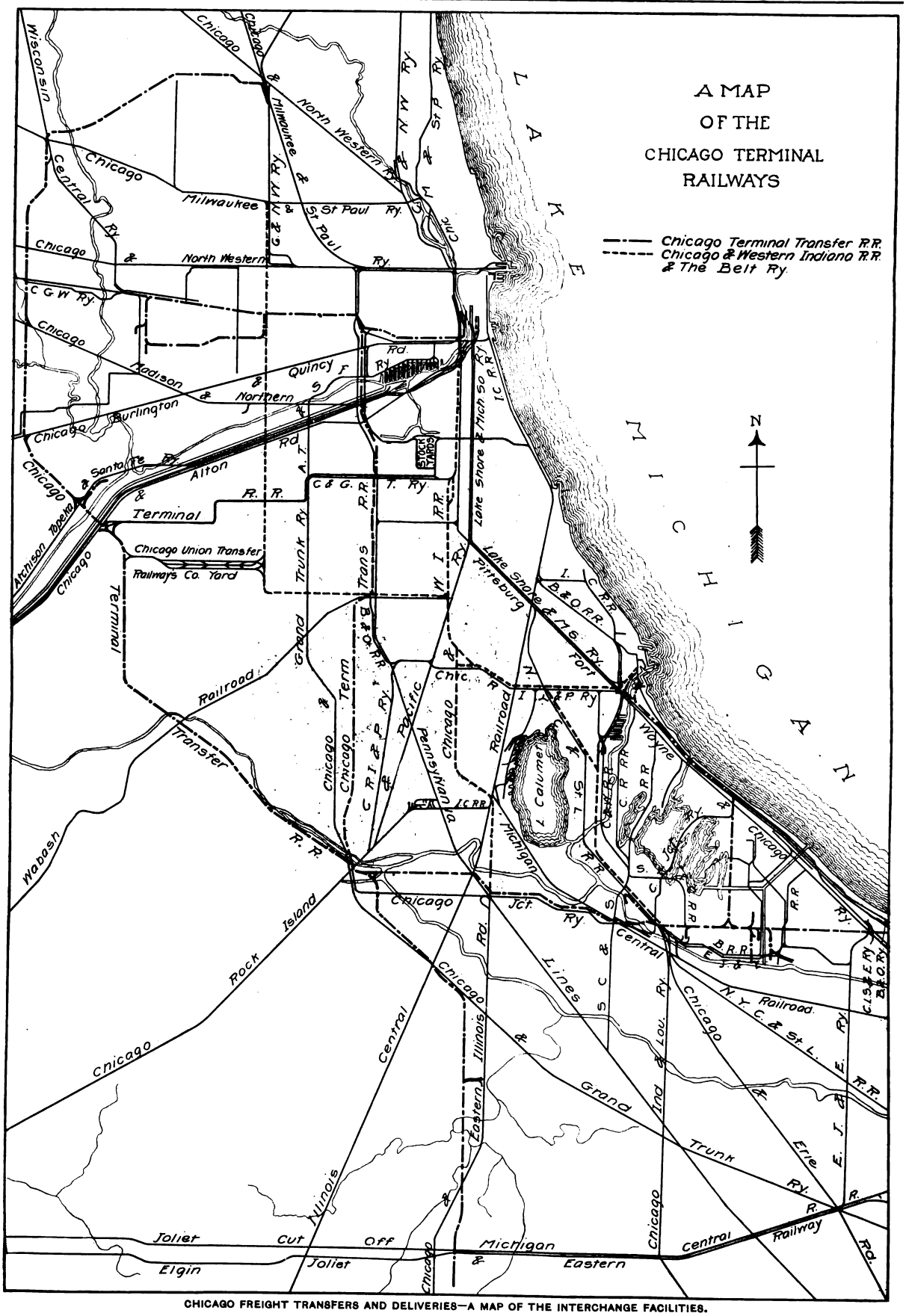


CHICAGO FREIGHT TRANSFERS AND DELIVERIES—A MAP OF THE INTERCHANGE FACILITIES.

CHICAGO FREIGHT TRANSFERS AND DELIVERIES.

For any useful consideration of so great a subject as is the handling of freight in and through the city of Chicago, it is necessary, first, to set forth plainly the most essential factors involved. There should be a theory based upon the best known practice which could be applied to any situation, and in this matter it almost appears as if a mathematical formula might be evolved, since the question is qualified only by various economies. But no such conception has ever been reduced to form, and for this reason any approach to the subject still must be tentative. It is conceived, therefore, that the three elements in the order set down—general application, time and cost—are those which must be regarded as the controlling factors. Also, it is evident that any suggested method must be generally applicable and must also be acceptable to the greatest number of separate interests, in order that it shall be generally useful.

Although the transfers of freight from railway to railway seem at first little related to the delivery of freight from the railways to the consumers and from the consumers to the railways, nevertheless, the study which has produced this discussion brings them into a close relation and indicates that any general method adopted for either phase must equally be applicable to the other, in order that the most efficient and economical results shall be attained.

There is but one class of freight approaching Chicago which to-day is handled with any degree of facility or at all in the way which reasonably might be expected. This is carload freight, billed beyond the city and intended for transfer to some other line. Such traffic as this in general is well handled by the several belt and transfer railways or at the intersections of the various railways with each other, for which reason it is eliminated from any particular consideration in the present discussion. There remain, therefore, the following cases:

Less than carload freight for points beyond, transferred from one line to another at Chicago.

Less than carload freight for Chicago city delivery (inbound).

Less than carload freight originating at Chicago (outbound).

Carload freight for Chicago city delivery (inbound).

Carload freight originating at Chicago (outbound).

Here are five cases which must be considered separately, and which, nevertheless, are inextricably interwoven. Taking first L. C. L. freight entering Chicago on a certain line, but billed to points beyond Chicago, and therefore to be transferred to another line, we find the practice differing greatly, not only between the various railways, but at different points on the same railway. One, and perhaps the principal, difficulty in discussing the question lies in the fact that comparatively few of the railways entering Chicago have any statistics to show the amount of their business in the classes named above. Strong effort to gather facts of this sort has resulted in courteous responses from almost every line, but in actual results from only six of the 20 railways addressed. Hence it is necessary to base the discussion principally upon general considerations, avoiding specific details. It is known that the totals of each of the classes are very great, yet here we come upon one of the unaccountable mysteries connected with this investigation: One of the transfer railways, and by no means the largest, reports that in each 24 hours it handles about 35 carloads of L. C. L. freight routed beyond Chicago. This should mean about 350 tons, whereas this class of freight, according to the accompanying table, appears not to exceed 800 tons per day for all the railways entering Chicago.

For this purpose the transfer railway just quoted has a large warehouse where L. C. L. freight is concentrated and transferred to the cars of connecting lines. This, so far, involves two handlings, and, besides the movement of the car itself to the receiving line, must involve two more handlings when the second line routes the merchandise to the various points of destination. Not only is this a slow and costly method, but it involves considerable damage, and evidently would be greatly improved if the delivering road could itself route the merchandise for the receiving road. That is, if a number of cars of each connecting line were present, the merchandise could be removed from the arriving car directly to a car which would deliver it to its ultimate destination. It seems strange that some such method does not present itself as self-evidently proper, yet very little approval was secured for the suggestion during many conversations with the terminal superintendents and car service agents of Chicago.

Mr. Delano's Plan.

An extremely interesting, and in many ways ingenious, solution of a part of the question has been issued in the form of a privately printed discussion, accompanied by maps and drawings. These are a fruit of the studies of Mr. Frederic A. Delano, until recently general manager Chicago Burlington & Quincy Railroad, and inevitably would command respect when coming from such a source. But without attempting a discussion of the details, which, indeed, Mr. Delano scarcely enters upon himself, it is nevertheless possible to reach some broad conclusions.

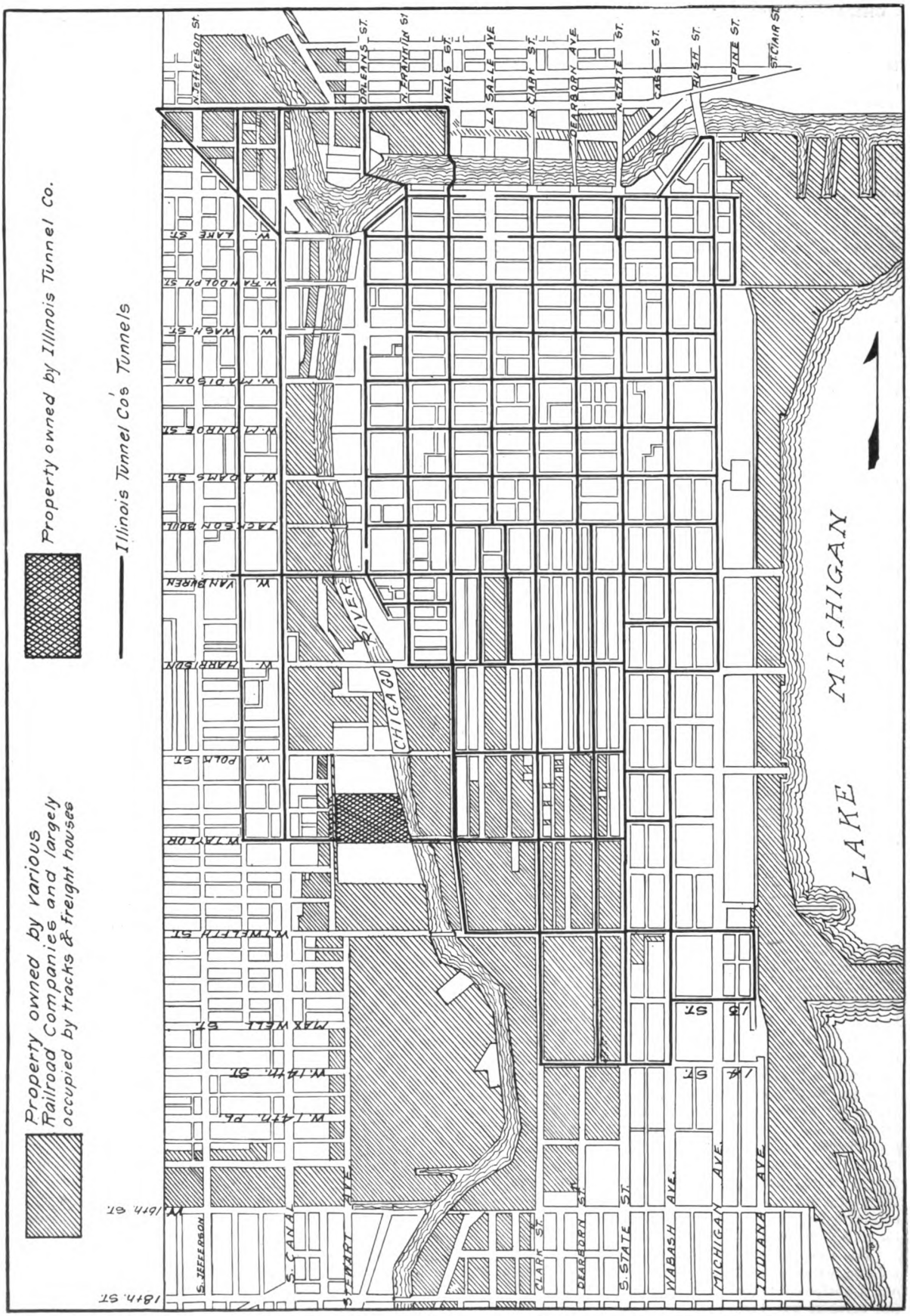
The whole general question rests, as the author indicates, upon a successful cooperation of the score of conflicting interests, and this seems a matter almost of insuperable difficulty. Mr. Delano suggests that a terminal company could be organized to issue shares for the property of the present individual owners upon, presumably, an assessed valuation of the property. But there is another way by which the general result could be secured and this might work even more certainly. The city itself might condemn the property and build terminals for the occupation of railways, very much in the way that the cities of New York and Boston have built their subways, leasing them to the operating companies.

Yet no matter which plan might present itself as the best, there are other reasons for doubting its advisability. In the first place, such a tremendous concentration of terminals in the heart of a business district certainly would bring in its train an equally remarkable growth and appreciation of land values in its immediate vicinity. It would amount, in fact, to removing the center of activities a distance of half a mile south of its present position, and although this constitutes no objection to the plan, certainly it would by the facts stated make prohibitory any considerable future enlargement. Mr. Delano does not say for what period in the future his proposed facilities would remain sufficient, but looking at Chicago's growth and accepting its future at the author's value, 20 years probably would find a very great enlargement, even of such plans as Mr. Delano proposes, an absolute necessity. Again, granting every argument in favor of concentration, Mr. Delano's plan leaves out of consideration the most important part of the freight business of the city, restricting the use of the freight stations to L. C. L. lots, and separating into two parts the handling of freight between the railways and consumers, when, by every other consideration, these two are indissoluble parts of the same problem. Any consideration either of L. C. L. or of C. L. freight must involve both forms, and any consideration which separates them falls short of the ultimate necessity.

There is, indeed, some danger that the idea of concentration may become a fetish, and in the consideration of such a subject as the one before us the true elements may be lost sight of. But we are not analyzing the passenger situation, and what has just been said must be taken merely as illustrative.

Present Arrangements.

It is proper, now, to show why L. C. L. freight for points beyond Chicago is involved in any discussion of L. C. L.



CHICAGO FREIGHT TRANSFERS AND DELIVERIES—MAP ILLUSTRATING THE ILLINOIS TUNNEL CO.'S LINES, AND THE GREAT AREA OWNED BY RAILWAYS IN THE CONGESTED DISTRICT.

freight for Chicago city delivery, or originating in Chicago. These two classes often arrive in the same cars because they are picked up at local points along the line, usually by way freights, and although, with great care, it is possible to do something toward separating the two classes at their points of origin, nevertheless the plan cannot always be carried out. Hence, either they must be handled in the same warehouse at Chicago, or else one class must be taken from the car which then shall go to another warehouse or unloading track. This, also, is an expensive operation and thoroughly undesirable in every way.

To all intents and purposes there is a general agreement that the most important element in the handling of freight is time. Shippers will forgive an excess in cost rather than suffer delay. Since this is so widely recognized, most considerations of economy are ignored in transfers. Yet, even so, periods are known recently where cars lay untouched in the yards of Chicago for a week at a time, and during a recent congestion of traffic the average time of transferring L. C. L. freight was more than seven days. This speaks badly, not only for the present methods, which are wholly disposed toward a quick movement, but at the same time it offers nothing but discouragement for the future, since the conditions, when they change at all, will change for the worse.

The Chicago River.

There are two methods of transferring and delivering freight in Chicago, with which we shall now deal. These are, by team and by river. By far the greatest mass is moved by teams, while in proportion to the whole amount, that which goes by river is very small. This latter method recommends itself at first glance, and the reason why it prevails so little is evident, since it would appear very simple to establish a system of lighterage which, operated somewhat in the method followed in New York, would bring the cost per ton down to a small part of what it now amounts to, and also would result in a very quick movement. But only a few of the railways now entering Chicago have riparian facilities, and although these might be acquired by other lines, the present physical condition of the Chicago River offers little encouragement to the belief that it ever will assume the importance in this detail of transportation which it is entitled to by every consideration of economy and convenience. The river is so crowded, so crooked and so shallow that no sane management would expend the considerable sums necessary to secure a water front without the impossible assurance that other railways would do the same thing. Hence it is necessary to dismiss the Chicago River as a probable solution of much of this problem. It never can be used for the delivery of local freight except in very small amounts, and since we have already shown that the transfer of less than carload freight from one line to another is closely allied to the movement of freight into and out of the city, this is another reason why the Chicago River is and must remain almost entirely inappropriate for our purposes.

Teams.

We next reach the transfer and delivery of freight by teams, and here is a question peculiarly difficult, since there are no statistics of any sort which may be relied upon as perfectly accurate. We have an estimate of 100,000 tons per day average during the year 1902 for that portion which stops at or originates in Chicago and is handled by teams. It also is estimated that there are about 3,000 teams, with an average capacity of three tons each, engaged in the business of hauling freight to and from railways in Chicago, and although this seems a large number, eveidently it is not enough to perform the service if the amount of freight to be handled equals 100,000 tons a day. This amount represents 33,000 daily team trips, which would require 11 trips from each team assumed to be in the service; and in this connection it must be remembered that there are only accidental return loads for the teams, so that this figure really means almost as many round trips as there are loads hauled. As bearing upon this subject, it is learned from one of the largest trucking agencies in New York City, where the conditions are much better than in Chicago, that about one-fourth of the team trips secure loads in both directions, and this only is accomplished by constant effort and much ingenuity.

Another estimate based upon the figures given by six railways, which fairly represent an average of the 20 independent lines entering Chicago, is given herewith:

Identification Letter.	Tons of Freight Delivered or Transferred in Chicago. October, 1904.						
	C. L. Freight Originating in Chicago.	C. L. Freight for Chicago Delivery.	L. C. L. Freight for Chicago Delivery.	L. C. L. Freight Originating in Chicago.	Total Freight Into and Out of Chicago.	L. C. L. Freight Transferred to Other Lines at Chicago.	Total Freight Loaded and Unloaded at Chicago.
*A	2,121	45,299	535	8,027	55,982	454	56,436
B	15,363	113,607	4,669	13,668	147,307	8,316	155,623
C	26,400	77,200	3,229	33,249	140,078	3,625	143,703
D	22,672	33,429	4,738	2,505	63,344	2,125	65,469
E	20,713	149,879	2,800	9,457	182,349	2,040	184,389
F	37,686	91,161	8,076	7,721	144,644	5,384	150,028
Total	121,955	510,575	23,547	74,627	733,704	21,944	755,648

*Identification letters each refer to a particular railway.

This indicates that there are received in and sent from the city of Chicago each working day about 100,000 tons—a curious confirmation of the previously quoted amount. Although a quantity of this freight is delivered directly to the consumer in its original cars, there is a large proportion which is again handled, such, for instance, as coal, and in that area bounded by the lake, the river and Twelfth street, this must reach its destination almost wholly by teams. These figures, based upon statistics for the month of October, 1904, therefore are very recent. That month was not a period of remarkable congestion, and, so far as the six lines which furnished the statistics are concerned, there is no reason much to doubt their accuracy. If anything, from a careful analysis of the items, it appears that some of them are lower than might be expected, when compared with others of the same class, particularly in the case of L. C. L. transfer freight, as already mentioned.

Hence, granting three tons to the load, with an average of four trips per day, per team, it appears that 8,300 teams must be engaged in the work of transferring and delivering freight in Chicago. This involves not only delays, but an expense which is both startling and inexcusable. It represents an investment of $1,000 per team, which must be renewed at the end of each five years, and a daily expenditure per team of not less than $5. In other words, for handling 100,000 tons of freight in the city of Chicago, there is expended each day the sum of about $40,000, which puts the cost of teaming at 40 cents a ton for an average haul of not more than a mile. But against this derived figure, we have the ordinary contract price of 60 cents per ton, which gives a daily cost of $60,000—evidently nearer the mark. This represents a yearly figure of enormous proportions, equal, in fact, to about $18,000,000.

Again referring to a like service in New York City, the average receipts of one of the largest team transfer companies equal about 80 cents per ton. This also is a useful comparison with the 60 cents per ton which has been derived by analysis, since it leaves a fair margin for loading and unloading. Strike-ridden Chicago may well feel startled at this state of affairs, since the sums reached above are based upon an efficient team service; but when also the long periods of idleness or delay due to strikes or bad weather are included, it is seen that in order to handle this mass of freight even more teams than are estimated must be used in that service. There are miles of team tracks where, for weeks at a time, wagons sink half way to their hubs, and the very conditions in and about railways yards involve delays which are immense, but not susceptible of estimation. When this question

of delays is considered, the state of affairs existing arouses some wonder as to how business is conducted at all.

In considering the five forms of freight which interest us here, it is quite evident now that any method of handling them must include each kind, because a large part of the teaming required to collect and deliver outbound and inbound freight is wasted effort. The testimony to this fact is universal and constitutes one of the most obvious difficulties in the situation. A team starts from one of the great wholesale houses with a load for one of the railway stations. By every factor of economy there should be a load waiting at that railway freight house for delivery to the wholesale house, but seldom is this the case; and, whereas, on a certain day, a merchant delivers a shipment to one of the railways, it is not until some later day that the same railway receives a shipment for this same merchant. There are coincidences, of course, which somewhat modify this statement, but they are coincidences and not a part of any plan.

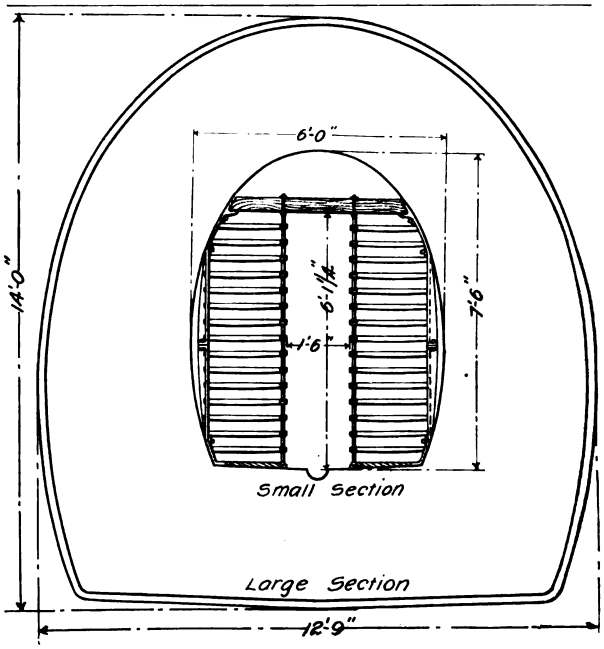
It therefore appears that any scheme which will accomplish the greatest good to the greatest number must recognize this fact. A scheme which is contemplated to handle the C. L. freight economically, both for the railways and for the shippers, must take account of L. C. L. freight as well, because the same consignee is likely to receive both classes, and the same method of delivery from the same point applies equally to both. When it is remembered that the 20 railways entering Chicago largely deliver their freight at separated spots the confusion which must exist is evident. Nor can one look at the map of the city without feeling that great opportunities are wasted here. The congestion is remarkable, and it is difficult to see why, with so great an area available, business has not separated itself into distinct classes much more widely. The wholesale and retail districts are only a few blocks apart and encroach upon each other, while the principal retail district lies between two of the wholesale divisions of the city.

Illinois Tunnel Company's Conduits.

Much has been said about the conduits which have been built under the main streets of Chicago by the Illinois Tunnel Company, and through these conduits a great measure of relief is popularly expected, both in the time and the cost of delivering freight. It is believed by the projectors of this system that the tunnels will be found sufficient to undertake the collection and delivery of the growing mass of freight now seeking ingress and egress. There is a measurable probability in this expectation, but it seems not to go far enough or to consider the great development which is sure to take place in this instance and always follows any relief of conditions which are felt to be onerous. There is no question raised here as to the constructional perfection of the tunnels, but there is a grave doubt as to whether they will be able to handle so much freight as is now generally expected and at the same time provide room for the cables, for which purpose the tunnels ostensibly were built.

In connection with the tunnels a large plot of ground has been secured on the west side of the Chicago River and bordering Taylor street, where a great collecting and distributing warehouse is to be built. This will have direct communication with the surface lines of the Chicago Terminal & Transfer Railway and will be entered by the tracks of the tunnel. Here it is proposed to receive freight both from the merchants for delivery to the railways and from the railways for delivery to the merchants. This offers a considerable convenience and will in a great proportion solve the problem for those shippers who are located within Chicago's business district; and by means of feasible extensions of the tunnel system, this district may be enlarged to an indefinite extent. Also, it is proposed gradually to establish other warehouses in other business centers, and this, although not wholly obviating the use of teams, will work a great benefit. But, as has been suggested, the very enlargement which is sure to follow such an addition to the business facilities of the city is equally sure to congest these tunnels. Nor does the method offered by the Illinois Tunnel Company take account of any of the transfers of less than carload lots from one railway to another, which we have seen complicate the general question in far greater amount than the tonnage would indicate, since the double handling of freight and the double switching of cars cause delays which are worse than the cost involved.

It is evident from the description given something more than two years ago by the chief engineer of the tunnel company, Mr. George W. Jackson, that no such scheme as is now outlined was suggested during the early period of construction. The original tunnel is the principal one in existence to-day, and in one of our illustrations is compared with the larger tunnel, of which little has been built, but for which a franchise is held. A telephone exchange of 100,000 subscribers was the basis on which the first calculations were made, but the smaller tunnels were found to have a capacity of only 25,000 telephones, even though filled with



CHICAGO FREIGHT TRANSFERS AND DELIVERIES—LARGE AND SMALL SECTIONS, ILLINOIS TUNNEL CO.

racks, as shown in the illustration. Hence, there is a plain discrepancy in the stated capacity of the small tunnels for cables and for the transportation of merchandise, which latter capacity is estimated at 80,000 tons a day. Moreover, it is quite doubtful if the small tunnel can accommodate any such tonnage as this, even by the most ingenious scheme of transportation, since the multitude of crossings at grade inevitably will cause some delays. It is quite evident from this that no scheme of transportation ever was thought of in connection with the 6 by 7½ foot tunnel, and we must seek for a better explanation than is now given.

This is to be found in the obvious value of the small tunnel as a means of constructing the greater tunnel which is authorized by the franchise of the company. Indeed, without entering into any long calculation, it is sufficiently clear that the small tunnel is almost worth while as a constructional measure for the larger tunnel, ignoring entirely the permanent and certain value of the small tunnel as a conduit for cables. The idea of running sidetracks into abutting buildings is admirable in its simplicty, and the scheme has been worked out in the most perfect manner. Indeed, there is here suggested a method by which the tunnel may become double track or even three tracks, since its depth is so great as to remove the tunnel from all interference by existing structures, and the extreme width of the tunnel—less than 8 feet—easily will permit of three tunnels and

usually four within the curb limits. We have, then, in this scheme, not the present means for the distribution and collection of merchandise, but the possibility of a method which is made more certain as events transpire. The board of directors, as recently announced, of the newly formed subway company, includes individuals representing nearly every great railway system entering Chicago, as well as the president of the oldest of Chicago belt railways, and in this fact alone there lies a hope that the question which we are now discussing is to be solved in an efficient and broad-minded manner.

The Belt and Transfer Railways.

Certainly there is not in the United States, and probably there is not in the world, a more comprehensive method for interchanging carload lots than is to be found in and around Chicago, and illustrated on the accompanying map. The idea first took form in the construction of the Chicago & Western Indiana—which owns the Belt Railway of Chicago—nearly 20 years ago, and this has been followed by the construction of several other belt railways. As an indication of Chicago's need for them it is necessary only to trace the history of the Belt Railway of Chicago from a lightly constructed, unballasted, poorly maintained sidetrack to its present dignified position, double-tracked and stone ballasted. So far as the interchange of fully loaded cars is concerned, this is measurably well taken care of by existing facilities which are susceptible of any required growth. The continued neglect of the Chicago Union Transfer Company, which has now existed for several years and yet shows no sign of public interest, is an evidence of this fact. But undoubtedly it has a great value as an industrial and warehouse nucleus, and so splendid a conception so courageously carried out must find a place.

The cost of teaming from and to the railways in Chicago we have estimated at $60,000 a day, and if some means can be found to correlate the interest and capacity of the city tunnels and the Chicago Union Transfer it surely will prove of value both to the city and to the railways by saving much of this sum. It will permit the general reception and distribution of this great tonnage in the most economical manner to the railways and to the citizens. It is evident that if this splendid system of tracks were utilized by the railways in common, for the reception and discharge of Chicago local freight, the cost would be reduced to a small part of the present figure and the delays would be reduced to a minimum. All packages for a certain destination could be collected and all of the routing from Chicago could be accomplished in one place and by a simple operation. This is merely a suggestion, but it has a strong foundation.

Certainly, it would be cheaper than the present plan, for a train of small cars to leave one of the great wholesale houses in the forenoon and within an hour arrive at a freight station, whence one handling of each piece would place that piece within a car which would take it to its ultimate destination. And so for arriving freight consigned to the same wholesale house by various lines; it could be collected in one spot and sent to the warehouse without rehandling. The great loss involved to-day in the travel of unloaded teams would disappear, and the work then would be performed in an almost ideally efficient manner. It is too much to expect or even to hope for the millennium, and so long as railways compete for business there will be jealousies. But here is a case, if ever there was a case, where there is a common interest, and the more who can be induced to join in the method suggested the greater would be the benefit to every interest concerned. It offers not only a solution of the local freight problem, but of the L. C. L. transfer problem as well, and the location of the Chicago Union Transfer yard will permit any desired growth for a long time to come. From the fact that the Illinois Tunnel Company holds franchises which permit them to go under any street in the city, a connection with the Chicago Union Transfer Yards becomes a comparatively simple matter. The grade crossing question disappears and undoubtedly, the construction of such a tunnel would encourage the growth of industries along its route. As a result of any such plan we should expect to see much of the area now occupied by railway tracks in Chicago's most congested section, converted to more appropriate purposes; and the stock yards might at last find a resting place where they would have room to expand to any necessary extent. It is a significant fact that a line drawn from the business center to the Chicago Union Terminal yards passes close to the stock yards.

The objection is offered that the concentration of so great a business at the site of the Chicago Union Transfer yards is favorable to the organization of strikes, but so this would be in any effort to solve the question. Probably, however, the conditions for a strike would be not more favorable than exist on any belt railway or in any great industry to-day, and this reason alone should not act against the consideration of any plan.

BOOK TABLE.

HAND BOOK OF RAILROAD SECURITIES. January, 1905. William B. Dana Company, publishers, New York. Pliny Bartlett, western agent, Chicago.

This well known and always reliable compilation by the Commercial and Financial Chronicle has, in compact form, the most important statistics in regard to income, prices of stocks and bonds, dividends, etc., of the railways of the country.

AIR BRAKE ASSOCIATION. Proceedings of the eleventh annual convention, held at Buffalo, May, 1904. F. M. Nellis, secretary, 26 Cortlandt street, New York.

The proceedings of this progressive association appear in the usual satisfactory form and contain a great amount of information valuable to all who have to do with the handling and maintenance of air brakes. An abstract of the proceedings was published in The Railway Age at the time of the convention.

RAILWAY SIGNAL ASSOCIATION. Proceedings of meetings held during the year 1904. H. S. Balliet, secretary, Bethlehem, Pa.

This pamphlet gives in excellent shape the papers presented and discussions had at the various monthly meetings of the Railway Signal Association, and at the annual meeting held in Saint Louis, October 11 and 12, 1904. Brief abstracts of these discussions and some of the papers have been published in The Railway Age from time to time. The book also contains the constitution and by-laws and list of members.

TRAVELING ENGINEERS' ASSOCIATION. Proceedings of the twelfth annual convention held at Chicago, September, 1904. W. O. Thompson, secretary, Oswego, N. Y.

Probably one of the best evidences of the work of this hard-working association is the fact that within the last year or two several of its most active members have been made superintendents of motive power and master mechanics, some of them on the larger systems. The instalment of work accomplished in 1904 is presented in excellent shape in these proceedings, a portion of which were covered in The Railway Age just following the convention.

"FROM TREE TO TRADE," with the Long-Bell Lumber Company, Kansas City, Mo.

A handsomely executed and copiously illustrated book, prepared by the staff of and reprinted from the American Lumberman, in the interests of the company named in the title. Though confessedly a trade publication, this is one of the most complete expositions of the "hereafter" of a pine tree—that is to say, from forest to factory—that has ever appeared. The engravings especially are noteworthy for the completeness with which they cover the subject and for their inherent excellence.

THE FIELD PRACTICE OF RAILWAY LOCATION. By Willard Beahan. 250 pp., 5½ by 9. Cloth. Price, $3. Engineering News Publishing Company, New York.

Although the subject is somewhat hackneyed and the number of treastises which are concerned with railway location and surveying methods are more numerous than those devoted to almost any other branch of railway work, the author has found a new method of treatment which entitles him to considerable credit. His modesty is manifested by the first paragraph in the preface: "The object of this book is to record the methods commonly used by American engineers in the West in the location of railroads built since the civil war."

Besides the usual matter contained in works on surveying, Chapter II is devoted to a subject little understood and seldom written of in works of a technical character: Organization, Subsistence and Equipment of Parties. In this chapter the duties of every man from the chief of the party to the cook receive due attention. His whole equipment is described, together with a list of horses, saddlery, tents, food, medicines and surgical appliances, together with the rates of pay of the different individuals comprising a party. Another chapter of great value is No. V on Geology in its Relation to Topography, and in this we judge that the reader, and particularly the student reader, will receive hints of great practical value. In Chapter VIII the cost of doing