$387,000 and $334,000, respectively.

New Orleans — Buses will be substituted for streetcars on all but three lines here after the war, officials of New Orleans Public Service, Inc., announced recently.

ALBANY, N. Y. — Albany Transit Co. is now selling seven tokens instead of eight for 50 cents, the PSC having recently approved the increase in fares. It was granted because the company, last spring, in changing its rate from 13 tokens for a dollar to eight for 50 cents, underestimated the number of riders who would switch from the 10-cent cash fare to tokens. The loss in revenue amounted to $32,000 on an annual basis, compared with a $29,000 decrease the company had predicted.

PORTLAND, ORE. — More frequent cleaning of the streets of wet leaves has been suggested to city officials by Gordon Steele, Portland Traction Co. president, as an accident prevention measure.

OKLAHOMA CITY, OKLA. — Twenty new 37-passenger buses were delivered recently to Oklahoma Transportation Co. and already have been placed in service.

N. Y. — Albany Transit Co. is now selling seven tokens instead of eight for 50 cents, the PSC having recently approved the increase in fares. It was granted because the company, last spring, in changing its rate from 13 tokens for a dollar to eight for 50 cents, underestimated the number of riders who would switch from the 10-cent cash fare to tokens. The loss in revenue amounted to $3,000 on an annual basis, compared with a $29,000 decrease the company had predicted.

COLUMBUS, OH. — Shortage of manpower, among other things, makes extension of both tripper and regular bus service "out of the question," said C. A. Jones, general manager of Columbus & Southern Ohio Electric Co. The company normally operates 20 units of equipment regularly and 120 units as extras, but the number of extras on the road during rush hours depends on the manpower situation from day to day, he declared.

EDMONTON, ALTA. — In spite of repeated pleas from residents of suburban areas, City Council is refusing to consider any extension of bus service at this time. Civic authorities have pointed out that the entire question of transportation is tied in with the eventually to be revised street construction program, and that nothing should be done until details of the program are completed next spring.

ALLENTOWN, PA. — Royal Blue Coach Lines has leased a building at the Allentown Bus Terminal, where it plans to eventually operate buses of all lines that use the terminal, in addition to several others.

NEW YORK. — A reduction of $60,000 annually in bus fares of Westchester Street Transportation Co., Inc., a subsidiary of Third Avenue Transitt Corp., has been ordered by the PSC. Specifically, the order requires cuts of five and ten cents on five of the company's routes in suburban Westchester County.

10,000 Jamaicans Available For Essential Employment

HEADQUARTERS, A. T. A. — Approximately 10,000 Jamaicans, brought to this country by WFA for agricultural work, soon will be available for employment in essential industries, including transportation, according to an announcement by WFA.

Located in the Northeast and Great Lakes areas, these workers speak English, and are said to be adaptable to many forms of labor. They must be employed in groups of 10 or more, guaranteed at least 480 hours of work within each 90-day period at prevailing rates of pay and their employment must be consistent with labor agreements and applicable to unions involved.

They must be employed for at least 90 days and housing and group feeding facilities provided for which they will pay. In addition, transportation and subsistence enroute to the place of employment and to and from their homes, after termination of contract must be provided. They may be recruited through USES.

Further details are contained in a letter to member operating companies from Guy C. Hocker, ATA general secretary, which was sent out recently.

Port In Price

Further details are contained in a letter to member operating companies from Guy C. Hocker, ATA general secretary, which was sent out recently.
More Plans
(Continued from Page 1)

The Parking Problem
That a balanced transportation program is needed to solve the modern parking problem, was beautifully presented by H. H. Allen, consulting engineer and vice president of J. E. Greiner & Company when he argued that, "Everyone Can’t Ride in Automobiles."

In the introduction to his remarks, Mr. Allen summarized his case by saying, "Down-town American cities were made more accessible in terms of time by the advent of the automobile, but continually increased usage of motor vehicles in greater numbers for private transportation has reduced the accessibility of central business districts. Public authorities have exercised their right to regulate the movement... but the owner of business property cannot be deprived of his right of access, no matter how pressing the street traffic problem may become."

Future Traffic Prospects
The whole problem of urban publlic transportation in its relation to the future was then projected by Charles Stephenson, A.T.A research associate, in a remarkable study, "Transit's Prospects for Postwar Traffic."

"A must for management's study, and should be followed closely as future plans are prepared."

The second and last session of A.T.A's 1944 Convention-in-Print wound up with a series of articles covering the postwar plans of the A.T.A. Divisions.

OBITUARIES

Frank A. Teach, 52, engineer for Columbus and Southern Ohio Electric Co., died Oct. 25.

T H. MacDonald

F. W. Ford, Executive, Memphis St. Ry., Dies

MEMPHIS, TENN. (PTC)—Edward W. Ford, 78, vice president and general manager of Memphis Street Railway Co., died Oct. 31 at his home in Hilt Park. He had been in poor health for a year.

A native of Bridge Hampton, Long Island, N.Y., Mr. Ford spent his early years in Louisville, Ky. He worked for Birmingham Street Railway Co., before joining the staff of Memphis Street Railway in 1905 as superintendent of transportation.

He served on the membership committee of A.T.A from 1929 to 1932.

His son, Walter N. Ford, is vice president and assistant general manager of the Memphis system.

CITIES LESS THAN 250,000

Change

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<thead>
<tr>
<th>Population Group</th>
<th>September 1944</th>
<th>%</th>
<th>Change 9/30/44</th>
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<tr>
<td>Cities over 1,000,000</td>
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TREND OF TRANSIT TRAFFIC, 1939-1944

INDEX TO SEPTEMBER 30, 1944

<table>
<thead>
<tr>
<th>Cities Less Than 250,000</th>
<th>1,000,000—1,000,000</th>
<th>1,000,000—500,000</th>
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<th>250,000—100,000</th>
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<th>50,000—10,000</th>
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<th>Total All Cities</th>
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PASSENGER TRANSPORT, NOVEMBER 2, 1944

SEPTEMBER PASSENGER TRAFFIC

By Edmund J. Murphy

The final summary of traffic reports for the month of September showed an increase of 4.3 per cent in the number of passengers carried on the transit lines of the United States in comparison with September 1943. The increase is substantially less than was indicated in the preliminary summary which appeared in the October 26 number of PT, based upon reports received earlier in the month. The estimates of the total number of passengers carried in September, therefore, has been reduced to 1,891,669,000. The index for September stands at 181.74 which compares with the index of 184.16 for August.

The companies in the smallest cities continue to show the greatest increases in traffic, although the increases which they are now reporting are greatly reduced as compared with the increases shown a year ago or in 1942. Next in the rate of increase now being maintained are the companies in the suburban areas. Both of these groups report increases in September greater than their average increase for the nine months of 1944 to date, indicating that they are now increasing faster than they were earlier in the year. This is true of only one other group—the companies operating in cities between 100,000 and 250,000 population.

Total Passengers Carried on Transit Lines of the United States in September 1944 and during the nine months ended Sept. 30, 1944.
TRANSIT'S POSITION TODAY

In a few words, the theme of the first “session” of C-in-P — Transit's Push to Victory— epitomizes the thinking of management as the industry approaches the end of a long and difficult year. And actually in these war years the transit industry has met its huge responsibilities, licked its seemingly insurmountable problems with a sureness and dispatch that has astounded thinking people. We have had no more tools, human and mechanical, with which to work, that the peak live loads carried—18 billion in 1942, 22 billion in 1943—have represented a very considerable contribution to the war effort.

Now, in 1944, the national transit industry is transporting people at a rate which may well establish another new record—better than 23 billion. And doing it with little more equipment than was available at the start of hostilities. That in itself is another record.

But the end is in sight. Restrictions on the production of new vehicles, replacement parts and maintenance materials, accessories and the like are being lifted. That means a chance for management to plan; to plan for the future and to dig into its proper place in the peacetime public welfare.

Therein lies the greatest opportunity the industry ever faced; the opportunity to plan a victory which lies ahead and is a fitting complement of the first “session”.

In this enterprise, the national transit industry will need all of the competent help it can get—all of the advice and sound planning experience available to it through the professional services and sympathetic attitude of established planning officials everywhere.

For as has been so forcefully presented in the record of the second “session”, enclosed with this make-up, there is no guarantee that all of our urban dwellers will ever expect to ride in automobiles. And in that may be— with this war experience under their respective belts— that many more will not care to be longer dependent upon private transportation when adequate, low-cost public transportation is available.

Therein lies our second possible victory.

With help and understanding from the communities we serve; with the professional aid of all those who dream and design and visualize; with the cooperation of those who man our platforms and contact our public, the opportunity is ours to achieve that victory too.

And now, a word about functions.

In the first “session” — Transit's Peak to Victory— you find concentration on the line or operating function, the active function necessary to transit's future welfare. That is plain. Here you find hard-bitten practical operators facing the daily problems of transporting unprecedented numbers of people—and doing it well, the hard way.

In the second “session” — Transit’s Part in Postwar Planning — you find concentration on the staff or planning function, the advisory function if you will, which visualizes the best or ideal function, the advisory function if you will, which visualizes the best or ideal use of our urban facilities, have been invited to address our membership. The program committee established “following the release of its outstanding experts, this time in the fields of planning more closely associated with the design and projection of traffic facilities, have been invited to address our membership. The

Pages of the second “session” of A's C-in-P—Conventicn-in-Pr'mt were then enclosed in 10/15/44, the entire series reprinted the entire series.

1944 Convention-in-Print Follows 1943
Lead In Inviting Planning Officials
To Address Annual Meeting ATA

BOSTON. — Eastern Massachusetts Street Railway Co. has sold its $5,350,000 general mortgage bonds, four per cent, dated Sept. 1, 1943, March 1, 1962 to the public at 102½ through a syndicate headed by F. S. Mosley & Co., the First Boston Corp. and Kidder Peabody & Co. in order to provide for retirement of $5,580,000 outstanding refunding mortgage bonds due Jan. 1, 1948.

Details Of Plan
Series A 4½ per cent bonds in the amount of $4,335,000 have been called for payment on Jan. 1, 1948 at 100 and accrued interest with the company giving present holders the right of immediate payment of the full redemption price and interest to the redemption date. Sufficient money also has been deposited with the trustee under the refunding mortgage to retire $1,415,000 non-callable 6’s due Jan. 1, 1948, and the company has offered the holders thereof a price of 105 which interest through Nov. 30, 1940 for bonds surrendered on or before Dec. 1, 1944.

The new indentures provide a sinking fund for the complete retirement of the general mortgage bonds during their life, the first seven annual payments amounting to $250,000 each, but increasing thereafter. The company has thus provided for the balance of its debt which at the end of 1949 amounted to $29,857,000.

Baltimore Transit Traffic
Showing A Small Decline

BALTIMORE, Md. (Pfc) — Baltimore Transit Company's revenue passengers during the first nine months of this year totalled 192,326,086, a decrease of 2.7 per cent compared with the corresponding period last year. There was an increase of 2.2 per cent in streetcar passengers and a drop of six per cent in bus passengers.

Mack In A New Allentown Plant

ALLENTOWN, PA. (Pfc) — In reporting the fact of Mack's resumption of bus production (PT 10/27/44) it was erroneously stated that this would be resumed “following the release of its plant, plant, which has been used for the production of aircraft. The fact is that the original Mack bus plant is not be returned at this time, and that Mack-International Motor Truck Corporation is planning on building its new plant in another location in Allentown.

CCL Backs Montreal Employees

QUEBEC, CAN. (PFC) — The Canadian Congress of Labor adopted a resolution recently supporting employees of Montreal Tramways Co. in their struggle for a union contract in their projected collective agreement with the company (PT 10/20/44).
SECOND SESSION ATA CONVENTION-IN-PRINT

"TRANSIT'S PART IN POSTWAR PLANS"—BRINGS PLANNING OFFICIALS BEFORE NATIONAL INDUSTRY

It Is The People Who Count


Keynote Addresses by ATA Managing Director Charles Gordon and U. S. Chamber of Commerce President Eric Johnston, Pave The Way For Discussions Pointing To The Greatest Good For The Greatest Number—Transportation-wise

HEADQUARTERS, ATA, Nov. 9—In opening the second session of ATA's 1944 Convention-in-Print, Charles Gordon projects the end result of all of the national transit industry's thinking for the future when he titles his remarks, "The Greatest Good For The Greatest Number."

Mr. Gordon makes his position particularly clear when he says, "It is becoming increasingly clear to all of those dealing with the problems of modern cities, that the economic and social life of these communities is not dependent upon the movement of vehicles; it is the people in these vehicles with whom we should be primarily concerned."

The vehicles are merely a means to an end. Thus the social value of all urban transportation improvements, including urban highways, must be measured in terms of the number of people who are served."

Deliberate Planning Needed

This idealistic opening leads, quite naturally into the sound call of Eric Johnston, president, Chamber of Commerce of the United States, who again displayed his great qualities of leadership in his presentation of the key idea that Transportation Policy Will Profoundly Affect Tomorrow’s Cities. Speaking of the fact that new forms of transportation are constantly being developed, while older forms are being improved, Mr. Johnston said, "Following this war there is reason to believe that this rate of change will be as great as it was in the decade following the last war. Unlike this previous period, however, we are now more generally conscious of the need of deliberately planning the community's future development with a view to making effective use of the more modern means of rapid movement."

PLANNING OFFICIALS BEFORE NATIONAL INDUSTRY

The theme was then taken up by Charles E. DeLeuw, consulting engineer and member of the firm of DeLeuw, Cather & Company, when he spoke on the subject, Integrating Postwar Transit and Highway Plans. This "talk" was particularly timely in view of the recent Congressional action which included urban highways in the postwar Federal Aid plan. Mr. DeLeuw made a powerful case against small plans when he said, "It is logical to assume that the over-all objective of transit planning will be to provide faster and more frequent service on main traffic arteries, rather than merely to reach out into thinner territory with small vehicles." Analizing Urban Travel

At this point, our great Commis

(See Page 4, Column 2)

Plans and More Plans

R. N. Watt, president of the Montreal Tramways Company points to the fact that "The Transit Rider Needs Champion Rider. Again, the emphasis is placed on people when Mr. Watt calls upon the transit industry itself to provide ade-

(See Page 4, Column 2)

RWLB At Boston Conducts Hearings

On Establishment Of Wage Brackets

The Mailer Plan

For Amalgamated; Tentative Brackets Announced

On Establishment Of Wage Brackets

Mr. Lewis, president of the Institute of Planners, undertook to "discuss Transit and the Master Plan."

"The city is a living organism" is one that will live long in the memory of transit management, for it jelled much of the unorganized thinking which the industry has done recently on the subject. Here is how Mr. Lewis stated the idea, "The Master Plan of a modern City must be based on the general concept that it is to provide a guide and a pattern for the development of a better community in which to live and to work. It must visualize the city as a dynamic mechanism, not as a mere static grouping of streets and buildings. This mechanism can function smoothly and effectively only as the daily flow of people and materials can take place with minimum effort and delay."

Tentative Brackets

The spokesman for ATA commented particularly upon the method used by the Board in establishing rates for secondary companies in the several metropolitan areas in the region. Mr. Simpson urged that the Board reconsider the population classifications of a number of individual companies.

The Industry's Stand

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Diesel has proved that it is the Modern, Economical Coach Power in nearly 900,000,000 MILES OF OPERATION

**Greater Economy**
- Often giving upwards of 50% more miles per gallon of fuel...with lower maintenance costs.

**Better Accessibility**
- All engine accessories are mounted within easy reach...with no spark plugs and wiring to bother with.

**Direct Injection of Fuel**
- Each cylinder has its own injector...no high pressure fuel lines to clog or give insufficient fuel.

**Faster on the Getaway**
- The torque curve climbs faster...result, faster acceleration and steadier engine pulling.

**Compact, Low in Weight**
- The high output per cubic inch permits use of a motor of less cubic inch displacement for some amount of work, and therefore a lighter, more compact engine.

**Better Hill Climbing Ability**
- Diesel engines have a more constant torque at lower speeds.

**Analysis of Urban Travel**

5. Trends in travel may be gauged to some degree at least by trends in other factors such as social, economic, and occupational status. By measuring travel of residents in areas such as census tracts for which trends in other factors are regularly recorded, it will be possible to forecast the amount of travel by various modes that should be anticipated and appropriate provision made for it.

6. Travel requirements may be measured in relation to proposed urban development. If a new area should, for example, provide within its confines shopping, social and recreational facilities, travel on arterial streets for expressways from that area for these purposes will be unnecessary. The amount of movement that will be thus subtracted from the major thoroughfares can be estimated, and due allowance made in design, not only for the artery but also for the circulatory system of the area.

Discussion of these surveys has been primarily from the viewpoint of the highway official, but the results should be of equal importance in the transit field. With the advent and growth of free wheel public transportation, the interests and responsibilities of the street and highway officials on one hand and transit officials on the other have been necessarily drawn more and more closely together.

The officials responsible for the improvement of streets and highways must provide facilities as nearly as possible adequate for traffic of the volume and character expected during the life of the improvements. Obviously both the volume and character are dependent on many factors, among which policies of public transportation and city and regional planning officials are of paramount importance. Plans for street or highway improvement in urban areas will never be effectively drawn or executed without the full cooperation of all interests involved. The interests of public transportation and of over-all street and highway transportation can never be divergent. They must always be parallel. Indeed in many cases they are coincident.
and time-consuming analysis of the probable travel needs of the future as influenced by the changes in the city structure and other factors to the extent that they can be forecast.

The methods employed in these surveys are advantageous in many respects. From an administrative viewpoint some of the favorable features are the following:

1. They can be conducted with personnel now readily obtainable.
2. Their cost, both in value of returns and in comparison with other types of surveys, is low. A survey of an area including as many as 1,000,000 residents may be conducted for $50,000, smaller areas for much less.
3. They are beneficial from the standpoint of public relations. Interviewers have been very favorably received, and the opportunity to carry a message into as many as 10 percent of the homes in the area, to show that officials are making studied efforts to provide transportation services of greatest utility to the individuals themselves can be expected to gain public support for the measures proposed as a result of the survey. The people will know that they have had a part in the solution.

Other Advantages

4. They provide information that can be kept current with a minimum of effort and cost. Trends in factors influencing travel needs may be kept up by regular sampling of the sample, and checked by occasional repetition of the entire work when it is thought that conditions have changed sufficiently to require a resurvey. A small group steadily employed at interviewing and a minimum of analytical work will keep data constantly current.
5. They provide the basis for a complete study of travel needs by all agencies concerned and give opportunity for a cooperative approach to the solution that is best for all interests. Conflicting proposals advanced by a variety of agencies in a metropolitan area may be compared against the facts, rather than against one another.

From the viewpoint of the analyst who must interpret the figures obtained and forecast what may be expected a good many years hence, these surveys also offer many important advantages.

1. They show all travel within the city, whether it be by residents or nonresidents. Furthermore, they show travel by all modes of transportation and are not merely an independent survey of passenger vehicles, of transit riders, or other segment of the problem. The position of each can thus be analyzed and provision made for facilities appropriate for the most likely distribution of travel by the various modes.

2. They measure the travel needs of the community from area to area, even from block to block if such detail is desirable, without re-

gard to distortion in present travel practices by existing street patterns, relative degree of street improvement, or relative degree of transit service between such areas. The results of these surveys when considered in light of existing practices will show at once where the latter are distorted because of inadequate planning or operational deficiencies.

3. Analysis of present travel needs is simple. Volumes of movement studied efforts to provide transportation services of greatest utility to the individuals themselves can be expected to gain public support for the measures proposed as a result of the survey. The people will know that they have had a part in the solution.

4. Allowances may be readily made for changes that will come with conversion from war to peace. Travel to and from given points or areas may be eliminated, decreased, or increased in accordance with the best judgment as to the future activity there, and moreover, the effect of the change may be traced throughout all parts of the city. Similarly, the effect may be evaluated if slackening in group riding or of the return to private vehicle from the use of public transportation enforced by war necessities.

(See Page 34, Column 4)

LOOK FOR THIS SYMBOL

IT MEANS MEMBERSHIP IN THE NATIONAL ASSOCIATION OF TRANSPORTATION ADVERTISING.

And here's what it means to the agency and advertiser:

High Standards—NATA members, like members of other media organizations, are committed to high standards of business conduct. The progress made in the last several years in re-establishing Transportation Advertising as a major advertising medium has been due in large measure to the forward-looking steps taken by NATA and its members. Some of those activities are:

Uniform Circulation Methods—Transportation Advertising circulation utilizes the audited passenger traffic figures reported by the transit companies to Utility Commissions, stock-holders and direct to Transportation Advertising operators. To avoid duplication of count sometimes brought about by zone riding and to clarify the method of evaluating transfers, NATA has adopted the following definition for Transportation Advertising circulation: "The basis of count to be one person riding one carded vehicle continuously."

To conform to established advertising practice, all members will report on the same period—average first and last six months of each calendar year and hereafter changing the reports simultaneously in April and October.

The twenty-nine firms below are united to make Transportation Advertising one of the most progressive and respected mediums in advertising.

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CAR CARDS, INC.
CHICAGO CAR ADVERTISING COMPANY
CRESPI MOTORs, INC.
FIELD, SORRENSEN & DAVIS
BARWOOD HOYT FAWCUTT TRANSIT ADVERTISING
LOOMIS ADVERTISING COMPANY
MAYNARD BOYLAN, INC.
MILWAUKEE TRANSPORTATION ADVERTISING
MICHETT, M.CANDLES & KLAUS
MOTOR COACH ADVERTISING, INC.
MURRAY & MALONE COMPANY
NATIONAL BUS ADVERTISING COMPANY
NATION-WIDE BUS ADVERTISING, INC.
NEW YORK SUBWAYS ADVERTISING CO., INC.
PACIFIC NORTHWEST TRANSIT ADVERTISING
PHILBA, WRANGLER & COINE, INC.
PUBLIC SERVICE COORDINATED TRANSPORT
RASDSSE TRANSIT ADVERTISING COMP.
R. RUSSELL ROOP CO.
SOUTHWEST TRANSPORTATION ADVERTISING CO.
SURFACE TRANSPORTATION ADVERTISING, INC.
TRACTION ADVERTISING COMPANY—SALT LAKE CITY
TRACTION ADVERTISING, INC.
TRANSPORTATION ADVERTISERS, INC.
TRANSPORTATION ADVERTISING COMPANY
TRANSPORTATION ADVERTISING CO. OF MICHIGAN
TRANSPORTATION DISPLAYS, INC.
TRACTION ADVERTISING CO.—PEORIA

30 ROCKEFELLER PLAZA • NEW YORK 20, N.Y.
same means will be desirable. Weekend travel by this method is so abnormal now as to make its determination of little value. With the resumption of more nearly normal conditions, sampling of weekend travel by this same means will be desirable.

Information thus obtained will show the travel of residents of the city on a typical day of the season in which the survey is conducted. This residential survey, however, leaves gaps in the total internal movement that must be filled in by other, but similar means.

**Track travel** is ignored in the residence interviews. It is obtained by recording a selected day’s travel, including all stops, for a representative sample of all tracks garaged in the city. Where the information cannot readily be obtained for the previous day, drivers have not objected to keeping a log of the following day’s trips on a form provided. Similarly, information on taxi travel is obtained, using the manifest sheets in cities where such records are required, and elsewhere by requesting a representative sample of drivers to log a day’s travel. Bus and streetcar trips (the vehicles, not the passengers) are determined from transit company records.

**Total Travel Covered**

By such means all internal travel is accounted for. Added to this internal movement is the travel of nonresidents entering or leaving the area, determined by actual road interviews. The area included in the internal survey lies within a corridor which is cut by various radiating routes. At each point where an such route carrying a significant volume of travel cuts the corridor, traffic is stopped and its travel is determined by the interview method. This test simply determines from the home interviews and the external survey the number of vehicles reported to have passed these control points.

There are two checks that are readily applied. The first is to test the adequacy of the sample as to size, which may be done by interviewing for an area, such as a census tract, the part of a selected sample, but other samples, of the same size or even the entire area. Each sample is checked against the other or each, expanded, and checked against the total. Such checks in the early surveys showed such a remarkable accuracy that they are no longer considered necessary.

**Other Tests of Results**

The other test is not only a test of the adequacy of the sample in a statistical sense, but a measure of the completeness with which the travel is determined by the interview method. This test simply determines from the home interviews and the external survey the number of vehicles reported to have passed the various control points. The figures thus determined can be checked by a volume count taken during the course of the survey. A check of this nature will also show immediately whether there is a reluctance to report or an inability to recall all travel. There has been speculation, for example, as to whether a driver might recall all of an evening’s recreational travel, either because of a real or fancied misuse of his gasoline ration or for other reasons.

There is little question, however, that all home to work and work to home travel will be recalled, and that travel accounts for 85 to 90 percent of all morning and evening peak traffic. Thus, if the “interview” volume checked the actual count at the control points during morning and evening peaks, it could be assumed that the business travel was completely reported and that other travel was not, and appropriate adjustments made in interpretation of the figures. To date no analyses have progressed to this stage of control point checks, but preliminary information gives reason for confidence that substantially all travel is properly reported.

**Favorable Features of Methods**

Analytical work required in the summarization of the results is straightforward and rapid, using punch card processes. Questionnaire forms are designed to be largely self coding. Punching, sorting, and basic tabulations of origin, destination, and trip purpose are completed easily and quickly. The cards are then available for the more comprehensive

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**Stations the Iron Horse Passed in a Gallop**

Thanks to the inherent flexibility of the modern motor coach, the geography of hometown America is no longer confined to the strict limitations of rail right of ways. Today, thousands of boroughs, towns, hamlets have found a new opulence which is no longer confined to the strict limitations of motor coach, the geography of hometown America. Thanks to the inherent flexibility of the modern motor coach, the geography of hometown America is no longer confined to the strict limitations of rail right of ways. Today, thousands of boroughs, towns, hamlets have found a new opulence which is no longer confined to the strict limitations of motor coach, the geography of hometown America.
for the previous day are recorded. A trip for this purpose is considered to be a one-way trip from origin to destination, such as from home to work or to school, or vice versa.

The origin and destination to the nearest block or street address, the time of starting and arrival, the type of transportation, whether as a car driver, a rider in a car, or as a public transportation passenger, and the purpose of the travel are recorded for all individuals questioned. For those who drive cars, further questions show when and where the car was parked, in some cases the major streets traversed, and in all cases whether or not the driver passed one or all of a few well known points such as bridges or viaducts, referred to as control points. The place of each stop on route and its reason, such as for shopping, to get gasoline, or to pick up a passenger, also are recorded. These questions are considered to be the minimum by which a reasonable analysis of the travel can be made. In some cities additional data have been obtained, such as more detail on parking where that is an important factor.

Analysis for Typical Day

It will be seen that the information is requested for the "previous" day. All interviews are scheduled from Tuesdays to Saturdays so that the travel data obtained are representative of weekdays, Monday (See Next Page)

Seven years operation with 2,031 P.C.C. cars on 15 properties show:

Average revenue per car per year increased 13.6%

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group are given a weight equivalent to the proportion that group is of the total population. The difficult feature is not so much the questioning or the mathematical work of expansion of the sample. It is rather the determination of the proper factors by which to weight the results of the questioning.

Bureau of Census Helped

To aid in development of the method of sample selection the Public Roads Administration was fortunate in having the cooperation of the Bureau of the Census. That bureau, through the Division of Special Surveys, regularly conducts surveys to collect widely varying types of data, generally using some sampling technique. Their recommendation was to select a sample purely on a geographical basis, on the theory that in a sample so selected all other factors would be automatically included in proper proportion.

Thus, for a travel habits survey by this means, the first requisite is the selection of a sample inflexibly chosen as to geographical distribution, and adhered to in the interviewing without the slightest deviation. The natural tendency of an interviewer, on finding the occupants of a designated house absent, to call on a neighbor must be strictly avoided. It should be obvious of course that the travel habits of a person easily found at home must be quite different from those of a person seldom there, but the distinction is frequently overlooked unless its importance is stressed.

Various Size Samples

The size of the sample varies with the size of the city. In the smaller cities in which surveys have been conducted, those with populations up to about 150,000, a ten-percent sample has been used. As the size of the city increases, and as the volumes of travel with which we must deal also increase, a smaller sample is adequate. In cities around 500,000 population a five-percent sample has been found to be sufficient, and for larger cities in which studies are now contemplated, it is probable that the sample will consist only of one address in forty.

The manner of selecting the particular addresses to include in the sample varies with the city and the material there available that is useful for the purpose. Generally the Sanborn maps have proved most helpful. Where coverage by these maps is complete and they are reasonably up to date, the street and number of each unit to be interviewed may be listed directly from the maps. These listings may be checked by a variety of means such as city directories, Census statistics, water or other utility company records, assessors' records, and other sources. No single method of sample selection is arbitrarily determined in advance. Instead, the sources in each city are reviewed and the most complete and accurate used as a base, with other less detailed records used as a check. In newly developed or outlying areas it is sometimes necessary actually to list all addresses from a ground survey, and to select those for interviewing from the list.

Trained Interviewers Important

Whatever method is used, a sample is selected generally by working entirely around each block and advancing block by block throughout each census tract. The census tract is used as a basic unit of area because it is usually of a suitable size to serve as a useful zone of origin or destination of travel for analysis purposes, and also because of the large amount of data on population, housing, and other trends that are available for all cities by census tracts. These data can obviously be of material value in estimating the trends of travel in the various sections of the city.

Of equal importance with the selection of the sample is the selection and training of interviewers, for the success of the survey depends on the ability of the interviewers to obtain full and accurate information. This in turn is dependent on the manner in which the interviewer presents himself or herself to the residents of the selected addresses, and the thoroughness with which he or she understands the purposes and needs of the survey.
the first time continuing appropri­ations in significant amount earmarked for expenditure solely within urban areas.

Because the problem of urban travel is common to State and urban agencies, a separation of the responsibilities for the solution of its component parts is difficult and probably undesirable. A satisfactory solution requires a truly co-operative approach.

Must Know City Travel Needs

An improvement on a main through route even if designed primarily to aid rural traffic approaching or passing through the city will inevitably work to the benefit of the city travel. The new facility, undoubtedly superior to the parallel streets, will attract to it substantially volumes of purely intracity traffic. Studies show that on present routes through cities, improved only by widening and modern traffic control techniques, traffic volumes increase from figures such as 10,000 to 3,000 vehicles per day at the city limits to as high as 30,000 near the center, even in medium sized cities of 250,000 to 300,000 population. That the volumes in the larger cities are not greater on such streets probably means that this figure represents approximately their reasonable capacity.

To gauge the extent that city traffic will be attracted to a superior facility requires a knowledge of the entire city's travel needs, now and in the future, and of how the facility itself may serve to remodel the city travel pattern. A facility well located and adequately designed can aid in the orderly development of the community along sound planned lines; one improperly placed or inadequately designed can retard if not prevent this desirable urban development.

During the course of the rural highway planning surveys, techniques for studying rural needs had been worked out in detail. Volumes of traffic had been recorded both manually and by various mechanical or electronic devices designed for the purpose. Origins and destinations too had been determined in rural areas and on roads approaching cities of various sizes, in the latter cases generally to find the amount of "bypassed" traffic. A variety of procedures were developed to fit various conditions involved.

Must Know People's Habits

But none of the procedures developed for such areas was entirely applicable to urban travel studies, not so much because the particular techniques could not be applied to the more intensive problem, but more because of a difference in fundamental concept of the different studies.

In both rural and urban areas the end result desired is the same—a measure of the movement of persons and goods for which provision must be made. In rural areas this movement can be measured with reasonable accuracy in terms of vehicles. In urban areas, on the contrary, a study of the movement of passenger cars, trucks, and buses is not enough. We must get down to the basic measures of the travel of individuals themselves, whether it be by private vehicle, bus, streetcar, taxi, or rapid transit. In the city, effective planning calls for a detailed knowledge of the daily movements of masses of people, and the provision of facilities for that movement by whatever type of vehicle is indicated as most appropriate. And of course to supplement that knowledge is required an equally detailed knowledge of the daily moment of goods and a provision of equally appropriate facilities.

We come then to the reason for asking the question: "Can the public's travel habits be adequately analyzed by opinion surveys?" The reason is that travel habits must be determined, and there seems to be no other feasible way to do it. The answer to this question is "yes." And the results of surveys of this type already completed in a number of cities back up this affirmative and positive answer.

Must Have Representative Sample

In the surveys now being conducted all traffic for a specified day is determined for a representative sample of the city's residents, a sample so carefully controlled that the results can be expanded to show in detail the total internal movement in the city for a typical day. Along with the travel are determined a number of items of important corollary interest. The success of this or any other sampling technique depends on the selection of a truly representative sample, of a known proportion of the universe in size, or if the sample is not truly representative of the entire universe, the degree to which it is biased must be known with great accuracy. In selecting persons at random for questioning about a certain issue, for example, care must be taken to determine such factors as their occupation or income group if it is expected that persons in different occupations or income groups might think differently on the issue. Then to determine the thinking representative of the entire population, the results of the questioning of each (See Next Page)
ANALYSIS OF URBAN TRAVEL BY SURVEY TECHNIQUE

Continued from Page 91

by THOMAS MACDONALD

Road system up to its full utility by greater efforts at its extremities. We must free the main routes through and into the cities of their increasing congestion, and we must build the essential feeders in rural areas. Products must move from farm to market, from industry to consumer, and people must move from home to work and in their social and recreational pursuits freely and efficiently if we are to develop effectively the resources of the Nation. Restrictions to movement at the ends of the journeys, with which we shall be faced soon after the war, will be as intolerable as the resistance of the main line mud of the early twenties.

Both in magnitude and complexity the city problem stands as a challenge. Approximately half of the total vehicle miles of travel are performed within the limits of municipalities. Almost exactly half of the motor vehicles registered in 1941 were owned in cities having a population of 10,000 or more. The importance of the city to rural highway traffic is seen in figures that show that over 85 percent of all trips on the rural highway have either their origin or destination, or both, within municipalities. Undoubtedly many of the remaining 15 percent of the trips that have both rural origin and destination pass through one or more incorporated places. The influence of the city extends outward from its limits along the rural highways, an influence that is reflected in rural highway traffic for distances up to 35 miles from the largest cities.

Urban Problem Pressing

Even cities as small as 10,000 population have an effect on traffic for distances of 5 to 6 miles beyond their boundaries. The magnitude of the problem is thus the result of the combination of the internal movement within the city itself and the volume of traffic attracted to the city from its outlying suburban and rural areas. The complexity of the problem is obvious to any who drive in city traffic. Narrow streets are expected to serve traffic of all characteristics. Improvements in the form of new routes or widening of existing streets are hampered or prevented by highly developed and consequently high-valued property. All classes of vehicles—passenger cars, taxis, trucks, busses, and sometimes streetcars—must be accommodated. Pedestrians are difficult or impossible of control. And generally the streets are expected to serve as terminal facilities for private passenger cars and for trucks, busses, and streetcars as they stop to load or discharge cargo or passengers.

Highway administrators have long been aware of the existence and importance of this condition. The urgency of the urban problem was emphasized particularly in the report "Interregional Highways" prepared by the National Interregional Highway Committee and transmitted to Congress by the President on January 12, 1944.

Years of Research

The material on which this report was based had been developed as a result of years of study and research by the State highway departments through the highway planning surveys. In a number of States, city and State officials have been actively collaborating for many years in the joint solution of this common problem. And it is probably largely because of the mass of factual information on the whole street and highway problem that has been assembled by these planning surveys that legislation now before the Congress proposes for

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Now is the time—when equipment is overtaxed and manpower is short—that Phono-Electric Bronze Wire is paying double in smoother operation, longer wear and reduced maintenance costs. Make a note NOW to include Phono-Electric in your plans for post-war rehabilitation and improvement of electric street railways and trolley bus lines.

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"Bridgeport" BRIDGEPORT BRASS

BRIDGEPORT BRASS COMPANY — ESTABLISHED 1865 — BRIDGEPORT, CONN.
by CHARLES STEPHENSON
Research Assistant
American Transit Association

The Fall of 1944 finds the world at the threshold of a new epoch. The immediate postwar years will be characterized as a period of reconstruction and reorientation of economic and social values. In the United States, the transition from war to peace will inevitably produce an environment in which each industry will struggle to maintain or to achieve a strong relative position.

Transportation, performing a basic and indispensable function in our economic and social structure, will also experience a period of adjustment between the components of which it is comprised, as each type of carrier seeks to exploit its competitive position by increasing its social value and its relative efficiency.

Historical Record Significant

All forms of transportation are faced with postwar problems. Our interest here, however, is the field of local passenger travel, particularly the extent to which public transit carriers may expect to hold their own against the competition of the private automobile, and the postwar outlook for transit riding volume when present restrictions on the use of automobiles are removed.

At the beginning of this century, when the automobile was introduced as a new mode of transportation, public transit enjoyed an almost complete monopoly of local passenger travel. Manufacture and sale of automobiles grew swiftly to gigantic proportions over a forty year period. At the start of World War II, some 30,000,000 units were in the hands of individual owners—a large part of them in urban areas served by transit companies.

For a time the transit industry seemed destined to be entirely engulfed by the rapidly mounting competition of the individual vehicle and the street congestion which it created. All companies suffered severely as the mounting tide cut deeper and deeper into transit riding. Contemplating the tremendous magnitude of this new form of transportation, and the encouragement of its expanding use through rapid improvements in design and performance and through the building of new roads and other facilities with public funds, many people, both inside and outside the industry, seriously questioned the destiny of transit as an important factor in the field of local travel. In reviewing the past three decades it is significant that the transit industry was able to survive under such handicaps and to rebound in a great war emergency to demonstrate its inherent social value and utility.

Despite this demonstration, there are many who are convinced that transit traffic has merely given the industry a temporary lease on life and that it is destined in the postwar period, with the resurgence of the automobile, to resume its downward trend to oblivion. There is little justification for this view. To the extent that it is based on any factual analyses the factors used are cursory and not fundamental. For when basic considerations are examined one is forced to the conclusion that the dark predictions are cursory and not fundamental. For when basic considerations are examined one is forced to the conclusion that the dark predictions are cursory and not fundamental. For when basic considerations are examined one is forced to the conclusion that the dark predictions are cursory and not fundamental.

Any examination of the future outlook for this industry must take into consideration three fundamental factors that bear upon its destiny. These are: (1) the long term trend of population; (2) changes in general business activity; and (3) the number and use of private automobiles. Analysis of the time tracks of these factors affords a key to the determination of their effect and to the assessment of the industry's future.
OPERATING DIVISIONS OUTLINING POSTWAR JOBS

by W. R. POLLARD

(returned from Page 26)

return to normalcy, including probable revenues, expenses and capital and replacement expenditures, and the retention or rejection of all of the wartime expedients such as staggered hours and skip stops; also the salvaging of the better parts of all T. W. I. programs, and the development of sound training and retraining programs.

Concentrate on Fundamentals

It is planned to break each of the broader items into its many aspects in such a way as to stimulate the thought of the planner and to supply a complete reference to the various factors involved so that he will be assisted in organizing his plans and will omit none of the important phases.

The report cannot, in the limited time available, answer the problems it suggests, nor could any committee report hope to give more than generalized information, where so many local factors are evident.

Therefore, the committee in endeavoring to be of some service will offer a general outline of the problems involved in postwar planning for transportation, in the hope that the work will be carried forward by the individual companies.

POWER AND ROADWAY MEN

by W. T. MYERS

(resulted can best be shown by the fact that in 1925 the total wire and fittings breaks from all causes by all companies reporting was 4,757, while in 1940 the corresponding figure was 1,622, which included 297 failures on trackless trolley lines not covered in the earlier analyses.

There is no doubt that all distribution engineers know how to keep trolley breaks to a minimum, but this can be accomplished only if their managements will permit them to set up the proper renewal and maintenance schedules.

The Structures, Roadway and Power Division also is making a study of car derailments, which has been responsible for large decreases in derailments. It should be emphasized again that derailments can be kept to a minimum only if the way engineers are permitted to set up proper renewal and maintenance schedules.

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POST-WAR PROSPERITY

Machines for making passenger cars were stored away when America went to war. Soon they will produce civilian automobiles and jobs again—and here's why they will be better automobiles than ever before!

Producing 6,000,000 automobiles a year will provide many a postwar job.

The metals, rubber, fabrics, glass, ceramics, plastics, electrical parts and other materials consumed by such production will help to stimulate many industries.

Every car manufacturer will produce to the limit at first—and for some months after "the wraps" are taken off. All cars will be "easy to sell." But after most of the essential replacements are made—what then?

Early in the post-war period, cars will undoubtedly become better looking, more comfortable, easier to handle and drive. But the most significant progress in motorcar design will depend—in the future, as in the past—upon the development of engines that get more work out of each gallon of gasoline.

A big step in this direction has already been taken. Immediately after the war the petroleum industry will be able to supply gasoline of far higher quality... gasoline that in engines designed to utilize it will give more power, more mileage, better performance. Thus, the foundation for more efficient engines is already laid.

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Manufacturer of Ethyl fluid, used by oil companies to improve the antiknock quality of aviation and motor gasoline.
OF URBAN TRAVEL
BY SURVEY TECHNIQUE
by THOMAS MACDONALD
Commissioner of Public Roads

The past few years have seen a striking growth in the so-called "public opinion surveys." Automobile manufacturers have attempted to get a jump ahead of their competitors by questioning drivers as to the details of appearance, operation, and performance of the vehicles they would like to be driving, and processors of food have, for example, that the size, shape, and future usefulness of the container sometimes have as great an appeal to the customer as the product it encloses, and accordingly have directed their packaging policies with due regard to the results of opinion surveys. Government agencies have by a sampling technique determined the probable consumer demands for many products once peace releases our war machine for the production of civilian goods. The best known users of this survey technique are, of course, those who conduct the public opinion polls that reveal with such startling clarity the political thinking of the country.

Planned System of Highways
If such a wide variety of items in our daily lives can be precisely analyzed by a sampling process, why cannot the American public's travel habits and needs be similarly analyzed? Before answering this question let us look briefly at the reason for asking it.

At the time of passage of the original Federal Aid Road Act in 1916 very little highway improvement had been completed. Although city streets were generally paved, the mileage of improved rural highway was small indeed. What mileage was improved extended from the cities in more or less grogling fashion into the nearby rural areas to provide some measure of relief from the confinement of the city to the urban motorist who wished to extend his travel horizons, and to induce a greater volume of trade to the mutual benefit of the city merchant and the rural consumer. By the time of enactment of the Federal Highway Act of 1921, however, a number of States had recognized that orderly development of highway transportation required the establishment of a system of roads of the first order of importance on which expenditures for improvement should be concentrated. This first Federal Highway Act endorsed this principle, and substituted for the haphazard improvement characteristic of the early days of the automobile the construction of a connected system of highways known then and now as the Federal-aid highway system.

Progress on Rural Roads
Over the course of a quarter century, by a consistent adherence to the sound policies of the Federal Aid Highway Act as it has been amended from time to time as conditions demanded, improvement has been extended to all of the more important rural highways. Today we find it possible to travel with comfort and generally at nearly any reasonable desired speed between virtually any two communities in the country. Yet, many miles of highway barely suffice for the present traffic volumes, and will have to be increased in capacity and improved in safety features to meet postwar traffic demands. Moreover, many miles have suffered from the concentration of wartime loads and the inability to provide needed replacement because of wartime shortages. Much still remains to be done to our rural system merely to keep abreast of the necessary demands of travel.

Congestion in Cities
But by contrast, from the standpoint of moving traffic, the main rural highways have attained a degree of improvement far beyond that now found on the city street. Here surface condition may still be adequate, but in often repeated instances traffic has become almost hopelessly snarled and internal movement is experiencing a slow stagnation. Our major problem of tomorrow is to bring the main rural

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