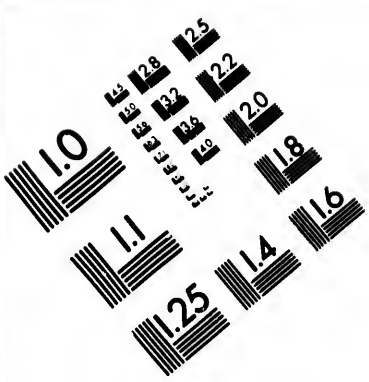

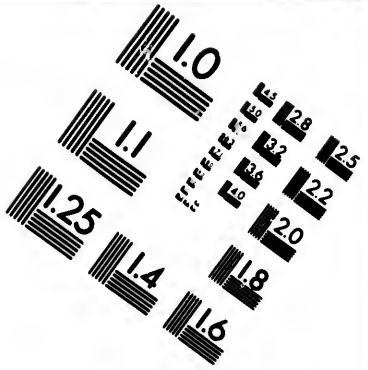

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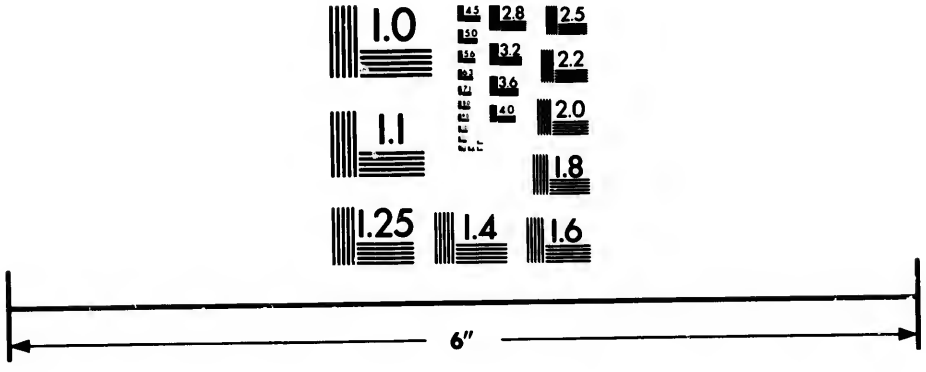

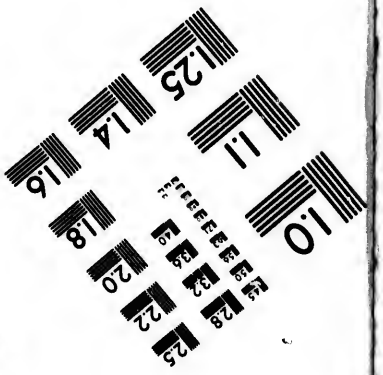

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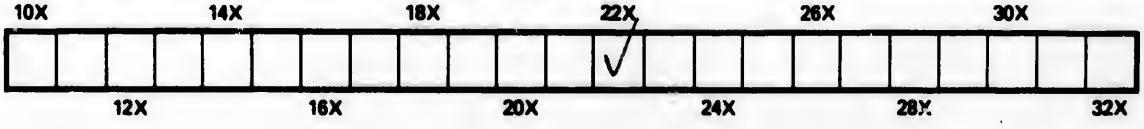

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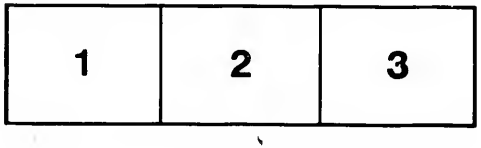

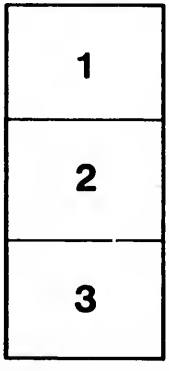

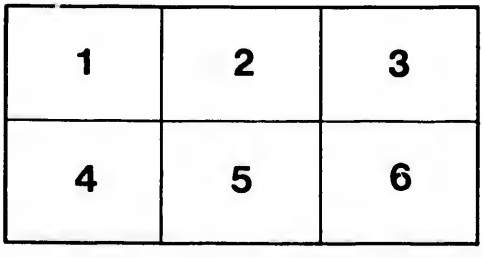

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SECOND EDITION, REVISED.

RAILWAY

PASSENGER TRAFFIC.

BY J. FRANCIS LEE,

GENERAL AGENT

CHICAGO, ROCK ISLAND AND PACIFIC RAILWAY.

TO ORGANIZE WELL IS A SCIANCE.

Toronto:

HUNTER, ROSE & Co., 25 WELLINGTON STREET.

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2ND EDITION.

LEE

ON

PASSENGER TRAFFIC.

With Graduated Table of Mileages and Contract Rates for Constant and Transient Traffic, and Rules and Regulations for operation of the same.

SOCIAL CONDITIONS WHICH INFLUENCE THE DEVELOPMENT OF LOCAL PASSENGER TRAFFIC.

An investigation into the characteristics of local passenger traffic with the object of defining its component and distinctive features will elucidate at an early stage of the operation the existence of one prominent feature, representing a large percentage of passenger earnings, and worthy of studious thought and careful consideration. This feature in local passenger traffic is its social phase and the influence exerted thereby for increasing the revenue of our railways. It involves the satisfactory solution of many obstacles found to exist at the present time in the conduct of railway passenger traffic. Further, it partakes of a large amount of originality in its discussion, and in its technical bearing and application to practical business necessities. Concurrent with its own development is that also of a large section of society living within the influence exerted by railways. Perhaps to a great extent it foretells the gradual adaptation of the railways to the performance of services to the public in a way similar to those rendered by the postal and telegraph systems; and, as civilization progresses and population increases, it is natural to find that a subject of this kind is open to much original investigation of a special character and closely connected with the welfare of society. All questions of passenger traffic have peculiarly a social aspect; this should be the primary one. The running of a passenger train irrespective of public convenience and other social considerations would no doubt be an easy task for the time-table compiler, but would hardly pay the company employing him. The social aspect must come first. Equally so in regard to the conditions of passage by passenger trains; the mere formulation of a series of iron-clad conditions irrespective of public feeling, public comfort, or public necessity, would inevitably result in a well-earned unpopularity and form good ground for the development of a craving for some competition as a relief to the sufferers. The traffic on any line will certainly become most lucrative where the public are primarily considered and the conservatism of office is tempered with judicious liberality. Public comfort should be the primary object, and the aspect of the question given due prominence, not made subordinate to any other. Now to develope passenger traffic the study of this social feature is a fundamental necessity, and the more it is studied without official prejudice the more evident will it become that it is pre-eminently necessary to introduce some practical system whereby all the wants of society may be met freely and fully. A completely comprehensive, equitably pro-

portioned, non-discriminative system, is required. Its value to the public will be at once indicated by the wide and growing demand for provisions which it alone is calculated to supply, and which are choked off at present for want of such.

A code of regulations and a proportionate scale of charges suitable to the various contracts to be made with a company for a large or small number of miles on its line, for longer or shorter periods, are provided in this pamphlet, together with the mode of preparing contract tables. The principle at the root of this method of developing traffic is the simple one of supplying a demand both natural and continuous but which has not hitherto been either acknowledged or met in any organized manner by the railways. A mileage charge, irrespective of the customer's making one hundred, one thousand, or ten thousand miles, or the absence of a proportionate, mathematically accurate scale, capable of proof as equitable on commercial principles, is a most effectual stop to the progress and development of local interests, both for the community and the company so situated. Freight and passenger traffic both suffer materially thereby. As regards the sensation produced upon commercial men by such a condition of affairs, it is only equalled by that which would result from their inability to obtain better terms from a manufacturer or wholesale house for an order covering thousands of dollars and one limited to hundreds. In other words any system of this kind, to be socially successful, must also be commercially sound.

The c. . . local fare tariff is not suited for *constant* travel, and there is really bu. . . ue way of meeting the actual requirements of the public in all their va. . . cial forms of application, and that is by means of a carefully adjusted scale of proportionate charges varying on a basis in which the two main fundamental elements are—one, the number of miles or number of journeys to be made; the other, the period to be occupied in making them.

A hundred and one various wants and possible requirements must exist and increase in complexity and number as labour becomes more divided and the avocations of mankind more diverse.

It is quite in place to observe here the admirable facility with which the postal system is operated and which has had so much to do with its wonderful growth and utility. The sensation of being able to make a *constant* use of it, not merely an *occasional* one, the equitable charges proportionate to weight and character of enclosures, and the progressive improvements which have been feasible from time to time in its provisions, one and all of which combine to make it a highly satisfactory exhibition of a system socially based and perfected. Is there any social progress for railways in a similar way? It would certainly appear so if we may judge by the remarkable changes which have taken place in the course of time between the early state of freight transportation and the present state of that branch of traffic. On the ground alone that the tendency is toward the reduction in the actual cost of haulage and that time will effect much in that direction, there is sufficient to warrant the prediction that the future of passenger transportation is equally hopeful. Taking things, however, as they now are, if the amount of business to be transacted has any influence at all in reducing the price of production or cost of operation, as has been found in the freight business, then there should exist a wide margin in the field of local passenger travel for accomplishing equally marked results. Experiment would hardly be necessary to prove the almost natural bent of mankind to move constantly over the face of mother earth and intermingle socially, commercially, and otherwise; to conduct intercommunications in person in preference to any other method. Experiment would also undoubtedly prove that the natural result of such action would be to promote a greatly increased employment of the most economical and the most time-saving means of transportation. Society, like Oliver Twist,

is constantly crying for more, and the cry is a good healthy one for the railways. There is a conservative timidity, however, in the action of railways toward any bold experimental research, partaking very much of the formality of the action of governments as contrasted with that under individual enterprise. As an example of this conservatism which is so strongly marked in the history of railway management, we have no better one than that furnished by another most important feature in the development of local passenger traffic. The case of local excursion travel is referred to. With what reluctance was it that the great English lines were compelled to admit the entirely distinct character of this business and its independence of the ordinary local travel. Surprise of no ordinary character was displayed when it was discovered that something more than sheer necessity induced the public to take advantage of any means of rapid inter-communication; and now it has grown up to vast proportions in England and is doing the same in America until it affords one of the best and richest sources of revenue. It was an ignorance of the social aspect of the question that delayed the experimental effort necessary to test the practical value of the principle—just as it is now in other kindred cases elsewhere. It would not be too much to assert that there are roads that have been so far ignorant of what their social capabilities are as to have conducted traffic for years regardless of the adoption of any thorough system of local excursion traffic, and there are, it is well known, existing to this day staunch old conservative traffic men who cannot gauge the wants and capacities of society for social travel and its peculiarities. In Chicago, even to-day, there is a hold-back stay-behind policy in respect to the excursion, commutation, and suburban business.* Experiment alone will satisfy them, and too often, like all apologetic prophets, they will exclaim when once a clear and decisive proof has been forced upon them, and conviction is inevitable, that they thought so too, and rapidly draw conclusions as simple common-sense deductions from a self-evident fact which they assume as an ordinary event. History is very valuable in this way where it can be made into a practical compass to steer us on our way to progress and give us a chart whereby to avoid the repetition of old errors. The development of passenger traffic, then, to large and constantly-growing proportions requires that we should, above all things, get our mental vision cleared from any ancient errors and make up our minds to become social observers and experimentalists, working inductively rather than deductively. We must strive to arrive at the goal of an absolutely-comprehensive system, whereby the wants of the community may be provided for and stimulated. We must not wait to have progress forced upon us but go toward it, even if we stumble occasionally on the way. Let us acknowledge the rights, examine the proclivities, test the capacity of society for all we have to put up to its bid in the world's auction market of necessary commodities.

Arbitrary tariff legislation has a great deal to account for to society in the production of this conservative reluctance on the part of railways to extend a wider measure of liberal and productive facilities. The practice of instituting an arbitrary rate of two cents a mile, or any other figure, frightens the roads from making very low rates in case the ignorance of legislators on such questions should reduce the ordinary local rates arbitrarily to rates only intended for constant travel.

Opposition engenders opposition. An arbitrary tariff system results in an unaccommodating one where the leverage of self-interest and public opinion would otherwise produce much better results unaided. Experience has proved in railway history that greater facilities have been presented where governmental interference has stopped short and left results to work out harmoniously.

*In the *Railway Age* of November 13th, 1884, a very encouraging and interesting editorial should be read as proof that one Company has proved, very recently, an exception to the general rule.

The spur of public opinion and social necessity may often need to be applied, and strong organizations, commissioners, etc., may be required to apply it; but beyond this, evil will result if control is attempted by any form of authority not in a position to see into, outside of, and all around a traffic question.

The scientific and practical conduct of railroad business requires a life-long study; it is a profession of itself, and sad havoc will be made by any who, ignorant of its principles, attempt to direct its operations.

Allowing for the importance of the social features of the question, is there any way in which all the merits of the case can be accommodated profitably? There is, of course, a point below which it cannot pay to go, and the more done below that point the worse.

The object is to find and adjust continually the profit point in traffic. The point to adjust in this matter involves the answer called for by the following inquiry:—

Will it pay to offer the public resident on a line a proportionate scale of charges graduated on a commercial basis, and suited to a great variety of demands which will be found to exist when such inducements become known?

The inducements exist, the object is to take advantage of them in a manner profitable to the roads and not prohibitive of development to the business itself.

Provided extra train service is not required and ordinary local travel can be protected, will it not, if such is feasible, increase the percentage of net earnings and warrant the adoption of such a system as has been suggested? There is no necessity with an average train service for any extra expenditure on that account, and the protection of ordinary traffic is essentially one dependent upon the mode of handling the business, and is under control and voluntary to a great extent. It may always be assumed and is capable of experimental proof that where two distinct classes of travel exist, one is required to supply one form of social requirements distinct from and independent of the other. It is in fact only an entire misapprehension of the characteristics of the two that would lead to any confusion or loss from want of a well-defined line of demarkation between them.

The characteristics of what we understand by ordinary travel are represented by a merely *occasional* demand; those of resident traffic by *constant* demands. What is required is a system to develope this *constant* and not merely occasional travel by residents on a line into a class—a profit-earning class of traffic. It will be no answer to say that such demands are not found to exist on this or that line; they will not be found unless solicited, and are not exceptional in their character from those of any other desirable class of traffic. The non-existence of provisions required for the individual wants of the public is quite sufficient to render them absolutely dormant. The existence of a properly constituted system will very soon draw them out. Experiment will prove this.

It has been shown why, on *social* grounds, it is desirable to develope local traffic. It is also on *commercial* grounds a sound policy to do so; that is, it is in accordance with sound commercial principles to fix the price of commodities with a view to obtain the largest possible market and the largest possible profit, putting the price at that figure which will command the largest possible custom compatible with a maximum of profit. Unless a mileage system, if such is in vogue, is such as to call forth *all* the possible traffic which can be obtained by the inducements it represents and can apply without risk of undue discrimination to each and all of the demands which a completely comprehensive system will elicit, then a very large proportion of those who would seek to avail themselves of its provisions will withdraw from any attempts in that direction.

The shipper, produce merchant, commission merchant, general dealer, etc., will bewail the want of travelling facilities, and, as a rule, the passenger department will be sacrificed to the freight by the issue of a free pass; or, if not, and a pass is issued (on other grounds of general interest), the road will be running on a bad policy, and a weak one in every way, so far as that is concerned.

Teachers and scholars, preachers and numbers of residents along a line will have no chance of developing their usefulness and increasing their earnings with their sphere of action, unless facilities are at their disposal.

The traffic point must in each case be found, at which it will pay both parties to contract for travel, that is, that point at which the social wants and capabilities of the community can be best led to become profitable for traffic. The thousand or more mileage ticket, good for a fixed period or good till used, with its usual unsystematic and unconditional terms, is like all loose commercial transactions, bad for all concerned. It is too limited in its application, and not protective enough. Also the suburban commutation or season tickets for city people are, as far as they go, but partial in their application. What is wanted is a complete system, proportionate throughout, and equitably compiled with reference to the social capacities of the people, and elastic enough to comprehend them all.

This leads us to the second part of our subject, namely, the "PRINCIPLES UPON WHICH A COMPLETE TARIFF OF CHARGES MAY BE COMPILED FOR CONSTANT OR OCCASIONAL LOCAL TRAFFIC, WITH RULES, CONDITIONS, AND ILLUSTRATIONS."

The object to be gained by a proportionate scale of prices for small or large amounts of travel within given periods has been clearly stated in the foregoing remarks upon the social aspect of the development of local passenger traffic by means of a thoroughly comprehensive system. The principles for the compilation of such a scale must next be as clearly delineated as possible, so as to be within the grasp of those who are new to the subject as well as of adepts connected with traffic operations upon the more populous sections of the various lines.

The constant and the occasional traveller must both be provided for. Consequently there is a proportion to be maintained which is a joint one, varying on a joint basis. It varies jointly with the mileage and the time within which the mileage is travelled. A large number of cases requiring satisfactory solution will consist of those who travel between two given points a given number of times each way, or so many miles within periods ranging from say one up to twelve months. In one case it may be for twice a week in 13 weeks or three months; in another, twice or thrice a week in 26 weeks or six months, and so on—both the mileage and the time varying jointly. Again, a considerable number of cases will come up where persons will require to use a section of the line, so as to visit certain points on that section periodically, and to travel east and west of a certain point where they reside perhaps so many miles in a given period east and so many west.

What is required is a clear, simple table, which will be readily referred to, and strictly proportionate in all its parts.

To form such a table certain *fixed points* must be marked off, and they are as follows:—

1. The least number of miles or the smallest number of rides to qualify for a contract ticket.

2. The shortest period to be allowed for the performance of the minimum number of miles which can be granted.

3. The maximum charge per mile to correspond to the minimum mileage allowed.

4. The minimum charge per mile to correspond to the maximum mileage allowed.

When these fixed points are marked off, then a method of graduating intermediates must be defined, and it must be capable of proof as a just and equitable one, because in true proportion.

Fixed Point No. 1.—What are the social considerations which affect this point?

We must draw the line somewhere between the constant and occasional customer. Where shall we draw it? Looking at the question from general daily observations, the majority of the community who really require to use the line of a road in a systematic, constant manner, will, as a rule, do so at least weekly. The average ability of most people is just about what would be required if a weekly use of the line was at their disposal.

To go and return once a week would probably be a very fair and desirable minimum to allow as a qualification for commuted fares.

Two single-journey rides a week or their equivalent in miles will answer the demands then of Point No. 1.

Fixed Point No. 2.—How many weeks will be allowed on a minimum purchase, or what is the shortest period to be allowed at the rate of two rides a week?

Less than for one month would hardly answer. That is, no commutation to be granted for less than a one month's ticket representing in trips or miles two single journeys per week. This, however, may be left open to decision according to any particular set of circumstances.

Fixed Point No. 3.—The charge per mile to be made for this one month's ticket, or the maximum rate per mile to be used for compilation of a tariff. What other mileage charges are there which control this charge? It is clear there will be no commercial advantage if the purchaser of a one month's ticket for a given mileage or number of trips has to pay more than the ordinary rate per mile. Now, this will either be the single fare—that is, the ordinary local rate per mile—or, where return tickets are issued, it will depend upon the latter. In no case can it be higher than either. It must, a rule, take up its rank in the third place on a company's tariff, with the single-fare mileage rate first, the return fare mileage rate second, and its own mileage charge third.

Fourth Fixed Point.—Having located in rank the *maximum* rate for a scale of proportionate charges, what shall we put the *minimum* rate at? This depends, of course, upon the *profit point* at which traffic can be said to become stationary—that is, neither a loss nor a gain.

It, of course, varies on almost every line, being subject to the general character of all the traffic carried. At the same time, it need not necessarily terrify us to a very great extent if we go rather low down where very constant travel is concerned if, as is usual, no extra train service is required, and we cannot incur any direct outlay as a debit against it. A very fair way, however, of settling the question and giving it its due social importance is to base it relatively to the mileage rates given on the season-ticket travel. We shall require a figure per mile for a season-ticket holder who travels daily to and from business, from January to December, and if we allow that such a person makes an average, allowing for holidays, etc., of ten rides a week, then this might be put as the minimum figure in our table against the various distances required.

Graduating Intermediates.—Between one month's travel and twelve months', there will be a proportionate scale required. We shall have our maximum rate and our minimum rate, and some recognized and reliable method of graduating the scale must be adopted. An arithmetical progression meets this, and if the simple algebraic formula for such is adjusted, by substituting the necessary figures, the whole table will be worked out thor-

LEE'S MILEAGE CONTRACT TRAFFIC TABLE.

SHOWING BASIS FOR RATES PER MILE FOR CONTRACTS OF 5 MILES A WEEK FOR ONE MONTH TO 50 MILES A WEEK FOR ONE YEAR.

Miles per week.	Basis.	For one month, 4.34 weeks.	For two months, 8.76 weeks.	For three months, 13 weeks.	For four months, 17.34 weeks.	For five months, 21.67 weeks.	For six months, 26 weeks.	For seven months, 30.34 weeks.	For eight months, 34.67 weeks.	For nine months, 39 weeks.	For ten months, 43.34 weeks.	For eleven months, 47.67 weeks.	For twelve months, 52 weeks.
5	Cents per mile....	2.50	2.45	2.40	2.35	2.3	2.25	2.20	2.15	2.10	2.03	2.03	2.00
	No. of miles.....	21.70	43.35	65.00	86.70	108.35	130	151.70	173.35	1.95	216.70	238.70	260.00
6	Cents per mile....	2.48	2.40	2.34	2.30	2.2	2.15	2.10	2.00	1.95	1.90	1.88	1.87
	No. of miles.....	26.04	52.02	78.00	104.04	130.05	7.50	182.04	208.02	2.34	260.04	286.02	312.00
7	Cents per mile....	2.46	2.38	2.28	2.19	2.11	2.02	1.96	1.85	1.80	1.77	1.75	1.74
	No. of miles.....	30.38	60.69	91.00	121.38	151.6	1.82	210.38	242.69	2.73	303.38	333.69	364.00
8	Cents per mile....	2.41	2.33	2.22	2.11	2.01	1.85	1.80	1.76	1.74	1.73	1.72	1.71
	No. of miles.....	34.72	69.36	104.00	138.72	173.3	2.08	242.72	277.36	3.12	346.72	381.36	416.00
9	Cents per mile....	2.42	2.29	2.15	2.03	1.98	1.75	1.73	1.70	1.68	1.67	1.66	1.65
	No. of miles.....	39.06	78.03	117.00	156.06	195.06	2.34	273.06	312.03	3.51	390.06	429.03	468.00
10	Cents per mile....	2.40	2.25	2.10	1.95	1.77	1.7	1.65	1.64	1.63	1.62	1.61	1.60
	No. of miles.....	43.40	86.70	130.00	173.36	216.75	2.60	303.40	346.70	3.90	433.40	476.70	520.00
11	Cents per mile....	2.38	2.20	2.04	1.90	1.74	1.65	1.60	1.59	1.58	1.57	1.59	1.55
	No. of miles.....	47.74	95.37	143.00	190.74	238.37	2.86	333.74	381.37	4.29	476.74	524.37	572.00
12	Cents per mile....	2.36	2.17	1.98	1.75	1.65	1.57	1.57	1.54	1.53	1.52	1.51	1.50
	No. of miles.....	48 08	104.04	156.00	208.08	260.04	3.12	364.08	416.04	4.68	520.08	572.04	624.00
13	Cents per mile....	2.34	2.13	1.92	1.68	1.60	1.55	1.54	1.53	1.52	1.51	1.50	1.49
	No. of miles.....	56.42	112.71	169.00	225.42	281.73	3.38	394.42	450.71	5.07	563.42	619.71	676.00
14	Cents per mile....	2.32	2.09	1.85	1.74	1.55	1.49	1.48	1.48	1.46	1.47	1.49	1.44
	No. of miles.....	60.76	121.38	182.00	242.76	303.38	3.64	424.76	485.38	5.46	606.76	667.38	728.00
15	Cents per mile....	2.30	2.05	1.80	1.60	1.52	1.40	1.48	1.47	1.46	1.45	1.44	1.43
	No. of miles.....	65 10	130.05	195.00	260.10	325.05	3.90	455.10	520.05	5.85	650.10	715.05	780.00
16	Cents per mile....	2 28	2.01	1.75	1 50	1.48	1.45	1.44	1.43	1.42	1.41	1.40	1.39
	No. of miles.....	69.44	138.72	208 00	277.44	346.77	4.16	485.44	554.7	6.24	693.44	762.72	832.00
17	Cents per mile....	2.26	1.97	1.70	1.53	1.45	1.44	1.43	1.42	1.41	1.40	1.39	1.38
	No. of miles.....	73.78	147 39	221.00	294 78	368.39	4.42	515.78	589.39	6.63	736.78	810.39	884.00
18	Cents per mile....	2.24	1.93	1.65	1.47	1.43	1.42	1.41	1.40	1.39	1.38	1.37	1.36
	No. of miles.....	78.12	156 66	234.00	312.12	390.0	4.68	546.12	624.66	7.02	780.12	858.66	936.00
19	Cents per mile....	2.22	1 90	1.60	1.45	1.41	1.40	1.39	1.38	1.37	1.35	1.35	1.34
	No. of miles.....	82.46	164.73	247.00	329.46	411.73	4.94	576.46	658.73	7.41	823.46	905.73	988.00
20	Cents per mile....	2.20	1.85	1.55	1.42	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.32
	No. of miles.....	86.80	173.40	260.00	346.80	433.40	5.20	606.80	693.40	7.80	866.80	953.40	1,040.00
21	Cents per mile....	2.18	1 80	1.50	1.41	1.38	1.37	1.36	1.35	1.34	1.33	1.32	1.31
	No. of miles.....	90.14	182.07	273.00	364.14	455.07	5.46	637.14	728.07	8.19	910.14	1,001.07	1,092.00
22	Cents per mile....	2.16	1.75	1 48	1 39	1.37	1.35	1.34	1.33	1.32	1.31	1.30	1.29
	No. of miles.....	94.48	190.74	286.00	381.48	476.74	5.72	667.48	762.74	8.58	953.48	1,048.74	1,144.00
23	Cents per mile....	2.14	1.72	1.46	1.37	1.36	1.33	1.32	1.31	1.30	1.29	1.28	1.27
	No. of miles.....	98 82	199 41	299.00	398.82	498.41	5.98	697.82	797.41	8.97	996.82	1,096.41	1,196.00
24	Cents per mile....	2.12	1.65	1.44	1.35	1.34	1.3	1.31	1.30	1.29	1.28	1.27	1.25
	No. of miles.....	103.16	208.08	312.00	416 16	520.08	6.24	728.16	832.08	9.36	1,040.16	1,144.08	1,248.00
25	Cents per mile....	2 0	1.60	1 42	1.33	1.30	1.29	1.28	1.27	1.26	1.25	1.24	1.23
	No. of miles.....	107.50	216.78	325 00	433.50	541.75	6.50	758.50	866.75	9.75	1,083.50	1,191.75	1,300.00
26	Cents per mile....	2 08	1.58	1 40	1.32	1.29	1.28	1.27	1.26	1.25	1.24	1.23	1.22
	No. of miles.....	111.80	225.22	338 00	450.84	563.46	6.76	788.84	901.42	10.14	1,126.84	1,239.42	1,352.00
27	Cents per mile....	2.06	1.56	1.38	1.31	1.28	1.27	1.26	1.25	1.24	1.23	1.22	1.21
	No. of miles.....	116.18	234.09	351.00	468.18	585.09	7.02	819.18	936.09	10.53	1,170.18	1,287.09	1,404.00
28	Cents per mile....	2.04	1.54	1.3	1.30	1.27	1.26	1.25	1.24	1.23	1.22	1.21	1.20
	No. of miles.....	120 92	242.76	364.00	485.52	606.76	7.28	849.52	970.76	10.92	1,213.52	1,334.76	1,456.00
29	Cents per mile....	2.02	1.52	1.34	1.29	1.26	1.25	1.24	1.23	1.22	1.21	1.20	1.19
	No. of miles.....	124.96	251.43	377.00	502.86	628.43	7.54	879.86	1,005.43	11 31	1,256.86	1,382.43	1,508.00
30	Cents per mile....	2.00	1.50	1.33	1.28	1.25	1.24	1.23	1.22	1.21	1.20	1.19	1.18
	No. of miles.....	130.20	260.10	390.00	520.20	650.10	7.80	910.20	1,040.10	11 76	1,300.20	1,430.10	1,560.00
31	Cents per mile....	1.98	1.48	1.32	1.27	1.24	1.23	1.22	1.21	1.20	1.19	1.18	1.17
	No. of miles.....	134 54	268.77	403 00	537.54	671.77	8.06	949.54	1,074.77	12.09	1,343.54	1,477.77	1,612.00
32	Cents per mile....	1.96	1.46	1.31	1.26	1.23	1.22	1.21	1.20	1.19	1.18	1.17	1.16
	No. of Miles.....	138.88	277.44	416.00	554.88	693.44	8.32	970.88	1,109.44	12.48	1,386.88	1,525.44	1,664.00
33	Cents per mile....	1.94	1.44	1.30	1.25	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.15
	No. of miles.....	143.22	286.11	429.00	572.22	715.11	8.58	1,001.22	1,144.11	12.87	1,430.22	1,573.11	1,716.00
34	Cents per mile....	1.92	1.42	1.29	1.24	1.21	1.20	1.19	1.18	1.17	1.16	1.15	1.14
	No. of miles.....	147 56	294 78	442.00	589.56	736.78	8.84	1,031.56	1,178.78	13.26	1,473.56	1,620.78	1,768.00
35	Cents per mile....	1.9	1.39	1.28	1.23	1.20	1.19	1.18	1.17	1.16	1.15	1.14	1.13
	No. of miles.....	151 90	303.45	455.00	606 90	758.45	9.10	1,061.90	1,213.45	13.65	1,576.90	1,668.45	1,820.00
36	Cents per mile....	1.88	1.37	1.27	1.22	1.19	1.18	1.17	1.16	1.15	1.14	1.13	1.12
	No. of miles.....	156.24	312.12	468.00	624.24	780.56	9.36	1,092.24	1,248.12	14.04	1,560.24	1,716.12	1,872.00
37	Cents per mile....	1.86	1.36	1.26	1.21	1.18	1.17	1.16	1.15	1.14	1.13	1.12	1.11
	No. of miles.....	160.58	320.79	481.00	641.58	801.79	9.62	1,122.58	1,282.79	14.43	1,603.58	1,763.79	1,924.00
38	Cents per mile....	1.84	1.35	1.25	1.20	1.17	1.16	1.15	1.14	1.13	1.12	1.11	1.10
	No. of miles.....	164 92	329.46	494.00	658.02	823.16	9.88	1,152.92	1,317.46	14.82	1,646.92	1,811.46	1,976.00
39	Cents per mile....	1.82	1.34	1.24	1.19	1.16	1.15	1.14	1.13	1.12	1.11	1.10	1 09
	No. of miles.....	169.26	338.13	507.00	676.26	845.13	10.14	1,184.26	1,353.13	15.21	1,690.26	1,859.13	2,028.00
40	Cents per mile....	1.80	1.33	1.23	1.18	1.15	1.14	1.13	1.12	1.11	1.10	1.09	1.08
	No. of miles.....	173 60	346.80	520 00	693.60	866.80	10.40	1,213.60	1,386.80	15.60	1,733.60	1,906.80	2,080.00
41	Cents per mile....	1.78	1.32	1.22	1.17	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.07
	No. of miles.....	179 94	359.47	533.00	710.94	888.47	10.66	1,243.94	1,421.47	15.99	1,776.94	1,954.47	2,132.00
42	Cents per mile....	1.76	1.31	1.21	1.16	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.06
	No. of miles.....	182 28	364.14	546.00	728.28	910.14	10.92	1,274.28	1,456.14	16.38	1,820.28	2,002.14	2,184.00
43	Cents per mile....	1.74	1.30	1.20	1.15	1.12	1.11	1.10	1.09	1.08	1.07	1.06	1.05
	No. of miles.....	186.62	372.81	559.00	735.02	931.81	11.18	1,304.62	1,490.81	16.77	1,863.62	2,049.81	2,236.00
44	Cents per mile....	1 72	1.29	1.19	1.14	1.11	1.10	1.09	1.08	1.07	1.06	1.05	1.04
	No. of miles.....	193.96	281.48	572 00	752.06	953.48	11.44	1,334.96	1,525.48	17.16	1,906.96	2,097.48	2,288.00
45	Cents per mile....	1.70	1.28	1.18	1.13	1.10	1.09	1.08	1.07	1.06	1.05	1.04	1.03
	No. of miles.....	195.30	390.15	585.00	770.30	975.15	11.70	1,365.30	1,560.15	17.55	1,950.30	2,145.15	2,340.00
46	Cents per mile....	1.67	1.27	1.17	1.12	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.02
	No. of miles.....	199.64	398.82	598.00	787 64	996.82	12.00	1,395.64	1,594.82	17.94	1,993.64	2,192.87	2,392.00
47	Cents per mile....	1.61	1 26	1.16	1.11	1.08	1.07	1.06	1.05	1.04	1.02	1.02	1.01
	No. of miles.....	203.98	407.47	611.00	804.98	1,018.49	12.26	1,425.98	1,629.49	18.33	2,076.98	2,240.40	2,444.00
48	Cents per mile....	1.69	1	1.15	1.10	1.07	1.06	1.05	1.04	1.03	1.02	1.01	1.00
	No. of miles.....	208.32	416.	624.00	822.32	1,040.10	12.53	1,456.32	1,664.16	18.72	2,080.32	2,288.16	2,496.00
49	Cents per mile....	1.57	1.24	1.17	1.10	1.06	1.05	1.04	1.03	1.02	1.01	1.00	.99
	No. of miles.....	212.66	424 83	637.00	839.66	1,061.83	12.78	1,486.66	1,698.83	19.11	2,123.66	2,335.83	2,548.00
50	Cents per mile....	1.53	1.23	1.13	1.08	1.05	1.04	1.03	1.02	1.01	1.00	.99	.98
	No. of miles.....	217.00	433.50	650.00	867.00	1,083.50	13.00	1,517.00	1,733.50	19.50	2,167.00	2,383.50	2,600.00

NOTE.—The mileage rates given in this table are not arbitrary, but serve the purpose of illustrating the basis of the system of construction to be followed. A difference of one-twentieth of a cent between an equal number of miles travelled in one month and where two months are allowed is not absolutely required, and if one-fiftieth or any other proportional difference was adopted, the rates throughout the table would be proportionately higher without disturbing its utility as regards the principle involved, namely, its ability to meet without discrimination each particular demand which constant or occasional travel may create.

On page 12 will be found details as to mode of compiling a contract mileage table.

LEE'S MILEAGE CONTRACT TRAFFIC TABLE.

SHOWING BASIS FOR RATES PER MILE FOR CONTRACTS OF 5 MILES A WEEK FOR ONE MONTH TO 50 MILES A WEEK FOR ONE YEAR.

Miles per week.	Basis.	For one month, 4.34 weeks.	For two months, 8.76 weeks.	For three months, 13 weeks.	For four months, 17.34 weeks.	For five months, 21.67 weeks.	For six months, 26 weeks.	For seven months, 30.34 weeks.	For eight months, 34.67 weeks.	For nine months, 39 weeks.	For ten months, 43.34 weeks.	For eleven months, 47.67 weeks.	For twelve months, 52 weeks.
5	Cents per mile....	2.50	2.45	2.40	2.35	2.30	2.25	2.20	2.15	2.10	2.03	2.03	2.00
	No. of miles.....	21.70	43.35	65.00	86.70	108.35	130	157.70	173.35	195	216.70	238.70	260.00
6	Cents per mile....	2.48	2.40	2.34	2.30	2.2.	2.15	2.10	2.09	1.95	1.90	1.88	1.87
	No. of miles.....	26 04	52 02	78.00	104.04	130.02	156	182.04	208.02	234	260.04	286.02	312.00
7	Cents per mile....	2.46	2.38	2 28	2.19	2.10	2.02	1.95	1.85	1.80	1.77	1.75	1.74
	No. of miles.....	30.38	60.69	91.00	121.38	151.68	182	210.38	242.69	273	303.38	333.69	364.00
8	Cents per mile....	2.44	2.33	2.22	2.11	2.00	1.85	1.80	1.76	1.74	1.73	1.72	1.71
	No. of miles.....	34.72	69.36	104.00	138.72	173.36	208	242.72	277.36	312	346.72	381.36	416.00
9	Cents per mile....	2.42	2.29	2.15	2.03	1.90	1.75	1.73	1.70	1.68	1.67	1.66	1.65
	No. of miles.....	39.06	78.03	117.00	156.06	195.03	234	273.06	312.03	351	390.06	429.03	468.00
10	Cents per mile....	2.40	2.25	2.10	1.95	1.75	1.70	1.65	1.64	1.63	1.62	1.61	1.60
	No. of miles.....	43.40	86.70	130.00	173 36	216.70	260	303.40	346.70	390	433.40	476.70	520.00
11	Cents per mile....	2.38	2.20	2.04	1.90	1.70	1.65	1.60	1.59	1.58	1.57	1.56	1.55
	No. of miles.....	47.74	95.37	143.00	190 74	238.37	286	333.74	381.37	429	476.74	524.37	572.00
12	Cents per mile....	2.36	2.17	1.98	1.75	1.65	1.57	1.57	1.54	1.53	1.52	1.51	1.50
	No. of miles	48.08	104.04	156.00	208.08	260.04	312	364.08	416.04	468	520.08	572.04	624.00
13	Cents per mile....	2.34	2.13	1.92	1.68	1.60	1.55	1.54	1.53	1.52	1.51	1.50	1.49
	No. of miles.....	56.42	112.71	169.00	225.42	281.71	338	394.42	450.71	507	563.42	619.71	676.00
14	Cents per mile....	2.32	2.09	1.85	1.64	1.55	1.50	1.49	1.48	1.47	1.46	1.45	1.44
	No. of miles.....	60.76	121.38	182.00	242.76	303.38	364	424.76	485.38	546	606.76	667.38	728.00
15	Cents per mile....	2.30	2 05	1.80	1.60	1.52	1.49	1.48	1.47	1.46	1.45	1.44	1.43
	No. of miles.....	65 10	130.05	195.00	260.10	325.05	390	455.10	520.05	585	650.10	715.05	780.00
16	Cents per mile....	2 28	2.01	1.75	1 56	1.48	1.45	1.44	1.43	1.42	1.41	1.40	1.39
	No. of miles	69.44	138.72	208 00	277.44	346.77	416	485.44	554.7	624	693.44	762.72	832.00
17	Cents per mile....	2.26	1.97	1.70	1.52	1.45	1.44	1.43	1.42	1.41	1.40	1.39	1.38
	No. of miles.....	73.78	147 39	221.00	294 78	368.39	442	515.78	589.39	663	736.78	810.39	884.00
18	Cents per mile....	2.24	1.93	1.65	1.47	1.43	1.42	1.41	1.40	1.39	1.38	1.37	1.36
	No. of miles.....	78.12	156 06	234.00	312.12	390.09	468	546.12	624.06	702	780.12	858.09	936.00
19	Cents per mile....	2.22	1.90	1.60	1.45	1.41	1.40	1.39	1.38	1.37	1.35	1.35	1.34
	No. of miles	82.46	164.73	242.00	329.46	411.73	494	576.46	658.73	741	823.46	905.73	988.00
20	Cents per mile....	2.20	1.85	1.55	1.43	1.39	1.38	1.37	1.36	1.35	1.34	1.33	1.32
	No. of miles.....	86.80	173.40	260.00	346 80	433.40	520	606.80	693.40	780	866.80	953.40	1,040.00
21	Cents per mile....	2.18	1 80	1.50	1.41	1.38	1.37	1.36	1.35	1.34	1.33	1.32	1.31
	No. of miles.....	90.14	182.07	278.00	364.14	455.07	546	637.14	728.07	819	910.14	1,001.07	1,092.00
22	Cents per mile.....	2.16	1.75	1.48	1.39	1.37	1.35	1.34	1.33	1.32	1.31	1.30	1.27

oughly and proportionately. This operation is illustrated in the table accompanying, which is intended to serve as a sample from which others perhaps more suitable may be compiled if necessary.

REMARKS ON THE TABLE OR SCALE OF MILEAGE RATES.

The scale in the table used to exemplify the principles of compilation ranges from 2½ cents a mile down to about a cent, as will be seen. The 2½ cent rate will operate under fixed point No. 3, as the following remarks will explain: It has been, for example's sake, assumed that the ordinary *single fare* averaged three cents per mile, and that the ordinary *return fare* was made up of one-sixth off the two single fares, which would be three cents a mile less ⅙, which would be equal to 2½ cents a mile, which is the maximum figure selected and given in the table. The cent-a-mile rate, or the minimum figure in the scale given in the table, is the rate per mile taken from a season-ticket tariff which has been adopted in illustration, and the intermediate figures are fixed as nearly in accordance and as near a regular proportion as the equivalent mileage rates given in said season-ticket tariff would admit of. These data are, of course, assumed for the purpose of illustration, and will in no way affect the utility of the table for general application where the data are different.

There is one precaution to be observed in compiling a tariff of the kind. Similar contracts for travel may be called for requiring equivalent charges which will require the scale to be in proportion throughout.

Thus a person desirous of a quotation for two trips a week between two given points four miles apart, and one desirous of a quotation for four trips a week between two given points two miles apart, and for three months in either case. These are equivalent applications, and it would be out of proportion and discriminative to quote different rates in each case, so that the table must be proved throughout to see that multiples check off correctly. The scale is worked up to meet any application for a distance of 50 miles a week, for four up to fifty-two weeks, which is more than will probably be required, and ample for illustration.

Extending Time on Unused Miles.—There are instances where, through sickness or some unforeseen cause, a ticket has only been partly used. It would be a piece of extraordinary illiberality if no provision could be made to provide for this on business grounds. Condition No. 8 meets the case. To make the extension rule thoroughly applicable, however, it will be advisable to keep an officially indexed register, opening an account current with each purchaser, and thus be in a position, at any time, to grant an extension by charging the true difference with mathematical exactness. This is essential, too, especially at first, where new commuters are interested in trying the plan, and will do so, provided they can subsequently obtain its full advantages should they select to continue on. Allowance must thus be made for difference between first-rate and long-time rate, if required subsequently. Nothing will be lost by a prudent liberality in this respect.

INSTRUCTION TO CONDUCTORS AND FORM OF TICKETS.

Conductors' instructions must be protective. The best plan is by reproduction of signature, making printed instruction as follows:

"Tickets issued on (give character and colour of tickets) are not transferable under any circumstances, and are to be accepted only for the passage of the person to whom issued. The identity of such person can be established by calling upon the holder thereof to write his name (which the purchaser agrees to do in the conditions indorsed on tickets) and comparing such signature with that subscribed thereon."

The reproduction of signature rule should call for absolute forfeiture if contravened. It is a most efficacious rule, and, even if not always entirely practicable, it is sound in principle. For we must bear in mind that it is not so much the absolute certainty of detection that is required to prevent fraud as the increasing the chance of detection to a point as nearly certain as possible. The more nearly we can make it so the nearer the object that we are in search of is reached.

CONDITIONS.

A few useful conditions to be embodied in an agreement to be signed on application may be advisable.

1. That no contract be made where the number of trips applied for is less than would represent two single-journey rides per week between two given stations, or an equivalent mileage—not less than that represented by a double trip per week.

2. *Contract mileage tickets for individual applicants* will be issued for two or more single-journey rides per week between two given stations, or, as stated in condition No. 1, for periods ranging from one up to twelve months, at prices varying in proportion to the frequency with which their holders may require to travel between the two given points—or over an equivalent mileage.

3. *For Partners in a Firm and their Employés.*—Two or more *bona fide* partners in a firm may obtain terms similar to those to an individual purchaser, as in conditions Nos. 1 and 2.

4. *Family Contract Tickets.*—Members of one and the same family residing together can obtain a commutation in price, provided the number of trips purchased represents not less than that allowed to individual purchasers for each member of the family, the rate per mile in the case of a family being estimated on the total number of miles or rides, and being consequently less in proportion than if each member purchased individually. Applications for family tickets must specify in each case the name of each member and number of rides in miles.

5. *Husband and Wife on the Same Ticket.*—The price for a commutation ticket to entitle both husband and wife to use the same ticket to be one-half more than for an individual purchaser, as per condition No. 2.

6. *Pupils and Scholars*, certified to as under 18 years of age and under tuition, to be allowed one half of the adult prices.

7. *Ladies' and Domestic Ticket.*—Annual ticket-holders to be allowed to purchase 30 trip-tickets, or equivalent mileage, for three months, at commutation prices.

8. *Extension of Time* requested on the unused portion of a ticket to be charged for at the difference between the rate per mile originally paid and what would have been required if the ticket had been wanted for a longer period. This privilege, however, will not apply where parties have been prevented by unavoidable and unforeseen causes from fulfilling the original contract.

9. Contract mileage tickets are issued subject to the right of the company to change the time of arrival or departure of any train at or for any station or stations, and to diminish the number of trains or cars at pleasure; also to cancel the contract for passage made with their holders at any time, if desired, refunding proportionate value of unused mileage.

REGULATIONS.

1. These tickets are good only for *continuous* passage in either direction, unless otherwise provided.

2. They confer no stop-over privileges unless otherwise provided.

3. They are good by all *ordinary* trains stopping at the stations named upon them.

4. They are in no case valid for passage for other than their actual and *bona fide* holders.

5. If presented by other than their actual holders, they will be taken up by the conductor and forfeited.

6. They are subject to the rules and regulations of the company for the conveyance of passengers.

7. They confer no privilege for the transportation of goods, packages, or other matter beyond usual allowance of baggage.

8. They must be presented on each occasion when called for by conductors, or payment of regular fare will be demanded. Refusal to reproduce signature as proof of identity will involve forfeiture.

9. They must be given up on date of expiration.

10. Expired tickets must be returned when an application for renewal or extension is demanded.

11. They are only valid for passage within the time specified upon the face of them.

12. No return of any portion of the sum received for these tickets will be made in consequence of the inability of their holders to use them within the date for which they have been issued, except as per condition No. 9 above, or where the contract has been cancelled by the company, owing to discontinuance of train service or some unforeseen cause.

13. These tickets, if lost, do not entitle those to whom they have been issued to obtain duplicates.

14. No refund of fare will be allowed to holders failing to produce them for passage when called upon by conductors or ticket clerks to do so.

Form of Application.

To the General Passenger Agent
of the.....Railway Company:

.....

From Mr.....

.....

.....18

DEAR SIR:—Please forward me quotation for Contract Tickets for the passage of the undermentioned person or persons, in accordance with the foregoing Tariff and Regulations and Conditions, and valid for the period and number of rides as below specified.

To be issued in favor of

Names.	*Residences.*	No. of single-journey rides.	Miles per ride.

Total miles.....
Between.....and.....
To expire.....weeks from.....

To..... From.....

.....18

DEAR SIR:—In reply to the above application, the price will be as follows.....
Upon receiving this form from you again, duly signed as required below, the necessary tickets shall be forwarded to you through the company's agent at.....to whom the amount due for same will be payable on delivery.

.....

General Passgr. or Ticket Agent.

.....18

I hereby agree to comply with, and abide by, the Contract Ticket Conditions and Regulations of the.....Railway Company as stated herewith, and also with those in ordinary use for the conveyance of passengers, and desire to obtain commutation tickets in accordance with the terms given in this form, as above stated subject to said Conditions and Regulations.

Signatures.....

.....

.....18

Note.—Applicants are requested to note carefully before signing the above the Conditions and Regulations involved, and to specify any doubts which they may entertain as to their definite interpretation. Payments for contract tickets are not to be made by letter to this office, but to the agent named in this form upon delivery of tickets.

.....

General Passenger Agent.

METHOD OF COMPILATION OF TABLE OF CONTRACT RATES.

First work out the mileages and fill up each column, and so on, column by column.

Thus, in the first column :

Five miles a week in one month or 4.34 weeks = 21.70 miles.

Six miles a week in one month or 4.34 weeks = 21.70 + 4.34 = 26.04 miles.

Seven miles a week in one month or 4.34 weeks = 26.04 + 4.34 = 30.38 miles.

And so on, adding 4.34 to each previous result until the column is completed. In the same manner with the rest of the columns, adding in the number of weeks at the head of the column to each addition.

Having completed the mileages, it will be seen on inspection, that equivalent distances appear on the table in various parts, or at least very nearly equivalent. Thus, in the the third column, taking the topmost figure, we have 65 miles, and also in the first column, taking the eleventh figure, we have 65.10 miles ; and it must be distinctly understood that a scale will not be accurate which gives a higher rate per mile for a distance of 65.10 miles for one month than for one of 65 miles for three months.

The more constant the travel the less in proportion must be the rate per mile.

To afford a complete check against any disproportions, the mileage rates must be filled up on a definite system.

That adopted in the table is as follows : Taking 2½ cents a mile as the maximum rate per mile for 5 miles in one month, and two cents a mile for that in 12 months, these being, of course, optional figures, fill up as nearly and conveniently as possible the rates for intermediate months in the first horizontal row in arithmetical progression.

Thus, using the formula $z = a + (n-1)\,d$, where

z = the last term (2.50 cents).
a = the first term (2 cents).
n = the number of terms (12).
d = the common difference to be found.

Required to find d.

Substituting, we have, therefore :

$$250 = 200 + (12 - 1)\,d.$$
$$\text{or } 250 = 200 + 11d.$$
$$\therefore d = (250 - 200) \div 11.$$
$$d = \tfrac{50}{11} = 4.5.$$

Say 5, for convenience.

Then, using 5 as common difference, series will come out pretty accurately, as given in first horizontal row in the table.

The first figure is 2.50 cents per mile, and the second 2.45 cents per mile, and the second mileage figure is 43.35 miles. The first horizontal column must now be rated proportionately with the first perpendicular column. Thus taking 43.35 miles at 2.45 cents per mile, see where an equivalent distance occurs.

This will be found very approximately in the sixth figure in the first perpendicular column, and a higher rate per mile must not be charged for an equal mileage in one month than for one in two months—that is, 43.40 miles traveled in 4.34 weeks must not cost more nor as much as 43.35 miles in 8.67 weeks. Some rule must be adopted to work upon, and as the common difference of 5 for each month in the first horizontal column has already been adopted, it will be convenient, though of course optional, to adopt that figure for other similar proportions in the compilation of the table.

Thus, as 2.45 cents per mile is the rate given for 43.35 miles in two months, 2.40 cents per mile will have to be adopted for 43.40 miles in one month.

The rule would consequently call for 5 to be added for one month, 10 for two, 15 for three, 20 for four, 25 for five, and so on up to twelve.

With very slight adaptation this will be found to work satisfactorily, and maintain for illustration a due proportion.

Having worked out the first horizontal column against the first perpendicular column as far as possible, and gone over into the second perpendicular column for longer distances than contained in the first, graduating intermediate distances by common differences, take the second horizontal, and third and fourth, and so in succession in the same manner.

Thus, for example, when rating the third figure in the sixth horizontal column, namely, 130 miles—check it against the sixth figure in the first horizontal column—also 130 miles (rate per mile 2¼ cents)—and allowing 5 for each month's difference, we have :

For 130 miles in 6 months 2.25 cents per mile and
" " " " 3 " 2.10 " " "

Difference, 0.15

which is 5 for each month from 3 to 6,

		cts. p. mile.	
Therefore, 130 miles in 6 months	(26 weeks) at	2.25	= $2.9250
And, " " " 3 "	(13 ") "	2.10	= 2.7360

If other equivalent distances are taken, the same rule will work out very approximately and could be made to do so exactly if necessary.

EXAMPLES TO ILLUSTRATE TABLE.

No. 1. If an application were made for a rate for a contract ticket to entitle holder to travel twice a week (single journey rides) between A and B, 10 miles apart, for a period of 6 months, the calculation would be as follows :

Two single rides a week of 10 miles each equals 20 miles a week ;

And 20 miles a week for 6 months (26 weeks) equals 20 × 26 = 520 miles.

The rate per mile will be easily found at the sixteenth figure of the sixth column, namely, 1.38 cents per mile.

Then 520 × 1.38 = $7.1760.
Or in even money = $7.15.

This rate of 1.38 cents is, with the general standard of the table, easily capable of being placed higher if required, and as would probably be desired.

That would be readily adjusted by the compiler if, instead of using 5 as a common difference, all through the table, he made this difference to vary from 1 to 5, using intermediate figures and graduating accordingly.

In the example just given in illustration, suppose the holder of the ticket which entitled him to two single journey rides a week, as stated above, from some cause or other did not complete the mileage in the period required and contracted for, and desired to have his ticket made good by extension for a longer period: then if two single rides a week had been fixed upon, as suggested in the previous remarks on the fixed points, as the minimum allowed, his request would have to be refused; but if the ticket he had in the first instance contracted for had entitled him to more than the minimum, the extension could be, if thought fit, allowed by charging the difference between the rates given in the table for the long and shorter periods respectively.

A register should be kept of all such transactions.

No. 2. Some applications may call for a calculation of the following nature:

Given A, B, C, three stations:

Distance A to B, 10 miles
B to C, 5 miles

A to C, 15 miles,

and required a ticket for two single rides a week in either direction, good to stop off going or returning at A, B, and C respectively.

Then: Price for A to B, 10 miles (two rides a week), will be 20 miles a week for 26 weeks, at 1.38 cts per mile = $7.15.

And price for B to C, 5 miles (two rides a week), will be 10 miles a week for 26 weeks, at 1.70 cts. per mile = $4.42.

Total charge = $7.15 + $4 42 = $11.57.

Suppose, however, the application had been for a ticket between A and C only, not good to stop elsewhere:

Then price for A to C, 15 miles (two rides a week), will be 30 miles a week for 26 weeks, at 1.24 cts. per mile = $9.65.

And the difference between $11.57 and $7.65 will illustrate the charge made for stop-over privilege.

It must be borne in mind that the table is given to illustrate the principles, and to afford a basis upon which, subject to data of a variable nature and circumstances found to exist elsewhere, suitable tables may be compiled.

By experimenting with a view to improve the relative proportions of the table, for which room has been left in its compilation, a better idea will be formed of its character and capabilities for the practical application to the suggestions contained in these pages for the development of local travel.

GENERAL REMARKS.

Before concluding these remarks, the writer would like to impress upon his fellow professional readers and others the desirability of taking rather an active than a passive view of the subject.

Its social importance has been discussed, a practical method of applying the principles it involves has been presented and illustrated fully, and it now remains to impress its importance and aims upon those calculated to appreciate them. It is surprising how much the development of local passenger traffic as a very important matter has been neglected in comparison with the efforts in behalf of another class. Large sums have been, deservedly no doubt, expended on competitive traffic, involving rapid locomotion, which is

very expensive indeed, and extensive advertising, which is also, with its attendant duties, a considerable item in operating expenses. These must be maintained actively where found profitable. But at the same time active thought should be bestowed upon this subject also for the very important reason that it involves no outlay to speak of, and means, if it can be safely developed, a higher proportion of net earnings out of a continuous expenditure for train service which varies but little from year to year.

It must be honestly determined at the outset whether the community on any line travel as much as they would and could were larger facilities extended, and having an eye to the careful protection of one class of travel as distinct from the other, whether it is possible without loss or injury between them, to offer facilities to any travel dormant at present for want of them.

The conservative official will, no doubt, at once commence by dreading the possibility of any such system as that advocated here becoming the means of taking the local travel at low mileage rates all round. He will demand, and rightly, that any system is dangerous which cuts his present mileage rate for ordinary travel down to low figures without positive certainty of such an increase in his total receipts as to make up the deficiency, and would, unless he looked more carefully into the proposal, come to direct conclusions against it. It was on this ground that the social aspect of the question was made one of primary importance. The wants of society are not *all* where local travel is concerned the same as those of the ordinary local traveler. Society is not confined in its wants and capacity for travel to just that one class. Its necessities are varied, growing, capable of development in a direction profitable to railways, if properly allowed for and understood by them. An unlimited cheap mileage system is by no means advocated here; on the other hand, it is held that it is this very point on most lines at the present time which is so reprehensible. There is no reason, however, for adopting extremes. The actual working of the ordinary mileage system in its present narrow shape is one which it would be hard to defend on any grounds of custom or otherwise. If any general system is adopted which maintains by its provisions and principles the careful distinction between occasional local business and constant travel, there is a nearer approach to perfection obtained than would otherwise exist. Where an arbitrary charge has to be fixed in place of a graduated scale, and nothing short of just one class of ticket for a fixed number of miles and at an invariable rate per mile can be permitted, it involves a confession of inability to meet the full demands of the question. Provision cannot be made for a number of cases which represent a large amount of dormant travel, and this involves, consequently, a loss of receipts.

When the postal-card system was introduced and grafted upon the penny postal system, it was to provide for and draw out a distinct demand found by social observation to exist in the general conduct of business correspondence. It was not merely to divide up an already developed business. Its effects experimentally proved the wisdom of its facilities as a source of revenue.

Equally so will this be found true in the case of local passenger travel; but certainly success will, in a great measure, depend upon the comprehensive scope of the provisions which are afforded.

The penny post, the book and pattern post, the post-office order and savings bank, and other provisions, are similar to those required by the public from a railroad; but until it can be shown that the various degrees of travel, from the occasional to the weekly, daily, and constant, are met by proportionate provisions, there will be little prospect of similar development.

Another very important social feature, the successful treatment of which means a rapid and healthy development of Passenger Traffic is discussed in the following thesis.

SECOND EDITION.

EXCURSION TRAFFIC.

BY

J. FRANCIS LEE.

Reprinted with Revisions from the "Railroad Gazette," New York, August, 1879.

If the subject of Railroad Passenger Traffic be dissected up into its component parts, and these submitted to the microscope of intelligent research, it will certainly be found that great latent capacities exist for the increase of this traffic and the revenue to be derived therefrom.

Comparatively stationary and dormant at present from the want of that thorough investigation and experimental test, which such a process would involve, yet there is every reason to believe that very rapidly upon the application of such a trial, a healthy progress would result. Each phase of the business, both in its present and prospective aspect, requires for itself a thorough analysis, for it is an incontrovertible fact, to use the words of a late editorial in the *Gazette** columns, that "if there is any one thing in the history of American railroads more astonishing than the enormous development of their freight traffic, it is the stationary character of their passenger traffic."

In case there should be those who deny the statements made in this article as to the stationary character of Passenger traffic, the following table will be documentary evidence which they must perforce admit.

* *New York Railroad Gazette.*

COURSE OF PASSENGER TRAFFIC ON ELEVEN AMERICAN RAILROADS.

	Passengers Carried 1,000 Miles.									Miles of Road.	
	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1872.	1877.
Boston & Providence	33,633	29,963	27,125	31,134	36,403	41,224	38,625	38,744	37,948	35,966	66½	66½
N. Y., N. H. & H.					124,919	122,604	123,895	125,004	123,867	111,642	141	153
Erie	124,313	128,455	133,589	148,243	156,143	164,633	160,204	155,397	163,675	170,889	959	957
N. Y. C. & H. R.		341,138	346,899	313,234	342,339	364,357	350,782	328,864	353,136	376,847	851	1,000
Pennsylvania	133,175	144,729	150,850	152,915	173,843	177,479	174,060	160,422	288,312	143,154	784	1,055
Philadelphia, Wil. & Bal.	48,271	54,994	56,520	57,218	61,507	64,250	67,677	65,634	104,811	59,160	207	207
L. S. & Mich. Southern			160,500	142,684	162,308	179,363	173,225	164,951	175,511	158,117	1,136	1,117
Chicago, Burlington & Quin.		45,470	52,555	56,329	40,962	83,276	85,256	93,771	99,258	95,300	739	1,639
Chicago & North Western	88,808	110,804	115,457	100,803	99,239	111,072	109,135	116,779	122,281	116,902	1,383	1,502
Illinois Central		53,306	54,305	50,591	54,780	48,504	51,115	50,858	51,258	46,017	1,008	1,108
Union Pacific				73,995	80,664	95,760	105,128	132,591	128,623	107,833	1,038	1,038

Now, an examination of the nature in question will demonstrate that this subject does not receive and has not received that kind of attention and study, on this continent at any rate, which, on comparative grounds, and with reference to its great possibilities, it can deservedly lay claim to. The writer took great pains to draw the attention of the profession to the position of another branch of passenger business by an analysis of its character and requirements, namely, that of local passenger traffic. The result of that endeavour led to conclusions far from satisfactory as regards the causes for the stationary character of that traffic, and involved a confession amply testified to since, that the ordinary methods of operating the business fell very far short of the social requirements of the time, and in proportion as they did so the revenue from that particular source could not possibly be progressive from the very lack of social adaptation to the necessities of the case. The investigation has since been extended to the subject of excursion traffic, a more important branch than is generally supposed.

In order, however, to connect the line of research, the closing remarks from the previous investigation will be in place.

"From a close observation of the causes which produce the large passenger traffic returns on the English railways, and which drew out so large a proportion of third-class traffic there, the writer is inclined with reason to believe that the principal cause is the very extensive cheap excursion travel which is so actively pushed in England, and for which the tariff is so far below the ordinary scale of fares. In this respect England is almost an exceptional country, and has built up a system which is most profitable and worthy of a careful analysis by us on this side, to see how far it can be followed up in America."

The writer had a firm impression at the time that a closer enquiry into the details of English passenger traffic would fully sustain the opinion then expressed. The method of analyzing passenger receipts in England is somewhat misleading in one respect, and that is the aggregating a large amount of undefined traffic under the head of third-class business. This class is credited with an enormous and most disproportionate increase as compared with the other two classes, and it has been difficult to find a reliable and full explanation and analysis of this traffic to account for its growth. The following, however, will be final, conclusive, and to the point :—

Sir Henry Tyler, in the year 1871, in his capacity then of Inspector to the Board of Trade, drew up one of the ablest and most concise reports yet met with. After remarking that "the total receips from passenger trains increased from £11,697,904 in 1858 to £19,30·,911 in 1879, he sums up the whole question of passenger receipts as follows :—

"The most important feature as regards the receipts from passenger trains is the increase of receipts from third-class passengers. While the receipts from first-class passengers have increased from £3,002,838 to £3,948,812, and while those from second-class passengers have increased from £3,527,377 to £4,935,542, those from third-class passengers have increased from £3,616, 192, to £7.473,727, or have,in fact, more than doubled.

"The figures showing the number of passenger journeys by passengers of different classes, point to results of an equally important character. While the number of first-class passengers journeys increased from 18,302,384 to 31,839,091, and those of second-class from 41,693,289 to 74,153,113, those of third-class increased from 79,145,464 in 1858 to 224,012,194 in 1870 or were nearly trebled. The elasticity of third-class traffic has thus proved itself to be so great, and the results from it have acquired so much importance from their amount, as above shown, in proportion to the other classes, that it becomes an interesting question to consider whether, by what means and in what proportions the receipts from this description of traffic may be still

further augmented." * * * "*The excursion system indicates to some extent what may be done as regards both profits to the companies and acilities to third-class passengers. There are many objections to that system as at present carried on, too frequently with extra or acting servants, inferior rolling stock, and inefficient arrangements.*" * * * * * *

"By extending or introducing greater regularity into that system, and by cheapening and improving the third-class communication throughout the country, an impetus might be given to third-class passenger traffic, which would, by its results, throw the above figures, astonishing as they are, completely into the shade."

From this statement to the government of Great Britain at a critical period when the two rival questions of amalgamation and state purchase were uppermost, and under special discussion by the country, it is readily seen just what the great bulk of this so-called third-class traffic consisted of, and to what is really due the development of English passenger traffic.

Traffic in Great Britain, which would otherwise have been comparatively stationary (for Sir Henry gives the increase in season-ticket and other special sections of the business), was thus marvellously progressive, and the particular class of the traffic, or the social explanation of this increase, is that represented by the name of "excursion travel." This is fully supported by unprofessional testimony of an equally important and reliable character given just a few years prior to the year 1858, the year selected by Sir Henry Tyler.

In Dickens' *Household Words*, in the year 1851 (nearly 30 years ago, be it remembered) when England was experimenting in the excursion field, preparatory to the immense progress made in that quarter of the globe, with the remarkable results which have contributed to make the passenger traffic on the large English lines even more lucrative (in the gross—far more so in the net) than that derived from what we call freight, and is there styled merchandise or goods traffic, the following occurs :—

"For several years the Southwestern Railway Company were solicited to run cheap excursion trains, but for some reason or other refused to do so. At length a reluctant consent was obtained, though with many qualms as to its result. The first train started one fine Sunday last year with upwards of 1,500 passengers, which, in the short space of two months, gradually increased to 2,000, and has been steadily on the increase. It was considered that these trains would only answer on Sundays. The results of a Monday experiment were, however, that three excursion trains were running on this line at one time, consisting of nearly one hundred carriages, yielding a large amount of profit to the Company. It was thought, however, that although trains from London to Southampton might pay, the latter town would never be able to furnish a sufficient number to fill a remunerative train to the metropolis. In consequence, only a few excursion trains were started from Southampton to London, and those at fares double those charged in the opposite direction. The consequence was, total failure for want of patronage. At last the experiment was tried of an excursion train at the same fares as those charged from London to Southampton. The result was extraordinary.

"On the morning of departure the neighborhood of Southampton was like a fair; upward of 1,500 persons took advantage of it to visit the metropolis. The receipts were £203 (over $1,000), and the expense of working by three engines did not exceed £40 (say $200). So complete was the success of these excursions, and so profitable were they to the company, that measures were immediately taken to provide extra accommodations. These trains, in fact, came to be regarded as regular and not an occasional source of revenue, *it being found that they did not interfere with the ordinary traffic.*

"On the Great Western line the results were beyond all expectation. The profit netted by the company was very considerable. Nearly 6,000

persons were conveyed on the first cheap trip to Bath and Bristol. But, however gratifying all these facts may be (and they are rendered still more so by the preparations at present made and making by several railway companies to accommodate the public with excursion trains at considerably reduced fares), still we can only accept them as instalments of what must eventually be done. It has been prognosticated by those thoroughly conversant with railways, and equally so with arithmetic, that a railway Rowland Hill (the inventor of the penny postal system), will yet arise and organize periodical excursion trains to run similar distances in the mileage between London and Brighton (say for simplicity, 60 miles) for the small sum of sixpence.

"If omnibuses 'can rattle over the stones' for two hours for sixpence each passenger, and, after deducting the expenses of coachman, conductor, horses, and the wear and tear of the vehicle itself, still yield a good profit to the proprietor, a railway train only occupying the same time in the journey, stuffed full of sixpenny passengers, would yield a handsome profit."

Thus, almost thirty years ago, when population was not in Great Britain at all equal to that at present, this question of an excursion system was tested experimentally and practically. It grew up, not in a mere haphazard way, but as a well defined system, carefully considered on its social merits, liberally conducted on its prospective results, and progressively handled with reference to the social capacities and demands of the times. The very objections raised now in America were raised and settled then by experiment and observation, and the result was the existence, accepted and proved, of a distinct class of traffic, apart from any other. This left the elements of passenger business divided into "individual" and "collective," and from these an intermediate class or phase grew up which may be fitly styled "individual constant travel" as distinguished from "individual occasional travel." The possibility of cheap and regular excursion business interfering with ordinary was settled conclusively in England, and under far more adverse circumstances, by reason of the extent of the country and nature of the traffic, than in America. It is surprising to find this argument so commonly raised at the present time, and it is only an instance of the want of recognition and due appreciation of the habits, demands, and characteristics of passenger business in relation to social surroundings.

A more complete solution for the mysterious want of progress in American passenger business it is hard to realize than that rendered by an investigation into the philosophy of excursion travel. It is to all intents and purposes a very thorough solution of the question, and just what might be looked for. It further sets on one side the supposition that any classification by physical methods into such classes as are required in England can actually develop traffic in America. No traffic will be developed in that way. The bulk of British traffic is all of one class, as regards progress, and no matter whether one class of car were used or another, there would still remain apparent the fact so clearly proved by experience, that classification has not producedthe results in question, and that in more recent years the tendency has been, in England, in just the opposite direction.

For really large results one class must be looked to—the agricultural and industrial class--the social third-class of Great Britain corresponding to the working class on this continent, and with this exception, that there is a far richer field in America than in Great Britain for this business.

The following headings involve the really salient features of the subject from our point of view, and it will facilitate the investigation to subdivide it accordingly.

First—Population and its influence on an excursion system.

Second—The fares and earnings from excursion traffic.
Third—Accommodation.
Fourth—General remarks.

1. INFLUENCE OF POPULATION.

The influence of population under various circumstances is a question which, when advanced as an objection and obstacle to an extensive traffic of accumulated numbers of the public at special seasons dictated by social demands, may be readily decided by a consideration of the manner in which an excursion system should adjust itself to suit the varying conditions of society which exist.

An agricultural community affords one form, an industrial another distinct from it. There are peculiar social proclivities attaching to each, and any one arbitrary system for drawing out the mass in either case will prove to be a failure. The strongest lever, no doubt for working upon the agricultural class is that of co-operation with the various social organizations on the basis of a division of the profits for the mutual benefit of such societies and of the railways working with them. Individually, separated by distances, the bulk of an agricultural community has very little inducement on the mere holding out of cheap fares to make excursions systematically and frequently, and except on public national holidays, it will be found almost impossible to draw them out in numbers without the aid of some such influence as can be exerted by the more prominent social organizations with which they are connected. In agricultural communities the co-operative system will be the best to start with at any rate, and as a system it will live and progress. It has one great feature especially in its favor, and that is that by means of it the community make known their wants in this respect, are in a position to give a guarantee to cover the actual cost of train service, and can be depended upon for an ascertained number turning out. It removes the risk of actual loss, dictates the capacity of the people in respect to the price or fare, and assumes the position of a temporary active agency for the railway in localities otherwise impossible to reach. To suppose that an ordinary travelling agent in such a country as we are considering could cover the ground in any such way as this is absurd. He might take a tour or two and do good work there in assisting the societies, but to fill their places he would be entirely useless. So much for agricultural communities, where population is thin. In more populous regions and industrial centres the co-operative method combined with the independent will fully succeed; but to throw over even then the co-operative principle altogether, is entirely wrong—and is just such an instance as the writer has in mind when he speaks of a lack of social observation and capacity to meet social wants. A society with a membership of say 5,000 active persons coming to a company with a guarantee for 1,000 at a rate of so much a head is a distinct feature in the business, and the correct line of reasoning would be, not that the company can draw a crowd independently at a cheap fare itself, and therefore prefers to do its own business, but that this is a distinct social purpose of a special nature influencing a very large section of the community, and that this influence has a force and value, and if used in another direction will necessarily draw very largely and much more so than a cheap fare put out regardless of any social influence or attractions. As a society, the circumstances are entirely distinct from any others, and as regards the most profitable way for a railway to do the business there is no comparison to be made—the results are always greatly in favor of the society working with the company as regards the company working independently.

There are plenty of opportunities for a company to exercise the leverage of cheap fare inducements independently of societies or foreign co-operation, without throwing over those which an instance of the kind referred to above will afford, and they are or should be just such opportunities as the influence of attractions of an artificial or natural character can give, and which it requires no organization to produce traffic from. However, as an all-round system the social organization co-operating with the railway is *par excellence* the revenue-earning system, and cannot be too highly recommended. Saturday round trips and season tickets will do the rest, if properly arranged for, but nothing can take the place of the social influence exerted by an organized body.

2. THE FARES AND EARNINGS.

Given any particular excursion undertaking, the question of its success will very much depend upon whether the cost of the service will admit of a price being put upon it within the reach of the majority. To feel the public pulse and decide the most profitable price to sell at requires much observation and experiment; but unless any item of an excursion policy will bear the operation it involves at a popular price, it will be better to drop it out and concentrate energy and material on such items as will stand the test.

A common misconception prevails that there is very little profit in passenger business, because the gross earnings therefrom are so much smaller than for the freight. The truth of the matter is that the contribution to net earnings on the roads in the best populated sections of the east is much larger from the passenger branch than from the freight, and this too is the case without any special effort to create or develope traffic. The cost per mile, is in these days high at 75 cents a mile for passenger train service, and if the cost of running a passenger train be compared with the possible profits at very low rates per head, the result is very surprising. The cost is relatively small, and the earnings can be made at half a cent per mile per passenger, under ordinary excursion circumstances, an immensely good investment.

The most useful excursion tariff is one constructed with the rates for various mileages for various given number of passengers.

Thus, for a distance of ten miles, taking the cost per train mile at a liberal estimate, to tariff the cost per head for say 50 passengers up to the maximum number which could be accommodated on one train. Allowing for the sake of illustration, one dollar per mile, and the number of cars (capacity per car 60) at 10 to a train, then for a distance of 10 miles each way (20 miles) the tariff would run as follows: Train mileage, $20; cost per head for 50 passengers, 40 cents; for 100, 20 cents; for 150, 13.3 cents per head; for 200, 10 cents per head; for 300, 6.6 cents per head; for 600, 3.3 cents per head. In any case a guarantee of $20 covers the entire cost, and the last column should give the fare per head to be charged to make the operation profitable.

The tariff must be made subject to all the influences of cost of transportation which decrease as a rule as time goes on, and must be as close to the actual position in respect thereto as it possibly can.

The question involved in regard to fares and earnings is rather what the public can afford to pay than what the railways may prefer to charge, and it must be regulated accordingly. To-day a very common impression maintains that the moment a railway goes into the excursion business at popular prices, away goes its hold upon ordinary business. This is erroneous and narrow; nothing could be more so. Ordinary business has nothing whatever in common with legitimate excursion business, and, what is more, an excursion train of 1,000 people—a not uncommon thing—does not consist of ordinary passengers nor of passengers who would otherwise have gone away at ordinary fares. There is great inconsistency in this common objection, and the very best proof

of its utter weakness on social or profitable grounds is to bring it to the test of experience. Great centres of industry are within easy distance of great natural and scenic attractions. The busy hum of the manufacturing cities is not far away from that of the tempting sea-shore in many parts of the Continent, but to suppose for a moment, after years of solid experience, that such a suggestion as the injury of one class of business by the other would in these days have any weight, is an approach to primitive misconceptions of social capacities.

The particular circumstances of each community will dictate its capacities, and where the mass is reached by a popular excursion the very idea of ordinary business from a few individual travellers being affected thereby is not worth a moment's thought. The point is to choose the more profitable of two undertakings, and not to refuse to make $500 for a railway by a popular excursion because it might have been just possible to have made $100 without it. Ordinary business on such occasion, if less profitable than the other, must in common sense give way. The argument is so uncommercial in its character that it ought never to have been found necessary to meet it among those whose profession should find them especially able in sifting out the merits of such peculiarities in the conduct of this traffic. All the tariff-making, rate-manipulating in the world will not create new, fresh travel; it will merely either demoralize or contract traffic already existing; new ideas, broader views, with deeper study and closer observation of the tendency of human nature and society from time to time, must constitute the passenger superintendent of the future. Every available chance to amalgamate the interests of a railway with the prevalent and varying demands of society must be carefully seized upon and profitably controlled.

The opportunity will always, as history has proved again and again, be there; but, if the power to appreciate it and adopt it is wanting, dormant as a consequence, must be the results.

That society requires recreation and travel combined is an established social fact.

That society is not a combined commercial travellers' association is also a social fact—travel ing merely because *it has* to.

That, in addition to ordinary individual travel, there is a large amount of collective travel is a fact which experience in any and all communities has amply proved.

That short excursion travel, cheap and rapid, founded on the great desideratum for industrial communities, constant and frequent *change of scene*, is a social item, is proved by the most ordinary observation.

Finally, that society is composed of numerous and varying elements, requiring education, study, and taste to appreciate and utilize them, is the *summum totum* of the whole subject in this direction.

Considering the profitable character of this business, it is surprising to any one who has, like the writer, been closely connected with its practical operation, and originating over a large section of the continent an excursion system, that action has been so slow.

There has been for many years past a large unearned passenger revenue, and the responsibility for this is not small.

Cheap travel for the many is rapidly becoming a necessity in America if railway revenue is to progress, and a very promising one it is. In what way, it becomes a question, are we to provide for and encourage it?

Many who read this article will avoid their responsibility by the excuse that what has, after years of success, been accepted in England, affords no inference as to a similar result in America.

That such a conclusion is proven wrong by the test of actual experiment in Canada, and doubly so by any one who has studied their profession in the European as well as the American schools, is sufficient answer to this.

The fact of the matter is that the Excursion field in the more thickly populated sections of the United States is one of the least developed, the least understood, and yet the richest possessed by any railways in the world. No wonder American Passenger Traffic is dormant and stationary. There is every reason why it should be, so long as the social surroundings are steadily ignored, and the science of traffic organisation so weak.

Is there any sound reason why the eastern and western trunk lines tapping such manufacturing centres as New York, Boston, Springfield, Albany, Rochester, Buffalo, Detroit, Cincinatti, Cleveland, Chicago, St. Paul, Minneapolis, and others too numerous to mention, should not, considering the thousands of well-to-do citizens in these centres and the absence of that poverty which prevails amongst the masses in England, achieve greater results from a well organized and adapted system of excursion traffic than in the old world. The thickly populated States east of the Missouri River, are virtually undeveloped as far as the richest source of revenue for this branch of the Railway service is concerned, and Canada stands alone as an example of a thoroughly developed traffic territory, in respect to fulfilling the many privileges and duties of a railway system towards the public.

If the great railways entering such centres as Chicago, Cleveland, etc., would realise that it is quite within the scope of their commercial and social progress, and duties, to organise pleasure centres, located at easy distances from the great cities, whereby traffic may be developed, a source of revenue would be thereby undoubtedly opened up, and society benefited thereby.

People like to go away, they like to travel. If there is a Crystal Palace near London, they will go there by thousands notwithstanding the magnificent parks and other attractions of the greatest metropolis of the world, and did our trunk lines in this country go ahead and organise similar pleasure centres, the best kind of results would follow. The country must be brought into the city, and the city into the country, and the cheaper and easier that is made the larger and more rapid will be the growth of traffic and revenue.

Let the railway manager study society and its needs and learn to organize.

3. ACCOMMODATION AND OPERATION.

Probably one of the greatest drawbacks to an otherwise almost perfect system of car service is occasioned by the unwieldy and expensive character of the rolling stock in proportion to the actual wants of the passenger business.

If the average capacity of passenger trains be compared with the average accommodation occupied in them, and the dead and paying weights compared, the result is far from gratifying or complimentary to railway intelligence. If a railway were a benevolent institution, purely charitable, nothing could be more conducive to excite pity and sympathy for its condition than such results as these. If any one will take the trouble to hunt up the last report of the Massachusetts Commission, he will find the facts such as they are, that is the average load per car is only about 50 per cent of the total accommodation.

It simply amounts to this: That an utter want of economy predominates and what there is to counterbalance it, it is hard to see. As far as comfort is concerned for ordinary or regular traffic, let any one ride through a whole night in a well-filled, ordinary first-class car, with no support much above the centre of his spinal column, and he will fail to see just where the advantage is, either to himself, the public or the corporations. Again and again, it must happen that a car to accommodate 50 or more, and proportionately heavy, is added to accommodate half or less than that number; and the result of a year's actual working will simply be the rendering inoperative of a large amount of expensive car construction, the hauling of a large amount of

dead weight, and the loss of a large amount of money from lack of rolling-stock to accommodate all the excursion business offering or capable of being operated.

The rolling stock should be adapted to earn, not lose, money.

4. GENERAL REMARKS.

The question may be asked, how would you start in to test this question of Excursion Traffic on an untried road.

Well, there are school, church, masonic, social or some special organizations in every quarter where the Anglo-Saxon race exists. These organizations will meet you half way, and will rapidly help to build up what will in time become a permanent form of traffic. To the Masonic organizations an excursion in which the profits are divided and the whole energy and force of the order is acting as an agency for the railway, the proposition to run an excursion will be acceptable.

The co-operative plan is the secret of success. Gradually one and all the social organizations will desire excursions, and the difficulty will be to supply sufficient cars for the business. A careful record should be kept of the origin and history of each excursion, of its expenses, entering each in suitable columns, and of its gross and net results.

On a large road an excursion bureau or department is desirable whose special duty it shall be to work up the business socially through the company's agents and otherwise.

Keep a clear distinction at any rate between foreign excursions and local excursions, between excursions taking people away from home for a tour and excursions for the many for short distances, at low rates. The two are distinct and arise from distinct social demands, and are not to be confounded at all.

Do not let your lack of social analysis be the means of turning all your regular business into cheap long trip and long date excursion business. Long trip excursions are all right, once or twice a year, for holiday *tours* for *tourists*, but are an entirely distinct class of social travel from the excursions of the working classes.

EXCURSIONS IN CANADA.

Probably no more stringent test of the capacity of such a system of excursion traffic as that advocated in the foregoing remarks could be found than that presented under the social conditions which maintain in the Dominion of Canada. Most people would say there was very little if any scope, especially in the Eastern section, for successful experiments in that direction.

From the writer's personal experience, however, while engaged in the organization of a permanent system, the results have justified very different conclusions being drawn. During the comparatively short period since the first inception in Canada of a defined policy—some five years only—the most convincing experiments have decided beyond a doubt the great capacity in the country referred to for the development of passenger traffic.

These experiments were sufficiently decisive to lay the foundation of what has since become a distinct and growing class of railway business, from one end of the Dominion to the other. The greatest success, both in point of numbers and revenue, was achieved under the co-operative principle, which the writer has described already; and it may be fairly said that it was due to this policy that such a rapid growth was achieved. In the spring of the year 1875, the first experiment was made with the distinct object of setting a question at issue at the time as to the capacity of what was held by most to be an entirely non-producing excursion section for this new line of busi-

ness. Under the auspices of the Methodist Churches, with a guarantee to cover the actual cost of train mileage for special service, and a scale of fares averaging a cent a mile over a territory of some 150 miles, an arrangement was made for a co-operative excursion on a percentage division for the benefit of the various church funds concerned. From 800 to 1,000 persons took part, and the financial results were exceedingly successful and surpsising. During the course of the year 1875 a limited number of very well paying excursions were run from various quarters until the capacity for the development of business was made matter of fact. The following years, especially in respect to the co-operative class of excursions, showed great success. And it will be found that during a series of years of great financial depression both in Canada and the United States, while the local passenger receipts fell off to a startling extent, yet in Canada the aggregate receipts were very evenly maintained by this particular means, leaving a far more favorable showing in proportion than elsewhere.

It was difficult often at the time in which the first experiments were made to convince those who were not in a position to view the traffic field all around, that the falling off in passenger receipts was not due to the running of cheap excursions; but as time went on, and each section had an opportunity to thoroughly sift the question on its actual merits, it was found that where ordinary traffic would not continue from the stagnation of business, and people would not travel for business purposes where business did not demand it, they might be found to travel for pleasure on the cheap excursion policy. Moreover, it was, after a time, decided by the general opinion of the most experienced men that the one class of traffic was distinct from the other, and was comparatively independent of it.

The large numbers who participated again and again more clearly defined the distinction. For it was in the year 1877, June 26th, that as many as 1,172 persons took advantage of the first cheap excursion run from Eastern Canada to visit the Falls of Niagara. The gross receipts amounted to some $6,000 on this occasion.

This was tried with equal and greater success on several occasions, and might be so to-day. The policy spread in fact from that time to the Western section and has since grown there to very large dimensions.

Schools, societies and church bodies, one and all, to-day have adopted the custom of an annual holiday excursion, and nothing more is ever heard of the old complaint that ordinary business was injuriously affected.

Making the guarantee of a number or an amount a *sine qua non* as a qualification for an excursion, was a safe protection against loss from the chance of empty trains being run at reduced fares.

In the fall of 1877, as many as 4,000 persons came out on one excursion only, and about the same date from a different section as many as 5,000 came out.

Seaside excursions from 200 to 300 miles from the coast became and still are an annual undertaking at the close of the summer season, when the wealthier classes are away and the poorer glad to get an opportunity of a short trip within their means for a week or two. The record in Canada is full of proofs of the successful development of traffic and the effects are themselves conclusive by the maintenance of aggregate passenger receipts.

Not an opportunity was lost in Canada during the last ten years to develope this traffic, and the results are such as to make it a matter of surprise why the United States railways are at a stand still.

It will be a very marvellous thing if, after the example and results obtained in England and also in Canada in the line of excursion traffic, the stationary character of the passenger business is allowed to remain as a testimony against those who should bestir themselves to study the social character of the times more thoroughly

CO-OPERATIVE
LOCAL AND PLEASURE
EXCURSION TRAFFIC.

In order to clearly define the original and primary principle upon the conception of which was founded the successful organization and development of the Excursion System in America, it is deemed necessary from personal observation of recent experiments made by the various executives of the American railways in the Excursion field, to include in this work some direct reference to what is here called the *Co-operative System.*

Failuro to develope a permanent Excursion policy in America has arisen, as a rule, from a lack of understanding and appreciation in respect to this Co-operative phase of the subject. A most important social principle has apparently eluded the grasp of the majority.

It must be remembered that, as a rule, the effort to operate excursions, even at very low rates, without the co-operation of social organisations, has resulted in failure.

It must also be remembered that if there is anything which can contribute to the formation of a permanent and profitable Excursion traffic, it is the co-operation of well-organized societies, such as the Masonic, Temperance, Educational, Agricultural, Benevolent, Scientific and Literary, and other associations and combinations, respectively, with the powerful organisation of a great railway through, by, and with its various officials and agencies.

The Co-operative System is the key to a successful Excursion policy, for it combines all the elements, and comprises within itself, the essentials of practical and successful organisation.

First—Profit to the railway ;
Second—Profit to the Societies ;
Third—The agency of a large body of members of some Society ; and,
Fourth—The varied agency of the railway system itself.

It has also the merit of commanding the good-will and sympathies of society, as well as of affording what society desires in the way of pleasure travel. It works directly and indirectly, through the most powerful channel that can exist for successful organisation. It should, therefore, be the duty of the agents of a railway to study and watch the social surroundings at their respective centres, and to cultivate the opportunities which such afford for developing so valuable a branch of the passenger traffic. A live and well-placed agent can certainly create considerable revenue for his company by organizing social excursions at such rates as will draw a profitable traffic out, and there should be an excursion bureau as a part of the organization of each great road to pay undivided and skilled attention to this special branch of the passenger business, and to see that agents are free to attend to this. Let the societies understand and be actuated by the double object of pleasure and profit, and they will gladly utilize so excellent a means for achieving such results in co-operation with the railways.

If it be argued, as it has again and again, that it is unadvisable to farm out the revenues of a railway in the way which a co-operative system induces, let it be clearly appreciated that where there is a sufficient and an equitable *quid pro quo* there certainly cannot be any farming out of the traffic.

That there is such a *quid pro quo* is merely to assert, and certainly no contradiction can be found of any weight, that the influence of a society representing a distinct commercial value and essential to the building up of a permanent excursion system is worth something and is a tangible and equitable traffic lever. Further that the influence of such a society is equally valuable whether it be exerted in the form of a concert, a bazaar, an entertainment, or a railway excursion.

The Society becomes the retailer or middle-man in a transaction which has the railways for the wholesalers.

There are of course occasions, such as annual exhibitions, public and national holidays, international or civic festivities, which are *per se* the middle-men in the place of any special social organization for creating this traffic, but these are few and far between, and are not in themselves sufficient to constitute a continuous supply of business. The true test of successful passenger management is the development by original methods of the traffic of a road.

The railways have a commodity to sell, and the more they can sell at a profit, the better.

The marvel is that with such a splendid commodity the sale is so limited—the test of production so little studied—and the social requirements of their customers, the public, so studiously ignored and overlooked.

To organize well is a science and a practical pursuit, and in no department of the world's enterprises is there so great a need for this faculty as in this the highest branch of the railway service and profession.

SAMPLE OF STATISTICAL SUMMARY OF EXCURSION TRAFFIC.

FOR GENERAL PASSENGER AND TICKET AGENTS' DEPARTMENTS.

Total number of excursions run during season.

Number of excursions run by ordinary trains.....
" " " by special excursion trains.....

Total.....

Total number of passengers carried on excursions during season.

Number carried on ordinary trains.....
" " special excursion trains.....

Total.....

Total number of miles run by ordinary and special excursion trains during season.

Number of miles run by ordinary trains.....
" " " special excursion trains.....

Total.....

ANALYSIS.

School Excursions.

Number of excursions.....
Receipts from.....
Expenses for printing, }
Tickets, Agencies, etc. } .....

Net.....

Mileage of special excursion trains
" ordinary trains.....

Total mileage.....

Company's Excursions.

Number of excursions.....
Receipts from.....
Expenses for printing, }
Tickets, Agencies, etc. } .....

Net.....

Mileage of special excursion trains
" ordinary trains.....

Total mileage.....

Co-operative Excursions.

Number of excursions.....
Receipts from .....
Expenses for printing, }
and Agencies, etc. } .....

Net.....

Mileage of special excursion trains
" ordinary trains.....

Total mileage.....

Total net amount received by Company.....
Net receipts from ( ) passengers carried by ordinary trains ( ) miles, giving.....
Net receipts from ( ) passengers carried by special trains ( ) miles, giving.....

Total .....