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Public Urban Transport

A brief survey of its history

by Othmar Birkner (See page 676)

From 1662 to 1678 there was a horse-drawn cab licensed by Louis XIV running at regular intervals from the Louvre to Saint Denis, Vincennes and Versailles; it could carry several passengers. It could be used by anyone who was able to pay the carefully computed fare, and thus it was what we could call an "omnibus" – the Parisians themselves proudly calles it a "Parisienne". The great age of the omnibus commenced in the 19th century. Around 1830 there are omnibus lines in operation in most big cities in Europe and America. An omnibus in Paris, drawn by horses, could accommodate 18 people with hand luggage, and there was one in Berlin that could even carry 22. The largest municipal omnibus enterprise was in London, the city of alarming traffic jams. In London during the 80s there were 200000 horses pulling vehicles of all kinds. 20000 horses alone served the omnibus and tram lines. In a attempt at better traffic regulation, the omnibuses were assigned special lanes. People spoke of the horse-drawn railway, the streetcar or the tramway. The development of this means of transportation had far-reaching consequences from the town-planning standpoint. It initiated the decentralization of the cities. People began to move into the suburbs, because in the centres of cities the traffic noise was becoming unbearable and one could travel relatively fast from residence to places of work. The drawbacks of this trend were recognized by Rudolf Baumeister as early as 1876 in his work "Stadterweiterung in technischer, baupolizeilicher und wirtschaftlicher Beziehung" (Urban Expansion in its Technical, Architectural and Economic Aspects). He pointed out that the population of the City of London was steadily decreasing "in that more and more residences were being eliminated by the growth of business premises and railway stations". In Vienna Rudolf von Eitelberger in 1860, in his booklet "Das bürgerliche Wohnhaus und das Wiener Zinshaus" (The Private Home and the Viennese Tenement House) warned against the psychological dangers inherent in the separation between place of work and residence. He was of the opinion that both should again "be brought into functional connection with each other". Integration proposals more than a hundred years ago! But what happened in reality? Everyone thought that the panacea was a one-sided perfection of urban transportation systems. Electric streetcar lines became the general solution in cities. In the above-mentioned reference year there were in Germany 170 electric tramway systems, in England and Ireland 51, in Austria 40 and in Switzerland 36. In proportion to area and population Switzerland at that time possessed the densest electric tramway network in Europe. ■

Urban Growth and Traffic as Social Problems

by Wolf Linder (See page 679)

Traffic and Urbanization as "Crisis"

The increase in traffic and urban growth are closely bound up together. Without the railways in second half of the last century, without the invention of the automobile, its mass production and sale as marketable mobility, there would hardly have developed what we now call the "urbanized society". The "urbanized society" means just this: A city is no longer merely a local market and a local political community. The modern economy is gradually becoming a global phenomenon marked by concentration of jobs, replacement of labour by capital investments, the differentiation of commodity production and the increased development of the service sector. Thus there are reciprocal relationships between this kind of production structure and the traffic systems, typical features being the following: differentiation of economic production for supra-local markets, disassociation of functions with concentration of jobs in centres, expulsion of living quarters towards the urban periphery, further interpenetration of city and environs extending out to rural recreation areas; all this calls for increased traffic capacities to handle the flow of persons and goods.

For a long time urbanization and traffic development were, with good reason, associated with civilization and prosperity, as symbols of progress. However, under the pressure of the dire consequences, they have to such an extent altered their meaning that we now speak of the "crisis" of the city, the "crisis" of our traffic systems. And it appears as if the traffic crisis, from the purely superficial standpoint, constituted a large proportion of the urban crisis. This can be experienced very directly from the increased stench and noise caused by automobiles in cities, affecting both those who work there and the remaining residents. Of course, we have acquiesced in the banishment of pedestrians to neon-illuminated tunnels after having converted our public streets and squares into race courses. Nevertheless, the increase in the psychological and physical perils of private motor traffic has now exceeded that tolerance threshold which could at one time have justified such technological progress whether in the interests of all or of a sizeable minority. The increase in real nuisances has altered outlooks; even in small towns road construction projects, which would formerly have been approved without further ado, are meeting with stout resistance.

The growth and differentiation of the urban economy have now reached the limits of the historically evolved infrastructure. The overloading of the traffic systems is now cancelling out the former advantages of central location; commuters are finding it increasingly irksome to get to places of work in urban centre areas, and thus firms are not able to tap all the labour force that is available. Commercial transportation is hindered. The service functions in the old urban centres are meeting competition from shopping-centers in the suburbs.

The political aspects of possible solutions

The sector-bound approach: the solution of the traffic problem by the use of different types of transport and more transport facilities. The impossibility of the "car-oriented city" may be regarded as an established fact, on the basis of practical experiences, for example, in American cities. Accordingly, priorities in matters of traffic policy are shifting. Instead of public roadways, urban express highways and parking silos, people are increasingly backing promotion of public transportation systems. The limits of this solution must be overlooked. The automobile remains the only kind of vehicle with which any point within a given area can be reached independently of any timetable, whereas the public means of transport gives access only to lines or selected points. The replacement of the private car by the public means of transport thus has its limits, because no system of transport has been invented as yet which combines the advantages of both, and we have to examine the other possible effects of such a reorganization policy. Traffic systems do not represent merely consumer services; they do not simply move persons and goods, but they have a productive function: they upgrade locations in which private investments have been made. If traffic systems are constructed on a radial basis, they reinforce the existing pattern of business locations. An empirical study in Zurich has shown that the factor of accessibility accounts for 70% of real estate prices; this means that at the focal points of the system – in the centre and along the main arteries – there will become established those functions which can pay the highest price owing to their high productivity per square meter. This represents the productive demand of the tertiary sector, while other functions – production in the secondary sector and, above all, residences – are forced out of the high accessibility zones. Effect: the trend toward disassociation of functions, concentration of jobs in the downtown district and the expulsion of housing into the periphery is thus reinforced. If no counter-measures are taken, this kind of traffic system itself generates new traffic. Effect: The increase in accessibility eliminates those growth hindrances mentioned above. On the other hand, the improved possibilities of movement represent usually for the employee a compulsory mobility; he tends to have longer and more costly travel routes to cover between business centre and housing complex in a disassociated agglomeration. And one more point: the "productive" utility of the new traffic infrastructure (above all, advantages of location) is made available to the business enterprise practically free of charge, while the consumer utility (transportation) has to be paid for by the passenger (i.e. he has to pay the fare which has been calculated by the transportation enterprise). In the most unfavourable case, the urban commuter pays three times over for the service: he pays taxes to finance the installation, he pays the fare and he pays in the shape of psychological and physical wear and tear on travel routes that tend to get longer and longer, the time consumed coming out of his unpaid non-working hours. ■

Problems of serving metropolitan areas by means of public transportation facilities

by Martin Geiger (See page 696)

In Switzerland all public projects have to be submitted to popular vote, in Sweden not. In Switzerland most potential building land is in the hands of private concerns; in Sweden most building sites belong to public authorities. In Stockholm an Underground system has been under construction since 1950; in Zurich an Underground was voted down in 1973. In Stockholm it was the political left that pushed the plan trough; in Zurich the conservative parties wanted to push it through, but the voters turned it down.

The two Underground systems – the one completed in Stockholm and the unrealized one in Zurich – clearly show that the germ of success or failure can be detected long before the initial decision and before execution, and in fact by everyone, whether he is a so-called expert or not.

Public transportation facilities in areas undergoing population decline

Since the first post-war years population growth in Stockholm, exactly as in Zurich, has slowed down, and practically in the same year (1961) the

population of both cities began to decline. In both cities the decrease was accelerated. At the present time it amounts to around 5000 persons per year.

Both cities have built or wanted to build a public transport system precisely at a time when the masses of people to be served are scattering (and have been doing so for a quarter of a century).

The public transport system's purpose is the conveyance of masses of people. If the population to be transported steadily declines, the remaining inhabitants must every day make more trips on the system in order to compensate for the missing passengers, or the remaining patrons must pay higher fares.

Construction of housing projects along the Underground

One possible solution is to move the population from areas not served by the Underground to the areas with such service, this being done most simply by the building of new housing along the line of the Underground.

Stockholm has consistently exploited this possibility. With very few exceptions all so-called "new towns" built since 1950 constitute termini of Underground lines that were built at the same time. The construction of the public transport system was a precondition of the building of housing complexes, and vice versa.

The new towns that have been built up to now are mainly residential centres with very few business premises. Most of the residents work in the centre of Stockholm. They all get to the nearby Underground station on foot, board the train and ride to work without changing. The Underground thus integrates residence and job.

The Zurich project was quite different. Here a concentration of business premises was planned along the Underground line, with housing even being sacrificed. The housing complexes already existing or under discussion, however, are situated in areas that have nothing to do with the planned Underground. In this case, the Underground would not have integrated residence and job.

Public transportation facilities in areas with declining business premises

Another measure to maintain transport systems would be to encourage increased use of such facilities by more of the people living on the Underground line.

Whether people living on an Underground line give up their cars or not does not depend so much on their good will or environmental consciousness as on the places they have to drive to. And where they have to drive to depends mainly on where they work. Up until very recently it went without saying that one worked in the centre of the city. At the present time, however, Stockholm's centre is losing business premises despite the spread of gigantic new office buildings, and the same trend is unmistakable in Zurich.

The jobs that migrate out of the urban centre do not all collect at a new central focus, but scatter throughout the entire agglomeration. How can such jobs be reached on the Underground? They would be accessible if the Underground system were a wide-spreading network like the Paris Metro. In the case of Stockholm, however, a job that leaves the city centre is only reachable, if at all, via a roundabout route throug the centre of the city.

One might suppose that, since decentralization seems irreversible, practically all places of work could be blended in with places of residences, so that they could be reached on foot. This can have two consequences, and both are bad for the Underground. Either the employee takes the nearby job, i.e., changes jobs. Then he walks to work and does not need the Underground. Or the employee keeps his old job, which may happen to be situated in some other residential area. Then, no matter how close the Underground station is, he takes his car and drives the shortest possible route. This case is becoming increasingly frequent.

Disenchantment with the Underground?

The newest project in Stockholm is Norra Järva. Around 10 km north of the centre of Stockholm, on a 50 km²-square site, Stockholm and 4 adjacent communities have jointly planned a new town and have begun to build it. It will accommodate around 100000 people, offer about 60000 places of work and become a genuine competitor for the historic centre of Stockholm.

It will be the first of these new towns that will offer more jobs than the local pupolation can fill. The capacity of the local shopping centers will also exceed local demand. Norra Järva, then, from the outset possesses the features of an authentic metropolis, aside from its location, and this is where the trouble will start.

Assuming that, as in the previous new complexes, around one third of the population will work on the spot, i.e. in this case 20000, every morning around 40000 people would have to travel in from other areas. The relationship to the old city centre will still be, with reference to size, between 1:2 and 1:3 in favour of the old centre. What's more, the old city centre will be radially served by all Underground lines, whereas Norra Järva will be served by but a single line. Norra Järva can only attract a small percentage of those living along this line, for at the other end there is the pull exerted by the still larger downtown centre of Stockholm.

What chances then are left to the Underground? Even now the official estimates are 60% car drivers, and after bus patrons are deducted from the remaining 40%, only a small remnant is left for the Underground. Does this mean an abandonment of the idea of the Underground? Not yet, but the trend, namely the decentralization of housing, jobs and metropolitan functions (shopping, services and administration), is making it every year more difficult to set up a public transportation system that pays. ■

The "National Express Highway" in Germany

by Othmar Birkner (See page 711)

The first express highways in Germany between 1933 and 1945 were built for political reasons. Their rationale was defined in 1938 as follows: "What are Adolf Hitler's roads? They are the supporting beams upholding the Reich, the vital arteries in the body politic of Germany..." and "The express highways are now being built deliberately as an embodiment of the unity and authority of the new Reich." Between 1933 and 1938 over 2000 km were opened for traffic. Subsequently the Second World War ocassioned a lag in construction. Even so, for military reasons, it was intended to speed up road construction from Bavaria to Vienna even in the 40s. The national express highway had four lanes with a green strip down the middle, and it had an average width of 24 m. Planning was in the hands of the "Supreme Construction Administration Berlin", with Fritz Todt (later Minister for Armaments and Munitions) heading the express highway division. Bridges and auxiliary constructions, however, were in part assigned to different architects. Great attention was devoted to adapting construction to the landscape. Concrete retaining walls were scorned; facing was done with "natural stone in keeping with the given local landscape". The point has to be stressed that, as in the case of a number of industrial projects, even under National Socialist rule, the designs of service stations continued the functionalism of the 20s. To be sure, the larger service stations were called "Heimatbahnhöfe des Reichsautozuges Deutschland" (NB. this expression is untranslatable into English!), but the design type produced by Paul Hofer and Karl Johann Fischer possessed a clear constructivist idiom that would have been a credit to the Bauhaus school of architecture. This is all the more astonishing as the express highways were also contemplated from the artistic standpoint. There were express highway painters and a number of exhibitions in which oil paintings, water colours and charcoal drawings of the "German Express Highway in the German Landscape" were shown. ■