not fair, as will be readily understood from the beef & grain train illustration. For the same reason, this uniform percentage of tare should be used in testing the resistance of different grades. Schedules of loads for engines should therefore be based on trains having a uniform percentage of tare. This is what we have done. We adopted the 2 to 1 basis, because we have a large number of cars which weigh about 15 tons, & have a capacity of 30 tons, or 2 to 1. We have very few larger capacity cars of our own. Therefore, we cannot look for many, if indeed any, trains that would have a lower percentage of tare than one-third. The conditions on some other railways may be such that they should adopt, for instance, a 3 to 1 basis. If so, they can make up their schedule of loads & compile their charts on that basis.

The second proposition is, that having determined the haulage capacity of engines with trains having this uniform percentage of tare, that then there should be some method of determining the comparative resistance of every train, & that engines should be loaded accordingly. This is accomplished by the chart, which is compiled on the basis that 30% more power is required to move the same tonnage in empties than in loaded cars, loaded 2 to 1. This 30% is a point which I anticipated I would hear about, & in reference to it I have to say that this method of rating & loading engines is in use as yet only on our Eastern

TABLE 3. INDEX TO HAULAGE CAPACITY AND DESCRIPTION OF LOCOMOTIVES.

NUMBER.	%CAPACITY.	CLASS.	NUMBER.	%CAPACITY.	CLASS.	NUMBER.	%CAPACITY.	CLASS.	NUMBER.	%CAPACITY.	CLASS.
M&A 11	50	8 W,S	159	50%	8 W,S	321/335	115%	6 W,S	508 510	60%	8 W,S
" 13 15	50	"	170/172	70	"	336/341	120	"	511 513	55	"
" 17 18	50	"	173	65	"	342/344	140	"	514	50	"
" 24	85	MOGUL,S	174	70	"	345	55	8 W,S	515 517	60	"
" 25 26	50	8 W,S	175 176	65	"	350	55	"	518	50	"
" 27 30	65	"	177 179	60	"	351/353	65	"	520	55	"
1 6	65	"	184	60	"	355/358	65	"	521 524	85	"
17	50	"	186 188	55	"	359	60	"	525/527	65	"
20 44	65	"	191 193	55	"	360	70	"	528	60	"
45 53	60	"	194 199	120	10 W,C	361/365	65	"	530	60	"
62 64	60	"	200 202	120	10 W,S	366/367	60	"	532	105	10 W,S
66	65	"	203 208	110	"	368	65	"	533	105	10 W,C
67 71	60	"	209/211	90	ATL,C	369 370	60	"	534/540	100	10 W,S
72	90	6 W,S	212 223	110	10 W,S	371 373	70	"	541	100	10 W,C
73	80	"	224 227	110	10 W,C	374/378	65	"	542 550	100	10 W,S
74 87	65	8 W,S	229	65	8 W,S	379/391	70	"	551/561	95	"
88 89	60	"	230 233	60	"	392	65	"	562	95	10 W,C
90	65	"	234 237	65	"	393/394	70	"	563	95	10 W,S
91 92	60	"	238	60	"	395/400	80	"	564	95	10 W,C
93	65	"	239	65	"	401/406	100	CON,S	565/579	95	10 W,S
94	60	"	240 241	55	"	408 434	100	MOGUL,S	580/584	120	6 W,S
95	65	"	244 249	55	"	435 442	95	10 W,S	585 602	100	10 W,S
96	60	"	255 257	60	"	443 455	100	MOGUL,S	603 607	95	"
97 99	65	"	260	60	"	456	90	10 W,S	608	100	10 W,C
100	50	"	262 267	60	"	457/458	95	"	609/613	100	10 W,S
101 110	80	6 W,S	269 270	60	"	459	90	"	614	120	6 W,S
117 119	70	4 W,S	271 282	65	"	460/464	100	MOGUL,S	615/638	100	10 W,S
120 121	65	8 W,S	285 297	65	"	465/479	95	10 W,S	639/640	100	10 W,C
123 142	65	"	298	60	"	480/492	105	10 W,C	644/668	105	"
143 145	60	"	299	65	"	493/496	100	10 W,S	669 731	145	CON,C
147 148	60	"	300 311	80	"	497/498	115	CON,S	732/738	153	CON,S
152 155	80	6 W,S	312 315	120	CON,S	499 504	115	CON,C	739 740	145	"
157	50	8 W,S	316 320	140	"	507	50	8 W,S	741 786	145	CON,C

NOTE.—
8 W —Four driving wheels, coupled with four-wheel truck.
4 W — " " " " switcher.
6 W —Six " " " "
MOGUL— " " " " with two-wheel truck.
10 W — " " " " four " "
ATL—Four driving wheels, coupled with four-wheel truck and one pair idlers under firebox.
CON—Eight driving wheels, coupled with two-wheel truck.
S —Single expansion or "simple."
C —Double expansion or "compound."

TABLE 4.—RATINGS AND RULES FOR LOADING LOCOMOTIVES IN FREIGHT SERVICE.

Conditions	Ordinary		Bad Rail or Temperature 10° Above to 20° Below Zero		Temperature Colder Than 20° Below Zero	
Class of Rating	Ordinary Freight Trains A	Fast Freight Trains B	Ordinary Freight Trains C	Fast Freight Trains D	Ordinary Freight Trains F	Fast Freight Trains G
Reductions From Schedule Loads	% NIL	% 10	% 7	% 12	% 12	% 15

Such regular trains as may be so designated by Superintendents, and any train with ten or more cars of live stock, provisions and perishables will be rated as "FAST FREIGHT TRAINS."
Superintendents may, in special cases other than those provided for herein, authorize a special rating.
The loads for engines during snow and wind storms will be determined at time according to conditions.
In making deductions for "Temperature" or "Bad Rail" the probable conditions over ruling grade and not at starting point, must be considered.
Where tare is not stencilled on cars the following estimated weights will be used:—

	Tons.
28 Feet Box	10
30 " Box or Stock	11
33 " " "	13
34 " " "	14
35 " " "	16
33 " Palace Horse	14
50 " " "	19
35 " Refrigerators, Pass	20
35 " " " Fr't	18
33 " Ventilator	13
40 " Furniture	15
45 " "	19
28 " Flats	8
30 " "	9
33 " "	10
35 " "	12
33 " Coal	10
35 Feet Coal 30 Tons	15
35 " " 40 "	17
Empty Oil Tank	15
Derrick and Tool, Etc	20
Flangers	15
Large Snow Plow	50
Small " "	25
Caboose	14
Official, Long	54
" Short	36
Sleepers, Wide Vestibule	50
" Narrow "	43
" Ordinary Platform	40
Parlor, Wide Vestibule	54
" Narrow "	42½
" Ordinary Platform	40
Dining	45
Coaches, Wide	48
" Narrow Vestibule	38
" Ordinary Platform	28
Colonist	28
Tourist	30
" Wide Vestibule	37
Mail and Smoking	25
Baggage and Smoking	25
Box Baggage	17
Baggage Long	30
" Short	22
Baggage and Express, Long	30
" " Short	22
Mail and Express, Long	30
" " Short	22
Baggage, Mail and Express, Long	30
" " " Short	22

1,000 to 2,000 pounds inclusive shall count as one ton, less than 1,000 pounds shall not count.
A Flanger working is to be rated at 100 tons.
The loads for locomotives may be exceeded up to 15 tons, if by doing so another loaded car may be taken.
The schedules of loads are for use with prescribed chart for calculating loads for locomotives according to proportion of tare to gross weight behind the tender and are based on trains of which the tare weight, including van, is 33⅓% of such gross weight.
NOTE—Figures in italics in hauling capacity schedules are based on the trains passing the stations without stopping.