		90.5			
1922/23	19.5		107.0			
1923/24	20.2		114.6			
1924/25	20.3		120.5			
1925/26	19.3		122.0			
1926/27	18.5		130.9			
1928	16.5	186.0	137.5			
1929	[16.6]	[192.6]	151.5			
1930	[17.0]	[204.0]	153.3			
1931	[18.6]	[230.6]	159.7			
1932	19.2	246.6	164.6			
1933	[20.2]	[262.6]	163.5			
1934	[21.0]	[279.3]	168.5			
1935	22.1	306.5	189.1			
1936	23.0	323.8	232.3			
1937	23.6	337.5	245.6			
1938	[24.3]	[355.4]	250.8			
1939	25.0	373.2	251.2			
1940	[28.0]	[418.5]	255.1			
1941						
1942	[23.8]					
1943	[25.8]					
1944	[26.4]					
1945	[27.0]	[430]	215	213	307	376
1946						
1947						
1948			214			
1949			232			
1950	[31]	[520]	245	243	302	300
1951			250	247	313	286
1952			252	250	302	284
1953	34.0	[600]	256	253	306	291
1954	35.0		257	253	312	294
1955	36.0	[640]	286	277	382	362
1956			296	282	428	388
1957			317	299	457	427
1958			328	302	497	447
1959			345	309	535	470
1960			367	317	557	486

	C-26 Active Fleet, Revenue Trains (th. car-days per day in 2-axle units)	C-27 Fleet Under RR Jurisdiction (th. car-days per day in 2-axle units)	C-28 Percentage of Four-Axle Units in Total Inventory Fleet	C-29 Turnaround Time, Active Fleet (days) (1)	C-29 Turnaround Time, Active Fleet (hours) (2)
1913A	397.6	470.4			
1913	336.2	397.2		12.27	294.5
1914					
1915					
1916					
1917	238.1				
1918	212.9				
1919	184.9				
1920	257.9	[410.1]			
1921	218.5	[417.1]		21.5**	516.0**
1921/22	218.7	407.0		22.8	547.2
1922/23	200.8	391.9		17.1	410.4
1923/24	216.3	423.5		16.0	384.0
1924/25	233.1	433.5		13.4	321.6
1925/26	300.1	436.4		12.5	300.0
1926/27	314.9	450.3		11.3	271.2
1928	341.4	472.0	5.5	10.56	253.4
1929	393.3	494.5	[6.2]	10.19	244.6
1930	432.8	507.2	6.9	9.34	224.2
1931	472.8	529.4	[7.6]	9.58	229.9
1932	480.7	545.8	8.3	9.35	224.4
1933	490.2	555.4	9.0	9.57	229.4
1934	487.5	565.2	10.5	8.75	210.7
1935	523.7	604.6	12.1	7.69	184.6
1936	580.7	[670.6]	15.6	6.74	162.8
1937	627.0	723.2	19.6	6.98	167.5
1938	662.1	757.4	22.7	7.52	180.5
1939	677.0	[780.0]	24.9	7.25	174.0
1940	721.2	836.7	30	7.37	176.9
1941	[726]			8.44	202.6
1942	590	669		13.8	331.2
1943	576	725		12.6	302.4
1944	[655]	[820]		[11.7]	[281.3]
1945	674	[838]	[28]	10.84	260.2
1946	699		28	9.99	239.8
1947	731			9.65	231.6
1948	788			8.73	209.5
1949	866			8.19	196.6
1950	885	[1,028]	[36.4]	7.49	179.8
1951	909			7.13	171.1
1952	949			6.87	164.9
1953	980			6.64	159.4
1954	1,045		53.4	6.68	160.3
1955	1,055	[1,230]*	[55]	6.23	149.5
1956	[1,145]			6.31	151.4
1957	[1,193]			6.12	146.9
1958	[1,224]		70.5	5.83	139.9
1959	[1,298]			5.72	137.3
1960	[1,343]			5.59	134.2

	C-30 Average Daily Kilometers per Active Car-Day (kilometers)	C-31 Average Total Turnaround Trip (kilometers)	C-32 Average Loaded Turn-around Trip (kilometers)	C-33 *Average Empty Turnaround Trip* (kilometers) (1)	C-33 *Average Empty Turnaround Trip* Per Cent of Total Trip (2)
1913A	75.0	904	645	259	
1913	[75.0]	920	[657]	263	28.6
1914					
1915					
1916					
1917	65.8				
1918	27.9				
1919	35.9				
1920	34.8				
1921	37.9**	815**	505**	310	38.0**
1921/22	37.9	864	550	314	36.3
1922/23	48.0	821	522	299	36.4
1923/24	56.3	901	582	319	35.4
1924/25	67.0	898	634	264	29.4
1925/26	72.9	911	650	261	28.6
1926/27	80.4	909	647	262	28.8
1928	84.6	892	637	255	28.6
1929	87.3	890	642	248	27.9
1930	89.5	836	611	225	26.9
1931	90.9	871	644	227	26.1
1932	97.3	910	664	246	27.0
1933	97.6	934	673	261	27.9
1934	117.5	1,029	732	297	28.9
1935	128.4	987	719	268	27.2
1936	140.3	946	692	254	26.9
1937	139.8	976	721	255	26.1
1938	138.4	1,041	753	288	26.8
1939	145.2	1,053	757	296	28.1
1940	139.9	1,032	732	300	29.1
1941	130.3	1,100	806	294	26.7
1942	94.6	1,305	920	385	29.5
1943	108.2	1,363	924	439	32.2
1944	[109.0]	1,275	877	398	31.2
1945	123.5	1,339	979	360	26.9
1946	120.5	1,204	873	331	27.5
1947	111.6	1,077	767	311	28.8
1948	123.8	1,081	784	297	27.5
1949	133.9	1,097	792	305	27.8
1950	146.4	1,097	801	296	27.0
1951	159.0	1,073	781	292	27.2
1952	165.2	1,135	818	317	27.9
1953	171.8	1,141	825	316	27.7
1954	173.3	1,158	838	320	27.6
1955	188.2	1,172	844	328	28.0
1956	191.2	1,206	868	338	28.0
1957	206.4	1,263	[902]	[361]	[28.6]
1958	216.5	1,262	893	369	29.2
1959	222.5	1,271	902	369	29.0
1960	227.0	1,269	908	361	28.4

	C-34 Total Road Operated, Annual Averages (th. kms)	C-35 Total Road Operated, End of Year (th. kms)	C-36 Freight Traffic Density (th. ton-kms per km of road operated)	C-37 Passenger Traffic Density (th. ton-kms per km of road operated)
1913A	70.5	71.7	1,089	421
1913	58.5	58.5	1,122	431
1914	67.6	[62.3]		
1915	64.0	[65.1]		
1916	55.3	[69.3]		
1917	63.3	70.3	997	
1918	26.8	[71.3]	528	
1919	31.5	[71.4]	556	
1920	56.8	71.6	253	
1921	66.5	71.8	236	170
1921/22	69.4	71.9	231	142
1922/23	69.6	72.3	338	200
1923/24	73.9	74.5	457	209
1924/25	74.4	74.5	638	256
1925/26	74.6	75.7	924	313
1926/27	75.7	76.9	1,078	292
1928	76.9	76.9	1,215	318
1929	77.0	76.9	1,467	416
1930	77.1	77.9	1,738	672
1931	80.2	81.0	1,896	770
1932	81.6	81.8	2,075	1,027
1933	82.1	82.6	2,065	916
1934	83.2	83.5	2,472	858
1935	83.8	84.4	3,079	811
1936	85.1	85.1	3,801	907
1937	84.9	84.9	4,179	1,071
1938	84.9	85.0	4,362	1,079
1939	85.7	86.4	4,570	1,094
1940	95.5	106.1	4,346	1,018
1941				
1942		62.9		
1943	72.3	81.7	3,540	
1944	96.2	110.7	3,090	
1945	111.8	112.9	2,809	589
1946	113.5	114.1	2,952	863
1947	114.8	115.5	3,053	828
1948	115.7	115.8	3,855	713
1949	115.9	116.0	4,519	701
1950	116.5	116.9	5,170	755
1951	117.3	117.8	5,774	840
1952	118.2	118.6	6,272	909
1953	119.3	119.9	6,689	992
1954	120.1	120.3	7,134	1,075
1955	120.5	120.7	8,057	1,173
1956	120.7	120.7	8,940	1,180
1957	121.0	121.2	10,023	1,268
1958	122.0	122.8	10,672	1,298
1959	123.6	124.4	11,566	1,330
1960	125.1	125.8	12,025	1,365

	C-38 *Composite Passenger Ton-Kilometers*		C-39 *Labor Productivity*		
	Passenger Tariff Ton-Kms	Passenger Operating Ton-Kms in Revenue Trains	Based on Composite Tariff Ton-Kms	Based on Composite Operating Ton-Kms in Revenue Trains	C-40 Operating Labor Force
	(billions)		(th. compos. passenger ton-kms per operating worker)		(th. workers)
	(1)	(2)	(1)	(2)	
1913A	106.5		130.6		823
1913	90.9	[92.9]	132.9	[134]	691
1914					
1915					
1916					
1917					
1918					
1919					
1920					
1921	27.0				
1921/22	25.9				
1922/23	37.5				
1923/24	49.2				
1924/25	66.5				
1925/26	92.3		106.2		869
1926/27	103.8		113.9		911
1928	117.9	119.9	136.6	138.9	863
1929	144.9	149.5	167.0	172.2	868
1930	185.7	194.4	195.3	204.4	951
1931	213.9	225.8	195.6	206.4	1,094
1932	253.0	260.8	240.1	247.4	1,054
1933	244.6	251.9	239.6	246.7	1,021
1934	277.2	288.8	241.4	251.6	1,148
1935	326.0	336.7	261.0	269.6	1,249
1936	400.6	409.7	329.4	336.9	1,216
1937	445.8	458.7	356.6	367.0	1,250
1938	462.2	469.3	353.4	358.8	1,308
1939	485.4	498.3	[369.1]	[381.3]	[1,307]
1940	513.0	530.5	368.0	380.6	1,394
1941					
1942					
1943					
1944					
1945	379.9	414.7	250.3	273.9	1,514
1946	432.9	[458.9]	274.3	[290.8]	1,578
1947	445.6	460.3	282.3	291.0	1,580
1948	528.5	[543.7]	327.5	[341.7]	1,591
1949	605.1	[618.7]	365.2	[373.4]	1,657
1950	690.3	701.7	403.2	409.9	1,712
1951	775.8	[788.0]	439.5	[446.5]	1,765
1952	848.7	[861.3]	454.8	[461.5]	1,866
1953	916.3	929.1	482.0	488.7	1,901
1954	985.9	997.0	501.0	506.6	1,968
1955	1,112.3	1,121.4	561.8	566.4	1,980
1956	1,221.5	1,236.2	616.9	624.3	1,980
1957	1,336.2	1,383.5	669.8	693.5	1,995
1958	1,460.4	1,477.8	731.3	740.0	1,997
1959	1,593.9	1,616.8	799.3	810.8	1,994
1960	1,675.1	1,707.2	833.0	848.9	2,011

	C-41 *Ton-Kilometers*		C-42 *Tons Originated*		C-43 *Average Length of Haul*	
	Under Ministry (billions)	Under Ministry and Other Organizations	Under Ministry (millions)	Under Ministry and Other Organizations	Under Ministry (kilometers)	Under Ministry and Other Organizations
	(1)	(2)	(1)	(2)	(1)	(2)
1913A						
1913	26.2	30.9	34	34.3	771	901
1914						
1915						
1916						
1917						
1918						
1919						
1920						
1921						
1921/22						
1922/23		10.5*		14.6*		715*
1923/24	7.52*	8.80*	9.26*	13.5*	812*	652*
1924/25	10.6*	12.0*	12.6*	17.2*	840*	700*
1925/26	12.9*	15.5*	16.2*	21.7*	797*	714*
1926/27	14.2*	16.5*	16.9*	23.4*	844*	706*
1928	15.9	17.5	18.3	25.5	867	687
1929	18.4	20.7	23.2	32.0	794	646
1930	22.9		36.6	41.1	625	
1931	27.0		44.8		603	
1932	25.1		47.0		534	
1933	25.8		44.7		578	
1934	29.0		52.7		550	
1935	33.9		64.7		524	
1936	31.1		69.9		446	
1937	33.0		66.9		494	
1938	32.0		66.6		481	
1939	34.6		73		474	
1940	35.8	35.9	72.3	72.9	495	492
1941						
1942						
1943						
1944						
1945	18.3	18.6	36.1	36.6	507	509
1946	19.9	20.4	38.9	39.9	512	511
1947	24.4	25.1	46.1	48.2	530	520
1948	30.9	32.1	59.9	63.5	516	506
1949	37.2	38.8	72.6	78.0	512	497
1950	45.5	45.9	85.5	91.5	532	502
1951	51	51.5	96.6	102.8	528	501
1952	57.1	57.8	104	109.8	549	527
1953	58.6	58.9	107.4	116.1	546	507
1954	61.7	62.4	120.3	128.2	513	486
1955	66.6	67.4	129.3	139.1	515	484
1956		70.5		147.1		480
1957		76.4		159.2		480
1958		85.5		178.3		480
1959		93.6		192.2		488
1960		99.6		210.3		474

IX. Maritime Freight Traffic Carried in Soviet Bottoms

	C-44 *Total Ton-Kilometers* (billions)		C-45 *Total Tons Originated* (millions)			C-46 Average Length of Total Haul (kilometers)
	(1)	For Terminated Trips (2)	(1)	For Terminated Trips (2)	(3)	
1913A	[23.6]		14.7			[1,605]
1913	[22.2]		13.9			[1,593]
1914						
1915						
1916						
1917						
1918						
1919						
1920			2.87			
1921			3.49			
1921/22			3.71*			
1922/23			4.08*			
1923/24			3.98*			
1924/25			5.26*			
1925/26			6.03*			
1926/27			6.92*			
1928	[10.1]	9.10	8.30		7.85	[1,217]
1929	10.4	9.39	9.10	8.84	8.55	1,143
1930	13.2	10.1	12.4	12.3	11.3	1,065
1931	16.0	14.7	15	14.6	13.9	1,067
1932	20.1	18.2	15.1	14.8	14.8	1,331
1933	24.4	23.4	16.2	15.9	15.9	1,506
1934	27.6	26.4	22.6	22.2	21.7	1,221
1935	34.1	33.2	26.1	25.4	25.0	1,307
1936	41.1		30.6		28.6	1,343
1937	36.4		29.4			1,238
1938	33.9		30.3			1,119
1939	[29.8]		[30.2]			[987]
1940	23.1		31			745
1941						
1942						
1943						
1944						
1945	34.2		20.2			1,698
1946	29.4		20.3			1,453
1947	34.8		24.3			1,432
1948	34.8		26.9			1,294
1949	37.2		30.9			1,204
1950	39.7		33.7			1,179
1951	40.3		36.5			1,107
1952	44.3		41.2			1,075
1953	48.2		45.5			1,053
1954	56.6		48.5			1,169
1955	68.9		53.7			1,284
1956	82.4		57.7			1,430
1957	92.7		65.7			1,411
1958	106.3		70.8			1,503
1959	115.7		73.5			1,574
1960	131.5		75.9			1,733

IX. MARITIME FREIGHT TRAFFIC CARRIED IN SOVIET BOTTOMS (concluded)

	C-47 Domestic Ton-Kilometers (billions)	C-48 Domestic Tons Originated (millions) (1)	(2)	C-49 Average Length of Domestic Haul (kilometers)
1913A	[15.8]	12.5		[1,267]
1913	[15.1]	11.9		[1,269]
1914				
1915				
1916				
1917				
1918				
1919				
1920				
1921				
1921/22				
1922/23				
1923/24			3.30*	
1924/25			4.38*	
1925/26			5.19*	
1926/27			5.96*	
1928	[6.24]	[6.93]	6.73	[900]
1929	[6.67]	[7.74]	7.42	[862]
1930	[10.0]	[10.7]	10.6	[939]
1931	[11.5]	[13.3]	12.9	[864]
1932	[13.9]	[13.3]	13.1	1,035
1933	[13.6]	13.5	13.2	[1,004]
1934	[15.3]	19.1	18.7	[798]
1935	15.1	20.9	20.2	723
1936	16.7	24.8		672
1937	17	24.3		702
1938	18.8	[26.6]		[706]
1939	23.0	28		821
1940	21.6	30.3		714
1941				
1942				
1943				
1944				
1945	[10.1]	[12.6]		799
1946	[12.4]	[15.5]		[802]
1947	[14.7]	[18.6]		[790]
1948	[16.6]	[21.3]		[779]
1949	[19.6]	[25.4]		[772]
1950	[21.2]	[27.9]		[760]
1951	[22.9]	[30.5]		[751]
1952	[25.8]	[34.8]		[741]
1953	[28]	[38.3]		[731]
1954	[28.2]	[39.1]		[721]
1955				
1956				
1957				
1958				
1959				
1960				

	C-50 Ton-Kilometers (millions)	C-51 Tons Originated (thousands)	C-52 Average Length of Haul (kilometers)
1913A			
1913	[327]	370	883
1914			
1915			
1916			
1917			
1918			
1919			
1920			
1921	79**	89**	883**
1921/22	155	176	883
1922/23	103	117	883
1923/24	348	394	883
1924/25	403	582	692
1925/26	388	627	619
1926/27	536	990	541
1928	683**	1,108**	616**
1929	1,131**	1,619**	699**
1930	2,232	3,997	558
1931	2,624	4,423	593
1932	2,863	5,077	564
1933	3,380	5,808	582
1934	3,504	6,580	532
1935	[3,500]	4,800	[529]
1936	[3,600]	6,900	[514]
1937	3,600	7,500	480
1938	[3,600]		
1939	[3,700]		
1940	3,800	7,900	481
1941			
1942			
1943			
1944			
1945	2,700	5,600	482
1946	3,600		
1947			
1948			
1949			
1950	4,900	15,300	320
1951	5,500	18,400	299
1952	6,400	23,200	276
1953	7,600	29,400	259
1954	10,200	39,700	257
1955	14,700	51,700	284
1956	20,500	65,300	314
1957	26,600	80,900	329
1958	33,800	94,900	356
1959	41,600	111,300	374
1960	51,200	129,900	394

	C-53 Ton-Kilometers (billions)	C-54 Tons Originated (millions)	C-55 Average Length of Haul (kilometers)
1913A			
1913	0.1	10.0	10.0
1914			
1915			
1916			
1917	0.1	10.0	10.0
1918			
1919			
1920	0.1	10.0	10.0
1921			
1921/22			
1922/23			
1923/24	0.2	15.0	10.3
1924/25	0.2	16.0	10.3
1925/26	0.2	17.0	10.2
1926/27	0.2	18.0	10.1
1928	0.2	20.0	10.0
1929	0.3	29.0	10.4
1930	0.5	48.0	10.4
1931	0.8	76.0	10.5
1932	1.1	100.0	10.7
1933	1.3	130.0	10.0
1934	2.4	233.0	10.3
1935	3.5	343.1	10.2
1936	5.5	539.2	10.2
1937	5.9	569.1	10.4
1938	6.8	642.7	10.5
1939	7.9	826.8	9.6
1940	8.9	858.6	10.4
1941			
1942			
1943			
1944			
1945	5.0	420.0	12.0
1946	7.5	610.0	12.3
1947	10.6	803.5	13.2
1948	13.3	1,092.4	12.2
1949	17.0	1,481.3	11.5
1950	20.1	1,859.2	10.8
1951	24.1	2,252.3	10.7
1952	27.6	2,652.8	10.4
1953	31.4	3,002.7	10.4
1954	37.5	3,305.9	11.4
1955	42.5	3,730.0	11.4
1956	48.5	4,200.9	11.5
1957	61.7	5,216.4	11.8
1958	76.8	6,474.4	11.9
1959	87.6	7,398.6	11.8
1960	98.5	8,492.7	11.6

APPENDIX C

Sources

I. Railroad Freight Traffic

C-1 *Tariff ton-kilometers*

Col. 1	1913A, 1913	*38*, vol. 104, 2. See notes.
	1914-16	*24*, 6. See notes.
	1917-21	*64*, 258. See notes.
	1921/22-26/27	*14*, 20 f.
	1928-40, 1945-56	*70*, 32. For 1929, another source (*14*, 20 f) gives 112.9 bill. ton-kms.
	1941	Traffic in first half of 1941 is stated (*86*, 15) to be 90% of amount planned for first half of 1942 (510 bill. ton-kms, *72*, 450). Second half of 1941 interpolated between first half of 1941 and first half of 1942, which is taken to be half of 1942.
	1942-44	Based on total traffic (*gruzooborot*) in 1942-44 (which is stated to be 3.4 times 1915-17 traffic, *13*, 3/16/46) and annual relatives for 1943 (113% given for operating ton-kms, *90*, 1944, No. 10-11, 18, adjusted to 112.1% since excess of operating over tariff ton-kms increased between 1942 and 1943) and 1944 (116%, *43*, 200).
	1957-58	*45*, 545.
	1959	*67*, 168.
	1960	*46a*, 531.
Col. 2	1913A, 1914-15, 1917-20	*38*, vol. 3, 14 ff. Given in pood-versts. See notes.

This series, like C-2, C-3, C-4, C-5, and C-6, covers all railroad freight traffic except company material hauled in nonrevenue trains. The 1913 figure is adjusted by Bureau of Railroad Administration downward to cover USSR territory and upward to include company material hauled in revenue trains. The figures for 1914-16 cover slow speed railroad freight traffic, excluding company material but including military traffic, on the territory of the Russian Empire. They are a rough approximation of the figures adjusted to cover USSR territory and to include company material in revenue trains, since the company material in revenue trains in 1913 about equaled traffic in the Western territories ceded in 1918. The coverage of the figures for 1917-20 varies with the changing territory during the civil war. According to *38*, vol. 3, 8, the railroads were requested, in 1921, to fill out a special form giving the data for the preceding four years. Since only about half of all the railroads were able to supply any information and even much of this was fragmentary, the data are incomplete and inaccurate.

C-2	*Tons originated*	
	1913A, 1913	*38,* vol. 104, 2. See notes to series C-1.
	1914-16	*24,* 6. Rough estimates, according to *59,* 48. For coverage, see notes to series C-1.
	1917-21	*64,* 258. Incomplete data. See notes to series C-1.
	1921/22-26/27	*14,* 20 f.
	1928-40, 1945-56	*70,* 32.
	1941-42	Ton-kms (series C-1) divided by ALH (series C-3).
	1943	Based on 1944 traffic and announced annual relative (118.3%, *43,* 200).
	1944	ADC (series C-4) times ALC (series C-5) times 365.
	1957-58	*45,* 545.
	1959	*67,* 169.
	1960	*46a,* 537.
C-3	*Average length of haul (ALH)*	
Col. 1	1913A, 1913	*38,* vol. 104, 2.
	1914-16, 1918, 1921, 1922/23, 1928-40, 1943-49	Ton-kms (series C-1) divided by tons originated (series C-2). For coverage for 1914-16, see notes to series C-1.
	1917, 1919-20	*64,* 258. See notes to series C-1.
	1921/22, 1923/24-26/27	*14,* 20 f.
	1941	*69,* 1945, No. 7-8, 11.
	1942	ALH in 1942 is stated (*43,* 192) to be 86 kms longer than in 1940.
	1950-56	*70,* 34.
	1957-58	*45,* 545.
	1959	*46,* 495.
	1960	*46a,* 537.
Col. 2	1918, 1921, 1922/23, 1925/26	*64,* 258. For 1922/23, also *14,* 20 f.
	1929	*14,* 21. Given for 1928, which appears to be a misprint for 1929.
	1933-34	*27,* 23.
	1940-41	*90,* 1946, No. 10, 39. For 1941, for first half of year only.
	1946-47	*30,* 26.
	1949	ALH in 1949 is stated (*81,* 106) to be 104% of 1940.
	1950, 1954-55	*90,* 1956, No. 4, 40.
	1952-53	*48,* 1954, No. 6, 52.
C-4	*Average daily carloadings (ADC)*	
	1913A, 1913	*38,* vol. 104, 2. Computed by Bureau of Railroad Administration from assumed ALC of 800 poods. See notes.

1917, 1919-21	*38,* vol. 2, 34 f; vol. 8, 162 f. Sum of freight and tank cars counted by axles.
1918, 1956-60	Tons originated (series C-2) divided by estimated ALC (series C-5) divided by 365. For 1918, *38,* vol. 2, 34 f, gives 5.95 thous., which was not used since it gives a load per car of 17.12 tons which is unrealistically high.
1921/22-1933	*14,* 16. See notes.
1934-39	*26,* 60. For 1934-35, also *65,* 424; and for 1936-39, also *28,* 56.
1940	*28,* 56.
1941	Estimated tons originated (series C-2) divided by estimated ALC (series C-5) divided by 365. *90,* 1947, No. 11, 8, gives 107 thous. for first half of 1941.
1942-44	Based on 1945 ADC and announced annual relatives for 1943-45 (106.8% and 121.8% for 1943 and 1944, *90,* 1947, No. 11, 9; and 111.6% for 1945, *13,* 2/6/46).
1945	ADC in 1946 are stated (*88,* 21) to be 7,630 more than in 1945.
1946-49	Based on 1950 ADC and announced annual relatives for 1947-50 (108.5% for 1947, *43,* 217; 119.3% for 1948, *51,* 1/20/49; 116% for 1949, *18,* 1/18/50; and 112.8% for 1950, *13,* 4/17/51).
1950	ADC in 1950 are stated (*44,* 28 f) to be 121% of ADC in 1940 and 431% of ADC in 1913.
1951-52	ADC in 1951 and 1952 are stated (*44,* 28 f) to be 108% and 117%, respectively, of ADC in 1950.
1953	ADC in 1953 are stated (*44,* 28 f) to be 125% of ADC in 1950.
1954-55	ADC in 1954 and 1955 are stated (*44,* 28 f) to be 571% and 618% of ADC in 1913, 160% and 173% of ADC in 1940, and 132% and 143% of ADC in 1950.

Official prerevolutionary railroad statistics did not include ADC for the network as a whole. Therefore all figures before 1917 are based either on an assumed load per car or on reports from individual railroads. The figure of 27,400 is given for 1913 in all official Soviet statistics but it appears to be understated in light of an unofficial figure of 58,000 (*33,* 642) and the official Russian data on the avg. dynamic load per car of 10.7 tons. See also notes to series C-5.

For 1921/22-33, reporting is based on all cars loaded (*zaniato*) including double counting of cars reloaded (e.g., from bad-order cars on the line,

reclassification of freight, etc.). ADC reported after Jan. 20, 1934, exclude all such technical reloadings and are based on cars loaded with new freight received by railroads. The exclusion of double counting resulted in understatement of ADC estimated to be 1-2% (*14*, 115, 16).

For 1945-55, narrow-gauge, West European gauge, and South Sakhalin railroads are not included (*29*, 41).

C-5 *Average load per car (ALC)*

1913A, 1913, 1917, 1919-40, 1942-43, 1946-55	Tons originated (series C-2) divided by ADC (series C-4) divided by 365.
1918	Interpolated.
1941	Estimated tons originated (series C-2) divided by ADC of 107 thous. (*90*, 1947, No. 11, 8, given for first half of 1941) divided by 365.
1944-45	*90*, 1946, No. 1, 68, and No. 7, 23.
1956-60	Arbitrarily extrapolated.

Official Soviet statistics assumed an ALC of 800 poods (*64*, 256 f) though it could have been computed directly from available statistical data. The assumed ALC appears to be too high and also distorts other indexes derived from it. Using our computed figure, the ADC are raised to 33,067 for the USSR territory and to 39,510 for the Russian Empire territory. This would also affect the turnaround time of freight cars, decreasing it to 10.17 days.

The ALC reported by Soviet statistics (*64*, 256 f, and *29*, 20) appears to be based on tons terminated rather than on tons originated.

C-6 *Operating ton-kilometers*

Col. 1	1913, 1928-29, 1939-41, 1943-44, 1946, 1948-54	Tariff ton-kms (series C-1) plus excess of operating over tariff ton-kms (derived from col. 2).
	1945	*78*, 45.
	1947	Based on statement (*79*, 31) that productivity on Kishinev and Omsk railroads in 1947 was 113 and 865 th. m. tons per operating worker, respectively, or 38.8% and 296% of the network average, respectively, and operating labor force (series C-40).
	1930-33	*14*, 21.
	1934-35	*74*, 278.
	1936	*47*, 122.
	1937	*72*, 222.
	1938	*13*, 3/9/39.
	1942	Based on 1943 operating ton-kms and announced annual relative (113%, *90*, 1944, No. 10-11, 18).
	1955-60	*90*, 1961, No. 10, 4.

Col. 2	1913, 1928-29	Extrapolated.
	1930-38, 1942, 1945, 1947, 1956-60	Operating ton-kms (col. 1) minus tariff ton-kms (series C-1). For 1933-36, *63,* 1937, No. 6, 55, gives 4.5%, 5.4%, 4.0%, and 2.8%, respectively.
	1939	*68,* 1955, vol. XI, 427.
	1940	*28,* 237.
	1941, 1946, 1948-49, 1951-52	Interpolated.
	1943-44	*2,* 61.
	1950, 1954-55	*4,* 68.
	1953	*90,* 1955, No. 11, 53.
Col. 3	1930-39, 1945	*68,* 1955, vol. XI, 427 and 46.
	1940	*2,* 61.

C-7 *Commodity composition, tons originated*

Col. 1	*14,* 26 f.
Col. 2	*65,* 420 ff. For mineral building materials, see *114,* 303.
Cols. 3, 5-7	*45,* 548 f.
Col. 4	*114,* 347. For rounded data, see *70,* 35 ff.
Col. 8	*46a,* 537.

C-8 *Commodity composition, ton-kilometers*

Col. 1	*14,* 26 f.
Col. 2	*65,* 420 ff.
Cols. 3, 5-7	*45,* 546 f.
Col. 4	*114,* 347. For rounded data, see *70,* 35 ff.
Col. 8	*46a,* 536.

II. Railroad Passenger Traffic

C-9 *Total passenger-kilometers*

1913A, 1913, 1921-22/23	*38,* vol. 104, 4; vol. 17, 4 f; vol. 36, 16.
1923/24-26/27	*14,* 36 f.
1928-40, 1945-56	*70,* 32. For 1938, *2,* 77, gives 91.7 bill.
1957-58	*45,* 552.
1959	*67,* 170.
1960	*46a,* 538.

C-10 *Total passengers*

1913A, 1913, 1921	*38,* vol. 104, 4; vol. 8, 194. For 1913, *59,* 279, gives 238.6 mill.
1914-16	*3,* vol. 24, 764. *59,* 279, gives 269, 298.8, and 350.4 mill.
1917-20	*59,* 209.
1921/22-26/27	*14,* 36 f.
1928-40, 1945-56	*70,* 32. For 1938, *2,* 77, gives 1, 177.8 mill.
1957-58	*45,* 552.
1959	*67,* 171.
1960	*46a,* 538.

C-11	*Average length of trip*	
	1913A, 1913, 1922/23	*38,* vol. 104, 4; vol. 36, 16.
	1921-21/22, 1938-39, 1946-49, 1957-60	Passenger-kms (series C-9) divided by no. of passengers (series C-10).
	1923/24-33	*14,* 36 f.
	1934-35	*65,* 427.
	1936-37	*84,* 365.
	1940, 1949	*29,* 68.
	1945, 1950-56	*70,* 42.
C-12	*Long-distance passenger-kilometers*	
	1913A, 1913	*38,* vol. 104, 4.
	1923/24-33	*14,* 36 f.
	1934-35	*65,* 427.
	1936-38	*84,* 365.
	1939, 1945, 1949-50, 1952-60	Total passenger-kms (series C-9) minus suburban passenger-kms (series C-15).
	1940	*88,* 469.
	1951	*29,* 70.
C-13	*Long-distance passengers*	
	1913A, 1913	*38,* vol. 104, 4.
	1923/24-33	*14,* 36 f.
	1934-35	*65,* 427.
	1936-40	*88,* 496.
	1945, 1949-50, 1952-60	Total no. of passengers (series C-10) minus no. of suburban passengers (series C-16).
	1951	*29,* 70.
C-14	*Average length of long-distance trip*	
	1913, 1913A	*38,* vol. 104, 4.
	1923/24-30, 1933, 1935, 1939, 1945, 1949-60	Long-distance passenger-kms (series C-12) divided by no. of long-distance passengers (series C-13).
	1931	*29,* 70.
	1932, 1934	*84,* 365.
	1936-38, 1940	*11,* 303.
C-15	*Suburban passenger-kilometers*	
	1913A, 1913	*38,* vol. 104, 4.
	1923/24-33	*14,* 36 f.
	1934-35	*65,* 427.
	1936-38	*84,* 365.
	1939	No. of suburban passengers (series C-16) times estimated avg. length of suburban trip (series C-17).
	1940	*88,* 469. *10,* 248, gives 27.7 bill.
	1945, 1950-56	*70,* 41.
	1949	*68,* vol. 13, 401.

1957-58	*45,* 552.
1959	*46,* 495.
1960	*46a,* 538.

C-16 Suburban passengers

1913A, 1913	*38,* vol. 104, 4.
1923/24-33	*14,* 36 f.
1934-35	*65,* 427.
1936	*84,* 365.
1937-40	*2,* 77. For 1939, *88,* 496, and *11,* 250, give 981.1 mill.
1945, 1950-56	*70,* 41.
1949	*68,* vol. 13, 401.
1957-58	*45,* 552.
1959	*46,* 495.
1960	*46a,* 538.

C-17 Average length of suburban trip

1913A, 1913	*38,* vol. 104, 4.
1923/24-33	*14,* 36 f.
1934-35	*65,* 427.
1936-38	*84,* 365.
1939	Interpolated.
1940	*88,* 497.
1945, 1949-60	Suburban passenger-kms (series C-15) divided by no. of suburban passengers (series C-16).

III. Freight Train Performance

C-18 Average section ("commercial") speed

1913	*12,* 10.
1917-21/22	*38,* vol. 2, 39; vol. 7, 108; vol. 36, 18.
1922/23-33	*14,* 56.
1934-37	*25,* 300.
1938	*63,* 1939, No. 6, 25.
1939	*23,* 132. Also, *48,* 1939, No. 8, 165.
1940	*44,* 177. Also, *12,* 10.
1945	*88,* 384.
1946	"Commercial" speed is stated (*61,* 3) to have increased 6.8 kms between 1945 (interpreted as 1946) and 1955.
1947	"Commercial" speed is stated (*76,* 108) to have increased more than 20% in the last 12 years.
1948	"Commercial" speed is stated (*13,* 5/2/50) to have increased 1 km between 1948 and 1949.

1949	"Commercial" speed in 1949 is stated (*13*, 12/11/49) to be 1.9 kms below the previous level.
1950-56	*70*, 52.
1957-58	*45*, 554 f.
1959	*90*, 1960, No. 3.
1960	*46a*, 539.

The section, or "commercial," speed of freight trains includes stops at way stations.

C-19 *Average "technical" speed*

1913	*12*, 10.
1922/23-33	*14*, 56.
1934-40	*25*, 294.
1945, 1950-56	*70*, 54.
1947	"Technical" speed in 1947 is stated (*76*, 108) to be 135% of 1935.
1957-58	*45*, 554 f.
1959-60	*46a*, 539.

The "technical" speed of freight trains excludes stops at way stations.

C-20 *Average gross train weight*

1913	*23*, 132.
1924/25-33	*14*, 56.
1934-40	*25*, 294. For 1940, *70*, 61, gives 1,301 tons.
1941	*69*, 1947, No. 12, 5. For first half of year.
1945, 1950-56	*70*, 61.
1946	Gross train weight is stated (*90*, 1947, No. 10, 23) to have decreased by 28 tons between 1945 and 1946.
1947	Gross train weight in 1947 is stated (*90*, 1948, No. 8, 2) to be 4.6% less than in 1940.
1948	Gross train weight in 1948 is stated (*73*, 5/1/49) to be 42 tons above prewar norm.
1949	It is stated (*13*, 5/14/50) that in the summer of 1950 gross train weight was to increase 27 tons over 1949 and 119 tons over 1940.
1957-58	*45*, 557.
1959	*46*, 498.
1960	*46a*, 540.

C-21 *Average net train weight*

1913A, 1921/22-33	*14*, 56. For 1913, *59*, 203, gives 297 tons and *38*, vol. 53, 10, gives 320.6 tons. For 1922/23-24/25, *38*, vol. 53, 10, gives 291, 331, and 388 tons.

1913	Assumed to be the same as for 1913A.
1914-15, 1919-21	*59,* 203.
1934-37	*16,* 305. For 1937, *70,* 59, gives 682 tons.
1938, 1946-49	Gross train weight (series C-20) times ratio of net to gross train weight interpolated between neighboring years.
1939	*23,* 132.
1940	*69,* 1946, No. 8-9, 5.
1945, 1950-56	*70,* 59.
1957-58	*45,* 557.
1959-60	*46a,* 540.

C-22 *Total train kilometers*

1913A, 1913, 1921/22	*38,* vol. 104, 7; vol. 53, 7.
1922/23-33	*14,* 48.
1934-35	*65,* 430.
1936-40, 1945-60	Operating ton-kms (series C-6) divided by avg. net train weight (series C-21).

IV. Locomotives

C-23 *Locomotives in inventory fleet*

1913A, 1921/22-26/27	*38,* vol. 36, 6; vol. 104, 34. For 1913A and 1921/22-22/23, annual averages.
1913, 1932, 1937	*84,* 469.
1928, 1938-40, 1950	Total tractive effort of locomotives in inventory fleet (series C-24) divided by avg. tractive effort per locomotive derived as 11.3 tons for 1928 (*12,* 10), 14.6 tons for 1938 (read from a graph, *69,* 1947, No. 11, 12), 14.9 tons for 1939 and 1940 (*23,* 140; *12,* 10), and 16.9 tons for 1950 (interpolated on the basis of rate of increase).
1929-31, 1933-34	Based on locomotives under railroad jurisdiction (*14,* 44) and percentage that they were of inventory fleet (interpolated between percentages for 1928, 1932, and 1935, which were derived from locomotives under railroad jurisdiction in *14,* 44, and locomotives in inventory fleet for these years).
1935-36	*47,* 121.
1942-43	Locomotives in inventory fleet at beginning of 1943 (taken as end of 1942) are stated (*86,* 104) to be 85% of 1941 (taken as end of 1940) and to have increased by 2,000 by end of 1943.

	1944-45	Based on locomotives in 1943 and assumed minimum annual increases of 600 per year.
	1953	*132,* 168.
	1954	Locomotives in inventory fleet in 1953 plus 1,036 locomotives produced in 1954 (*44,* 56).
	1955	Locomotives in inventory fleet in 1954 plus 982 locomotives produced in 1955 (*44,* 56).
C-24	*Total tractive effort of locomotives in inventory fleet*	
	1913A, 1929-31, 1933-34, 1945, 1953, 1955	Locomotives in inventory fleet (series C-23) times avg. tractive effort per locomotive, derived as 10.2 tons for 1913A (assumed to be same as for 1913, *12,* 10), 11.6, 12.0, 12.4, 13.0, and 13.3 tons for 1929-31 and 1933-34 (read from a graph, *69,* 1947, No. 11, 12), 15.9 and 17.5 tons for 1945 and 1953 (interpolated on the basis of rate of increase), and 17.9 tons for 1955 (20.1% increase in postwar period, *85,* 1956, No. 10, 40).
	1913	Total tractive effort in 1937 is stated (*43,* 182) to be 194% of effort in 1913.
	1928	Total tractive effort in 1928 is stated (*43,* 182) to be 106.9% of effort in 1913.
	1932	Total tractive effort in 1932 is stated (*43,* 182) to be 141.7% of effort in 1913.
	1935-36	*47,* 121.
	1937	*84,* 469.
	1938	Interpolated.
	1939	Total tractive effort in 1939 is stated (*43,* 182) to be 214.5% of effort in 1913.
	1940	Avg. tractive effort of a steam locomotive in 1941 (taken as end of 1940) is stated to be 225% of effort in 1928. However, since this contradicts absolute figures for avg. tractive effort (*12,* 10), it must apply to *total* tractive effort.
	1950	Total tractive effort per 100 kms is stated (*85,* 1952, No. 4, 33) to have increased 16% during the postwar five year plan.
C-25	*Average daily kilometers per locomotive-day*	
Col. 1	1913A, 1917-21/22	*38,* vol. 53, 10; vol. 2, 39; vol. 7, 108. For 1913A, covers all types of traffic.
	1913, 1940	*44,* 177. For 1940, also *85,* 1952, No. 4, 36.
	1922/23-33	*14,* 56.

	1934-36	*84,* 409.
	1937	*69,* 1947, No. 12, 5.
	1938	Avg. daily kms per locomotive-day in 1938 are stated (*13,* 3/18/39) to be 87.3 kms more than in 1933.
	1939	*23,* 132.
	1945, 1950-55	*70,* 57.
	1948-49	Based on announced annual relative for 1949 (108.4%, *13,* 5/24/50) and statement (*13,* 4/23/50) that avg. daily kms per locomotive-day in 1949 were 18 kms more than in 1948.
	1956-58	*45,* 555.
	1959-60	*46a,* 539.
Cols. 2, 3, and 4		
	1945, 1950-55	*70,* 57.
	1956-58	*45,* 555.
	1959-60	*46a,* 539.

V. Freight Cars

C-26	*Active fleet, revenue trains*	
Col. 1	1913A, 1913, 1917-20	*38,* vol. 104, 6; vol. 2, 16 ff.
	1921-60	ADC (series C-4) times turnaround time of freight cars (series C-29). *38,* vol. 19, 42 f, and vol. 36, 63, gives 228.5, 214.3, 190.6, and 209.4 for 1921-23/24.
C-27	*Fleet under railroad jurisdiction*	
	1913A, 1913, 1921/22-22/23	*38,* vol. 6; vol. 53, 6.
	1920-21	Based on inventory fleet and ratio of fleet under RR jurisdiction to inventory fleet per verst of line operated (derived from *38,* vol. 7, 106 f).
	1923/24-33	*14,* 44.
	1934-35	*65,* 430.
	1936-37, 1939-40, 1944-45, 1950, 1955	Based on active fleet (series C-26) and percentage that active fleet was of fleet under RR jurisdiction (86.7% and 86.2% for 1937 and 1940, *29,* 98; interpolated for other years).
	1938	Fleet under RR jurisdiction in 1938 is stated (*13,* 3/9/39) to be 134% of 1934 fleet.
	1942-43	Fleet under RR jurisdiction at beginning of 1943 is stated (*86,* 104) to be 80% smaller than in 1941 (taken as end of 1940) and to have increased by 56,000 by end of 1943.

C-28 *Percentage of four-axle units in total inventory fleet*

1928, 1932-35	*65,* XLI.
1929, 1931	Interpolated.
1930	*62,* 22.
1936-40	*49a,* 24.
1945, 1955	Extrapolated.
1946, 1954	*13,* 4/20/55.
1950	Based on statement (*13,* 6/6/51) that 76% of all freight cars are equipped with automatic brakes and statement (*39,* 153) that 97% of 4-axle and 64% of 2-axle freight cars are equipped with automatic brakes.
1958	*90,* 1960, No. 3, 30.

C-29 *Turnaround time, active fleet*

Col. 1	1913, 1940	*44,* 177. For 1913, also *48,* 1939, No. 8, 165. For 1940, also *88,* 384.
	1920/21-21/22	*38,* vol. 53, 19.
	1922/23-33	*18,* 55.
	1934-35	*65,* 432.
	1936-37	*84,* 409.
	1938	*48,* 1939, No. 8, 165.
	1939	*23,* 132.
	1941	*75,* vol. 57, 394.
	1942-43	*86,* 104.
	1944	Interpolated.
	1945, 1950-56	*70,* 48.
	1946	Turnaround time is stated (*88,* 21) to have been speeded up by 0.85 days between 1945 and 1946.
	1947	*79,* 18.
	1948	Turnaround time is stated (*13,* 11/30/49) to have been reduced 0.92 days between 1947 and 1948.
	1949	Based on unrevised turnaround time in 1950 (derived as 7.57 days from statement, *13,* 11/11/51, that turnaround time decreased 58 hours between 1946 and 1950) and announced annual relative (92.4%, *13,* 12/31/51).
	1957-58	*45,* 555.
	1959	*46,* 497.
	1960	*46a,* 539.
Col. 2	1913, 1920/21-31, 1939, 1941-44, 1946-49, 1959-60	Converted from days in col. 1.
	1932	*90,* 1945, No. 1, 11.
	1933-35	*65,* 433.

1936-38	*63,* 1939, No. 6, 25.
1940, 1945, 1950-56	*70,* 49.
1957-58	*45,* 556.

C-30 Average daily kilometers per active car-day

1913A, 1922/23-33	*14,* 55. For 1913A, covers revenue freight trains only. For 1913A, *38,* vol. 104, 8, gives 72 kms for all freight trains.
1913	Assumed to be same as for 1913A. *10,* 282, gives 72 kms.
1917-21/22	*38,* vol. 2, 39; vol. 53, 10 and 19.
1934-38	*63,* 1939, No. 6, 25.
1939	*23,* 132.
1940	*25,* 304.
1941-44, 1946-49	Total turnaround trip (series C-31) divided by turnaround time (series C-29).
1945, 1950-56	*70,* 48.
1957-58	*45,* 555.
1959	*46,* 497.
1960	*46a,* 539.

C-31 Average total turnaround trip

1913A, 1913, 1920/21-26/27, 1936-39, 1945, 1950-57, 1960	Turnaround time (series C-29) times avg. daily kms per car-day (series C-30).
1928-33	*14,* 55.
1934-35	*65,* 432.
1940	*88,* 384.
1941-44	Total turnaround trips in 1941, 1942, 1943, and 1944 are stated (*90,* 1945, No. 5-6, 43) to be 106.6%, 126.5%, 132.1%, and 123.5%, respectively, of 1940.
1946-49	Loaded turnaround trip (series C-32) divided by percentage that loaded was of total trip (100 minus col. 2 of series C-33).
1958-59	*90,* 1960, No. 3, 35.

C-32 Average loaded turnaround trip

1913A, 1913	Based on total turnaround trip (series C-31) and percentage that loaded is of total (71.4% for 1913A, *38,* vol. 53, 10; assumed same for 1913).
1920/21-21/22	*38,* vol. 53, 19.
1922/23-33	*14,* 55.
1934-35	*65,* 432.

	1936-38	Based on ALH (series C-3) and percentage that loaded turnaround trip is of ALH (103.3%, 105.1%, and 106.3% for 1936-38, *68,* vol. XI, 427).
	1939	*25,* 308.
	1940, 1944-45, 1950-57	Total turnaround trip (series C-31) minus empty turnaround trip (series C-33).
	1941-43	Loaded turnaround trips in 1941, 1942, and 1943 are stated (*90,* 1945, No. 5-6, 43) to be 110.1%, 125.7%, and 126.2%, respectively, of 1940.
	1946, 1949	Interpolated.
	1947-48	Based on statement (*13,* 7/1/51) that average loaded turnaround trip in 1947 and 1948 was 7.4% and 8.9% longer than average length of haul (series C-3).
	1958-60	*90,* 1960, No. 3, 35; 1961, No. 3, 31.
C-33	*Average empty turnaround trip*	
Col. 1	1913A, 1913, 1921-39, 1941, 1960	Total turnaround trip (series C-31) minus loaded turnaround trip (series C-32).
	1940	*88,* 384.
	1942-44	*90,* 1946, No. 7, 30.
	1945-59	Based on total turnaround trip (series C-31) and percentage that empty is of total (col. 2).
Col. 2	1913, 1929-33	*14,* 55.
	1920/21-28, 1940-44, 1960	Empty turnaround trip (col. 1) divided by total turnaround trip (series C-31).
	1934-35	*65,* 432.
	1936-37	*84,* 409.
	1938-39, 1946-53	*24a,* 300.
	1945, 1954-56	*70,* 48.
	1957	Interpolated.
	1958-59	*90,* 1960, No. 3, 35.

VI. Railroad Network and Traffic Density

C-34	*Total road operated, annual averages*	
	1913A, 1913-16, 1921	*38,* vol. 104, 2; vol. 3, 14 ff; vol. 7, 107. Converted from versts at 1 verst = 1.067 kms.
	1917-20, 1921/22-33	*14,* 6 f.
	1934-35	*65,* 440.
	1936	*16,* 293.

1937	Tariff ton-kms (series C-1) divided by freight traffic density (series C-36). *16,* 293, gives 85.3 thous. kms.
1938-39, 1943-60	Unweighted annual averages derived from two successive end-of-year figures (series C-35). For 1953, also *19,* 8, where road operated in 1955 is stated to be 155% of road operated in 1928. For 1939, *11,* 30, gives 88.4 thous. kms.
1940	*49,* 5.

The figures for 1913-37 and 1940 are weighted annual averages obtained by weighting the length of lines in permanent operation by the number of days operated by the railroads under the Ministry of Transportation. The figures for 1938-39 and 1943-60 are unweighted annual averages.

C-35 *Total road operated, end of year*

1913A, 1913, 1917, 1920-40, 1945-56	*70,* 28.
1914-16, 1918-19	Estimated from total road built at end of year plus undated spurs minus railroads ceded to other countries multiplied by a factor to convert road built into road operated (*38,* vol. 42, 52 ff). This factor was derived from the known road built and the road operated at end of 1917. Road operated is distance between centers of passenger stations. Road built represents total length of main tracks between connecting and ending points (*31,* 143).
1942-43	Railroad network is stated (*43,* 193) to have increased 18,746 kms, or 29.8%, between 1942 and 1943.
1944	Railroad network is stated (*43,* 200) to have increased 29,000 kms between 1943 and 1944.
1957-58	*45,* 544.
1959-60	*46a,* 535.

C-36 *Freight traffic density*

1913A, 1913	*38,* vol. 104, 3. For wide-gauge and revenue trains only. For 1913, also *14,* 8.
1917-20, 1921/22	*64,* 248 f.
1921, 1936, 1938-40, 1943-60	Tariff ton-kms (series C-1) divided by avg. road operated (series C-34). For 1953, *48,* 1954, No. 6, 56, gives 7,100 thous. kms. For 1954, *13,* 10/22/55, gives 7,600 thous. kms. For 1954, *90,* 1956, No. 4, 40, gives 8,600 thous. kms.

	1922/23-33	*14*, 8.
	1934-35	*65*, 417.
	1937	*84*, 181.
C-37	*Passenger traffic density*	
	1913A, 1913	*38*, vol. 104, 4. For 1913, also *14*, 8.
	1921-21/22, 1936, 1938-40, 1945-60	Passenger-kms (series C-9) divided by avg. road operated (series C-34).
	1922/23-33	*14*, 8.
	1934-35	*65*, 417.
	1937	*43*, 181.

VII. Railroad Labor Force and Productivity

C-38	*Composite passenger-ton-kilometers*	
Col. 1	1913A, 1913, 1921-26/27, 1930-40, 1945-60	Passenger-kms (series C-9) plus tariff ton-kms (series C-1).
	1928-29	*74*, 278.
Col. 2	1913, 1928-40, 1945-60	Passenger-kms (series C-9) plus operating ton-kms (series C-6).
C-39	*Labor productivity*	
Col. 1	1913A, 1913	*38*, vol. 104, 10. For 1913, also *29*, 169.
	1925/26-26/27	*14*, 60.
	1928-30	*74*, 278.
	1931-40, 1950-60	Composite passenger-ton-kms (series C-38) divided by operating labor force (series C-40). For 1950, also *44*, 34, where productivity in 1950 is stated to be 295% of 1928 and 110% of 1940. For 1951-55, also *44*, 34, where productivity in 1951-55 is stated to be 109%, 113%, 120%, 124%, and 139%, respectively, of 1950. For 1952, also *43*, 279, where productivity in 1952 is stated to be 112.8% of 1950. For 1953, also *13*, 5/5/54, and *85*, 1955, No. 4, 66, where productivity in 1953 is stated to be 119.6% of 1950 and 131.1% of 1940. For 1954, also *13*, 2/22/55, where productivity in 1954 is stated to be 124.1% of 1950.
	1945-49	Based on productivity in 1950 and announced annual relatives for 1946-50 (109.6%, 102.9%, 116.0%, 111.5%, and 110.4%, *85*, 1955, No. 4, 66).
Col. 2	1913, 1928-40, 1945-60	Composite passenger-ton-kms (series C-38, col. 2) divided by operating labor force (series C-40).

For data derived from slightly different coverages, see *74,* 278; *78,* 16; and *14,* 61.

C-40 Operating labor force

1913A, 1913	*38,* vol. 104, 10. Includes 132.6 and 116.3 thous. temporary workers in 1913A and 1913, respectively. For 1913, also *14,* 58, and *84,* 121, which covers workers and employees on operating appropriations payroll. This coverage is about 15% broader than 1932 coverage.
1925/26-26/27	*14,* 58. Covers workers and employees on operating appropriations payroll.
1928-31	*74,* 278. Also, *14,* 159. For 1928, also *44,* 180.
1932, 1934-37	*84,* 557 and 553. Covers workers and employees in railroad operations. For 1932 and 1934-35, *74,* 278, gives 1,016, 1,111, and 1,209 thous. workers, coverage being more restricted.
1933, 1939	Composite passenger-ton-kms in all trains (derived as 254.6 and 501.8 bill. from series C-38, col. 2, plus operating ton-kms in nonrevenue trains, *14,* 21, for 1933, and interpolated from data in *28,* 239, for 1939) divided by labor productivity for all trains (249.3 and 384.0 thous. composite passenger-ton-kms per operating worker, *29,* 169). For 1933, *74,* 278, gives 992 thous. workers, restricted coverage.
1938	*63,* 1939, No. 8, 7.
1940, 1950-56	*70,* 64.
1945, 1947-49	Composite passenger-ton-kms (series C-38) divided by labor productivity (series C-39).
1946	*60,* 52.
1957-58	*45,* 558.
1959-60	*46a,* 541.

For variant coverages, see *84,* 548; *60,* 52; *38,* vol. 104, 10; and *14,* 59. For 1940, variants relating to inclusion of railroad operations in acquired territory appear *12a,* 532.

VIII. Powered Freight Traffic on Inland Waterways

C-41. Ton-kilometers

Col. 1	1913	*32*, 32. Excludes rafting.
	1924-27	*38*, vol. 83, 2; vol. 118.
	1928	*83*, 11.
	1929-35	*56*, 6. For 1929-33, also *83*, 11. For 1933-35, also *65*, 443.
	1936-38	*82*, 1940, No. 9, 3.
	1939	*51*, 2/11/41.
	1940, 1950, 1954-55	*44*, 181.
	1945-47	Tons originated (series C-42) times ALH (series C-43).
	1948	Based on 1947 traffic and annual relative (computed as 126.7% from statement, *57*, 20, that shipments in 1947 and 1948 were 135% and 171% of shipments in 1945).
	1949	Based on 1948 traffic and announced annual relative (120.4%, *55*, 1950, No. 3, 1).
	1951	Based on 1950 traffic and annual relative (computed as 112.5% from annual relative for 1952 and statement, *55*, 1953, No. 2, 3, that traffic increased 26% during first 2 years of current five year plan).
	1952	Based on 1951 traffic and announced annual relative (112%, *51*, 1/23/53).
	1953	Traffic in 1953 is stated (*82*, 3/11/54) to be 163% of traffic in 1940.
Col. 2	1913	*84*, 194.
	1923-29	*38*, vol. 83, 2; vol. 118, 2.
	1940	*44*, 181.
	1945-55	*70*, 116.
	1956-59	*67*, 168.
	1960	*46a*, 545.

C-42. Tons originated

Col. 1	1913	Ton-kms (series C-41) divided by ALH (series C-43).
	1924-28	*38*, vol. 83, 2; vol. 118, 2. For 1928, also *83*, 11.
	1929-35	*56*, 6. For 1934, excludes double origination of oil by the Moscow-Oka and the Northwestern Steamship Agencies, which was not considered double

		origination in previous years and was included in total tons originated (53,293,743). For 1933-34, also *83*, 11, which excludes baggage.
	1936	*48*, 1937, No. 8, 197.
	1937-38	*82*, 1940, No. 9, 3.
	1939	*21*, 300.
	1940, 1950, 1954-55	*44*, 181.
	1945	*73*, 3/6/46.
	1946	Shipments in 1946 are stated (*58*, 138) to be 2,760,000 tons more than in 1945.
	1947-49	Based on 1946 shipments and announced annual relatives for 1947-49 (118.7%, 130%, and 121.2%, *55*, 1948, No. 2, 1; 1949, No. 5, 1; 1950, No. 3, 1).
	1951-52	Based on 1950 shipments and annual relatives (announced as 113% for 1951, *13*, 1/29/52; computed as 107.6% for 1952 from statement, *54*, 1952, No. 1, 1, that shipments were to increase 12.3% in 1952 and statement, *41*, 1953, No. 1, 1, that 95.8% of 1952 plan was fulfilled).
	1953	Based on 1954 shipments and announced annual relative (111%, *51*, 1/21/55).
Col. 2	1913	*82*, 1940, No. 9, 3.
	1923-29	*58*, vol. 83, 2; vol. 118, 2.
	1930	*84*, 197.
	1940	*44*, 181.
	1945-55	*70*, 116.
	1956-59	*67*, 169.
	1960	*46a*, 545.

In *41*, 1953, No. 1, 1, Shashkov stated that shipments (*perevozki*) increased 26% during the first two years of the current five year plan. Despite his use of the word shipments (*perevozki*), Shashkov must have been referring to ton-kilometers since otherwise his statement does not agree with the annual relative for 1952 nor with a statement by Vakhturov in *55*, 1953, No. 2, 3, that traffic (*gruzooborot*) increased 26% during the first two years of the current five year plan.

C-43 Average length of haul

Col. 1	1913, 1936-39	*48*, 1941, No. 1, 45.
	1924-29, 1931, 1940, 1948-49, 1951-54	Ton-kms (series C-41) divided by tons originated (series C-42).
	1930, 1932-35	*56*, 6. For 1932-35, also *48*, 1941, No. 1, 45.
	1945-47	*30*, 24 and 26.
	1950, 1955	*85*, 1956, No. 7, 21. Also, *13*, 7/31/56.

Col. 2	1913, 1923-29, 1945-60	Ton-kms under ministry and other organizations (series C-41, col. 2) divided by corresponding tons originated (series C-42, col. 2).
	1940	*89,* 42.

IX. Maritime Freight Traffic Carried in Soviet Bottoms

C-44	*Total ton-kilometers*	
Col. 1	1913A, 1913, 1939	Sum of domestic ton-kms (series C-47) and foreign ton-kms (derived as 7.8, 7.1, and 6.8 bill. from foreign tons originated and foreign ALH, which were derived from total and domestic tons originated and interpolations). For 1913, also *44,* 181.
	1928	Ton-kms for terminated trips (col. 2) converted into ton-kms for originated trips by factor 0.9. For further details, see Appendix B.
	1929-38	*82,* 1940, No. 9, 3. For 1929, also *44,* 181.
	1940	*12,* 6.
	1945-55	*70,* 95. Converted from nautical ton-miles.
	1956-58	*67,* 168.
	1959-60	*46a,* 531.
Col. 2	1928	*66,* 40.
	1929-35	*42,* 8.
C-45	*Total tons originated*	
Col. 1	1913A	*82,* 1932, No. 10, 40. Assumed to refer to Empire territory.
	1913	Sum of domestic tons originated (series C-48) and foreign tons originated (derived as 2.03 mill. from foreign tons originated carried in bottoms of all flags, *42,* 6, and statement, *40,* 1947, No. 11, 8, that 9.6% of export and import traffic was carried in Soviet bottoms). A later source (*44,* 181) gives 15.1 mill. tons.
	1920-27	*38,* vol. 8, 219; vol. 84, 2 f; vol. 107, 3 f. For 1920-21, petty cabotage only; for 1922-27, sum of petty and grand cabotage.
	1928	Tons originated for terminated trips (col. 3) converted into tons originated for originated trips by factor 1.05. For further details, see Appendix B.

	1929-38	*82,* 1940, No. 9, 3.
	1939	Interpolated by ratio of domestic tons originated (series C-48) to total between 1937 and 1940.
	1940	*12,* 6.
	1945-55	*70,* 95.
	1956-59	*67,* 169.
	1960	*46a,* 543.
Col. 2	1929-35	*42,* 6.
Col. 3	1928, 1936	*48,* 1937, No. 8, 197.
	1929-35	*42,* 8.

C-46 Average length of total haul

	1913A, 1913, 1928-39, 1945-60	Total ton-kms (series C-44) divided by total tons originated (series C-45).
	1940	*12,* 6. Also, *30,* 24.

C-47 Domestic ton-kilometers

	1913A, 1913, 1946-54	Domestic tons originated (series C-48) times ALH (series C-49).
	1928-34	Estimated from ton-kms for terminated trips. For details, see Appendix B. For 1932, also *28,* 20.
	1935	*42,* 6.
	1936	*82,* 1937, No. 3, 9. Preliminary.
	1937, 1940	*28,* 20.
	1938	Petty cabotage freight traffic in 1940 is stated (*36,* 5) to be 115.1% of 1938. Applied to domestic ton-kms since petty cabotage formed by for the greatest part of domestic ton-kms.
	1939	*21,* 300.
	1945	Domestic maritime ton-kms are stated (*29,* 13) to be 3% of ton-kms carried by all types of transportation, and railroad ton-kms (series C-1) are stated (*ibid.*) to be 91.7% of total ton-kms. The former percentage has been adjusted downward by 0.05% in order to fit in with data or railroad as well as river transportation.

C-48 Domestic tons originated

Col. 1	1913A	*38,* vol. 84, 2. Covers traffic carried in bottoms of all flags.
	1913, 1933-35	*42,* 6. For 1913, covers traffic carried in bottoms of all flags.

	1928-32	Sum of col. 2 and estimated local freight traffic (taken as series in *82*, 1940, No. 9, 3, minus Appendix Table B-4).
	1936	*82*, 1937, No. 3, 9. Preliminary.
	1937, 1940	*28*, 20.
	1938	Interpolated by ratio of domestic to total tons originated (series C-45) between 1937 and 1940.
	1939	*21*, 300.
	1945	Domestic ton-kms (series C-47) divided by ALH (series C-49).
	1946-54	Based on total tons originated (series C-45) and ratio $\frac{1\text{ f—1t}}{1\text{ f—1d}}$. See Appendix B.
Col. 2	1924-28	*38*, vol. 107, 3 f. Sum of petty and grand cabotage freight traffic carried by Soviet foreign trade fleet and domestic freight traffic of the Caspian Sea maritime fleet.
	1929-35	*42*, 6. Sum of petty and grand cabotage.
C-49	*Average length of domestic haul*	
	1913A, 1913, 1928-31, 1933-34	Estimated and adjusted for rounding of ton-kms. See Appendix B.
	1932, 1937, 1940, 1945	*29*, 13.
	1935-36, 1938-39	Domestic ton-kms (series C-47) divided by domestic tons originated (series C-48).
	1946	Assumed at level of preceding year and adjusted for rounding of ton-kms.
	1947-53	Interpolated and adjusted for rounding of ton-kms. See Appendix B.
	1954	1928-30 weighted avg. obtained from ton-kms (series C-47) for 1928-40 divided by tons originated for those years (series C-48).

X. Oil Pipeline Traffic

C-50	*Ton-kilometers*	
	1913, 1920/21-34	*65*, 126. Tons originated for each pipeline times corresponding length of pipeline.
	1935-36, 1938-39	Interpolated.
	1937, 1940, 1945, 1950-56	*70*, 210.
	1946	Pipeline traffic is stated (*50*, 42) to be 0.9% and railroad traffic (taken as series C-1) 84.9% of aggregate volume of freight traffic.
	1957-58	*45*, 572.
	1959-60	*46a*, 552.

C-51	*Tons originated*	
	1913, 1920/21-34	*65*, 126.
	1935-36	*48*, 1938, No. 1, 53.
	1937, 1940, 1945, 1950-58	*45*, 572.
	1959-60	*46a*, 552.
C-52	*Average length of haul*	
	1913, 1920/21-34, 1937, 1940, 1945, 1950-60	Ton-kms (series C-50) divided by tons originated (series C-51).
	1935-36	*95*, 175.

XI. Motor Freight Traffic

C-53	*Ton-kilometers*	
	1913, 1917, 1920, 1923/24-40, 1945-56	*70*, 155.
	1957-58	*45*, 573.
	1959	*67*, 168.
	1960	*46a*, 553.
C-54	*Tons originated*	
	1913, 1917, 1920, 1923/24-40, 1945-56	*70*, 155.
	1957-58	*45*, 573.
	1959-60	*46a*, 553.
C-55	*Average length of haul*	
	1913, 1917, 1920, 1923/24-40, 1945-60	Ton-kms (series C-53 divided by tons originated (series C-54).