

(The Building of the Budapest Subway.)

The building of the Budapest Subway was entrusted to 3 enterprises, the Subway Designing, the Subway Investment, and the Subway Execution Enterprise. The 3 enterprises had a common head, Dr. K Szecsi, and they cooperated closely. Respondent was the head of the Statistics group of the Subway Designing Enterprise. He worked there from 1951 to 1955, when the 3 enterprises were dissolved.

The aim of the Budapest subway was twofold. Firstly, there was an intention really to improve the Budapest traffic. The sandy subsoil in Budapest prevents the building of elevated trains, whilst a semi-deep subway would be impracticable because the streets are too narrow and the mains would be disrupted by the tunnel. The only solution is a deep tunnel. One could have built a North-South deep tunnel under the Danube, running from Obuda to Csepel, catering for the extremely heavy traffic of the industrial population flowing in that direction. However, strategic considerations caused priority to be given to a West-East line. A North-South line was also planned for later, but not under the Danube, but curving in Eastwards under the Nagykörút (Great Ring) and turning back to the Danube at Boráros Square. This was a technically less tidy solution, but it was expected to tap a heavier traffic flow. Secondly, there was the stra-

ategic point of view to connect the main railway stations and of Budapest ~~xx~~ to provide large airraid shelters. (Interviewer's remark: There are no through-trains, and no easy way of moving rolling stock, from the Budapest East Station, or for that matter from the West Station, both on the left bank, to the South Station on the right bank.) As time went on, the latter strategic consideration became the overriding one, and the primary aim of traffic relief receded into the background. Whilst traffic counts showed that the North-South movement of traffic is much larger, the East-West line was stressed. The East-West line was to have run from the Nepstadion via ~~xxxx~~ the East Station, Deak Square, Kossuth Lajos Square and under the Danube to the South Station. There was to be a secret tunnel leading from Kossuth Lajos Square to the West Station. This tunnel was not meant for regular subway traffic, only for war time traffic. Accordingly, the junction under the Stock Exchange, where the secret tunnel joined the main tunnel leading on to the South Station, was surrounded with much secrecy. Combined with the junction, a large and elaborate shelter for the Party Headquarters was also being built there. This shelter was to house the offices of the Party Headquarters in Akademia Street and the offices of the Minister Presidency in the Parliament Building in case of war. Respondent understands that the shelter was in fact so used during the Revolution.

In April 1957, work was still going on there. This junction was the only section of the Budapest Subway on which work has not at all been stopped.

The total length of the East-West line was to have been 5 kilometers. About 70% of the total length of the tunnel was ready by the end of 1954, when the building was stopped. Till the end of 1953, the major effort was directed towards completing the vertical works, which was the most intricate and difficult task. The actual driving of the tunnel, which really only commenced, early in 53, was comparatively plain sailing.

The Designing Bureau received the exact path of the subway tunnel from Russian military engineers. This path had to be followed to the last centimeter, but it was so drawn as to make utter nonsense of the location of stations. It became an almost insoluble task to locate them. Passages several 100 meter long became necessary to connect the stations with the actual subway track, and in the case of the Nagykörut Station there seemed to be no way out except the demolition of either the National Theatre or the Corvin Department Store. The decision to demolish the National Theatre was actually taken, but was revoked later.

The whole project was under the Soviet Central Underground Railway Administration in Moscow. This administration prepared the outline plan for the subways in the satellite capitals, and it was they who decided

That the first subway to be built should be in Budapest. At the Hungarian triplex enterprise (designing, investment, execution) carrying out the Budapest project, there were between 8 and 10 Russian military engineers, who were called by their rank, e.g. Comrade Major. Before detailed blueprints could be prepared, the plan for each particular section had to be countersigned by them.

In building the tunnel, for each section a vertical shaft was sunk, which was later to serve as a ventilation and emergency escape. The outlet of the shaft was protected by parks or courtyards. The main tunnel itself had a diameter of 5 to 8 meters, and the depth of the platform was, on the average, 40 meter below the surface. Actually, the height of the platform level was 66.85 m above sea level, so that the depth varied according to the altitude of the surface, usually working out at around 40 m.

The construction of the Deak Square Station, on which respondent spent much time, characterizes the nature of the project. The station consisted of 3 levels. On the first level, there was the old Budapest subway station, with the war-time emergency central telephone exchange below it. On the second level, there was the East-West line, and below it on the third level the projected North-South line. The Designing Bureau was instructed that the roof of the station must resist

the direct impact of 750 kilo bombs. They were given Soviet military engineering manuals, and blueprints of the Maginot line, and modelled the roof on Maginot line techniques. There was no provision for anti-A bomb defence of the station, but the main tunnel was to have been protected by means of a series of lead plates at the station entrance, at the elevator entry, the elevator exit, and the tunnel door. The statics of the construction would have demanded, say, a thickness of 60 cm of concrete for the roof of the station hall. The instruction was to design for 250cm. Of this, 80 cm were 50% broken bazalt and 50% cement, consisting of 650 cubic meter kilos of cement per ~~km~~. The next layer of 170 cm was reinforced ferro-concrete.

^{whole}
The ~~and~~ Hungarian first 5-year plan foresaw total investments of 62 milliards. Of this sum, 2 1/2 milliards was to be the cost of the 5 km length of the East-West line. In the event, 3 1/2 milliards had so far been spent on carrying the project 3/4 of the way towards completion. After March 1953, the Russians at the triplex enterprise were no longer pressing for results as they used to. In the autumn of 53, the periodical allocation of funds was cut by 30%. In the spring of 1954, the decision to suspend the project has been taken in principle, and during the summer of 54, preparations for stopping the work were completed. By the autumn of that year, they switched to a care and main-

tenance basis. This was going on except for the Stock Exchange Station. Of the secret tunnels connecting the East-West line with the West Station, 150 m leading from the Stock Exchange Station towards the West Station and have been completed, ~~xx~~ the tunnel could easily be driven on to the West Station. Work is still going on on the underground halls, which is to be the government and Party center. This place was the first to be occupied by the Russians in the Revolution.

Upon the order to stop work on the subway, the structure of the Deak Square Station, which has been built on the surface and was being sunk by caissons, was about halfway down towards its required 66 m level. It would have cost only a further 300 000 forints to complete the process of sinking it and placing it at the required level. In a discussion Dr. Szecsi and respondent pleaded with Rakosi's Secretariat for permission to go on with it, but no arguments were tolerated. As it is, the structure has ~~xxx~~ ^{now} frozen in halfway down, and will have to be blasted out one day.

The project received a large quantity of constructional steel from Russia. These were prefabricated steel segments, and they were found to be disfigured and corroded. The project submitted them for examination to Professor Gilletot, (the professor of Metallurgy at the Budapest Technology). He reported orally that these steel parts had been manufactured between 1933 and 1936,

and must have been stored in the open air ever since. Dr. Szecsi asked him to put this opinion on paper, but he refused to do so. This quantity of steel is now lying abandoned in the open air on some vacant ground in Lagymányos. (South-West Budapest) No one dared to force the issue, neither respondent nor his colleagues would state in writing that this steel cannot possibly be built into the tunnel. They stalled until one colleague succeeded in working out a ferro-concrete substitute, which proved eminently suitable and was also adopted by the Russians in the Soviet Union. Respondant believes that on a generous estimate, another 2 milliard forints would have been needed to complete the whole project. The reason for exceeding the projected budget was the far too optimistic initial estimate of the extent of sandy stretches, leading to all sorts of snags in construction. The real point, however, was that the depth chosen was excessive. No traffic or other technical consideration demanded a level 45 m below the surface. This depth was chosen in view of the arbitrary 750 kilo bomb idea. The technical optimum would have been 15 m or so. In that case, one could have worked with 0.5-0.8 atmosphere pressure instead of 2 1/2 atmospheres. As a result, 3 milliards would have sufficed for the whole project.

When Szecsi, with respondent, was summoned to Rakosi's secretariate to discuss the suspension of the project, Rakosi received Szecsi in a 5-minute audience. He de-

clared that there is no more money for the subway, it is finished and said that Szecsi can have 1 million forints per annum for care and maintenance. Szecsi replied that there is no point in spending this money at all, one might as well not to, it would be totally wasted. The minimum needed for proper care and maintenance of the half-finished works would be 450 millions per annum. Rakosi just shrugged his shoulders, and at the end of 1954, one million forints was duly allotted to the project for care and maintenance. Some time in 55, this sum was revised to 65 millions and for 1956, 140 millions were allotted. (This is quite apart from the Stock Exchange Station, work on which is financed from separate military funds.) This care and maintenance expenditure is still quite inadequate, and it is to be feared that in 4 or 5 years' time it will be virtually impossible to resume work, and might be preferable to make a completely new start at a less excessive depth. An additional reason for the high cost of the project was that ~~xxxx~~ when it was first conceived, (1948) the draftsmen had no idea how elaborate airraid installations will be demanded within a year or two. The Designing Bureau was hardly organized when the shafts were already being sunk. Then, with many of the blueprints already complete, instructions began to pour in to provide for this, that or the other elaborate airraid installation. One difficult problem was the provision for disposing

of night-soil in the airraid shelters. Another was the defence of the tunnels against ground water in the case of bomb hit. Completely automatic doors were built in at regular distances in the tunnel, activated by the entry of water and closing that particular section before more water could enter it.

About 15 000 employees were occupied by the project when work was ~~xxxx~~ at its maximum intensity between 1949 and 52. Of these, there were 350 in the Designing Bureau, (200 technicians and 150 administrative), 220 in the Investment Bureau and 200 in the office of the Execution Bureau, which also administered the 12 construction sites, each with about 15 technical and between 5 and 8 administrative personnel. The balance was made up of manual workers. An underground worker made 3500 forints a month and a caisson man 6 000 forints a month. Some died, some went deaf, and some not. At least 30% of the manual workers were déclassé elements. It was somewhat like the Foreign Legion, nobody asked any questions. There were lawyers, ex landowners, ex-officers, and all sorts of people. At the Deak Square site, there were 2 brigades made up exclusively of former intellectuals, whose fulfilment figure ~~xxxx~~ never fell below 200-250%. But they selected carefully whom they will admit to their brigade. They were really fantastic people, they used their brains in building and took grave risks to save manual exertion.