

PERSONAL HISTORY.

My father,^{who} was a lock-smith, spent a decade between 1903 and 1914 working in various places in Germany and Switzerland. This was a major experience in his life, and he brought us up accordingly. He wanted us to be broad minded, and cosmopolitan. He wished us to further our technical knowledge by foreign travel. I would have gone abroad even if there had been no revolution in Hungary. At home, we could not learn a great deal, - for us, Germany is the traditional pilgrimage. It has always been the place for Hungarian youth to learn new ways. Besides, they are the foremost people in my own field, chemical engineering.

I took my matura at the Benedictine Gymnasium in Győr in 1949. In my final year, the Benedictine monks were still there, but were no longer teaching. They were replaced by a civilian staff. In the following year, they were chased away altogether, but by 1952 or so the school was given back to them again. The civilian teaching staff was much poorer than they were, they knew less and were far inferior as teachers. Nor were they an elite from the Communist point of view, - one should have thought that they will want to put their best propagandists into what was formerly an

ecclesiastic school, but apparently they did not have enough teachers of their own persuasion. There was not a single Communist among them, not even the director.

By 1949, university admission was already a tricky matter. Knowing this, I had my father employ me in his work-shop when I was in my last year at school, - I had to attend apprentice-school in the afternoons, - thus I could apply for admission in my capacity as apprentice lock-smith, and since my father had no other employee, there could be no objection against my class background either. This is how I managed to secure university admittance. Wanting to be a chemical engineer, I applied at the Budapest Technology and at Veszprem simultaneously, and got accepted by the latter.

After 4 years at the University and before the last State examination, I and the other final-year students came up for "job placement". There used to be bloody fights over this. We were not supposed to find our own jobs, and nor was there an opportunity to pick and choose between the jobs offered by the authorities. There was only an indirect way of influencing the allocation, and that was through one's "practical" time. Out of the four summer vacations, two had to be military service, and two spent as "practical" time in industry.

If the firm one worked with during this practical time was satisfied, or was for other reasons prepared to play ball, it could put in an application for the particular person to be allocated to it. Such applications were usually, but not necessarily, granted. In my time, there was one other alternative. One could make a contact with a particular firm while still a student, to the effect that in exchange for a monthly stipend of 200 or 300 ft., one undertakes to work after graduation, with the firm in question for 2 or 3 years. I concluded such a contract with the Hungarian Mineral Oil and Natural Gas Research Institute in Veszprem. However, before I graduated, a decree was issued that graduates must start with at least 2 years' employment in actual chemical industry, so that a job with a research institute was out and I did not have to fulfill my contract. On the other hand, I was personally applied for by the Almasfüzitő Refinery where I worked the previous summer. The people in my year had the good fortune of being the first batch of graduates after the mass production of chemical engineers has started, - so we were given the best jobs. My starting salary was 1,800 ft. plus a bonus which was seldom less than 75% of the basic salary. At the age of 22, I was getting 3,000 ft. a month, and the year after I became head of a works group, which was a very heavy responsibility. I worked at the refinery till November 1955, (2 1/2 years), and was then

seconded to a designing bureau in Budapest, to help design a new refinery for high-grade lubricants. My salary here was 3,500 ft. a month. It was here that the outbreak of the Revolution found me.

THE UNIVERSITY OF CHEMICAL ENGINEERING, VESZPREM.

The University of Chemical Engineering (Nehezvegyipari Egyetem) was founded in 1949, and I was in the first class to be enrolled there. It was housed in a brand new seminary, built for and by the Catholic Bishopric of Veszprem, and expropriated by the Ministry of Finance. Before the latter could move in, it was taken away from them and was designated as the University building. Afterwards, one by one more buildings were being put up. "They" still had money from what they looted during the nationalizations, and they did give fair sums for the development of the university.

In the first year, 120 students were admitted. This was a most unpleasant year, we did not know where we stood with each other, nobody knew who was a Communist. Actually, nobody was but we could not know. The atmosphere was uneasy and poisonous. By and by, I should say in the second year, small circles began to form who got to know each other better. In my third year, we no longer worried, we knew whom we can trust and we no longer held the few Communists among us in awe. We just, but only just, maintained certain appearances.

In the following year, 250 were admitted, and until 1953 the yearly intake was maintained at that figure. In 1953 it was reduced to 120 or so, because they noticed that they had no jobs for as many chemical engineers as they were producing. Before the war, the annual output of graduate chemical engineers was 20 or so, and the number of graduates poured out by Veszprem alone amounted to ten times that figure, not to speak of the graduates from the Budapest Technology and of the graduate chemists from the Eötvös Lorand University in Budapest. Even with the forced industrialization, this was a ludicrously excessive number. Imre Nagy reduced it to less than half.

The teaching in Veszprem differed little from that at the Budapest Technology. However, we did not have pharmaceutical chemistry and plastics. After the first two years, people could specialize in one of four special sections, silicates, electro-chemistry, heavy anorganic chemistry, and mineral oil and coal chemistry. The first two fields attracted about 15% each, while the last two 30% each of the students. The choice of special field was quite free, no pressure was exerted on us to choose one field rather than another. For some inexplicable reason, all the Communists or Communist sympathizers used to choose either heavy anorganic chemistry or silicates, - those two sections were the preserve of the untouchables, while in the

mineral oil section there was a crazy crowd, fearless and cool boys who stood no nonsense. There was only one Communist among us, and he was not a real Communist either, only a Jew, and we saw to it that he was re-educated. Thus the nice and the nasty people were conveniently separated by their specialized fields.

We had between 2 and 4 hours a week of "Political Education", which had a very bad effect from the Communist point of view, as it kept certain issues alive in us and reminded us all the time of the contrast between their teaching and the truth. They would have been much better advised to stop it altogether.

The teaching staff was a peculiar crowd, mostly young people, who were as good, if not better, than the established older names. They were ruthlessly efficient and severe, and they had no bees in their bonnets. They gave us the stuff, we had to absorb it, and that was that. In the year following ours, the teacher - student ratio was no longer so favorable and standards deteriorated a bit.

Among the students in my class, perhaps 15% had only an "express" matura, but many of those were very good just the same. In the first year, they found it very heavy going, but then they caught up and their superior natural intelligence enabled them to sail

circles around the rest of us. Admittedly, they lacked any general educational background, but they were excellent "barbarian" experts". Once out in industry, they gave a particularly good account of themselves.

We had 4 years instruction in the Russian language, to such good effect that I cannot even read the Russian alphabet - Russian teaching was simply saboteged.

THE ALMASFÜZITŐ OIL REFINERY.

On entering the Almasfüzitő Oil Refinery (Almasfüzitői Köolajipari Vallalat) , I was made to hang around for some time, and after 6 months, I was put in charge of the creosol process solvent refining. After a year in that job, they put me at the head of a whole works group which performed the major part of the lubricating oil production process.

Almasfüzitő produced about 60% of Hungary's lubricating oil requirement. Its throughput of crude oil was 300,000 tons per annum, - at least this was the rated capacity. In actual fact, by stretching things here and there, we usually worked at 1 or 2% above capacity, - we always put through whatever amount of crude we could get.

The refinery was supplied exclusively with Austrian crude oil. This arrived in Danube tankers, except about 5 weeks in the winter, when it was brought by rail. The value of the monthly production moved between 35 - 40 million ft., whilst our wages fund amounted to 1,200.000 ft. per month. This shows how profitable it was for the State to run this refinery.

Unitl 1954 or so, Almasfüzitö belonged to Maszolaj, the Hungaro-Soviet Oil Company. We had a much better time under Soviet ownership. They paid better, and we could put much more over them than over their Hungarian successors. If we said we needed something, say five pumps, or some instrument or what not, they would get it for us without asking any questions. They would just go to another ministry, and the pumps would be found for them, - nobody dared to refuse something which was "wanted by the Russians". After the Maszolaj complex had been sold back to the Hungarian State, our own directorate, or the Ministry, would kick us in the ¹pants, saying we cannot have it, and get on with the job! The Hungarian State was much less generous with salaries too. Moreover, while we were still a Soviet enterprise, there was not a single Russian at Almasfüzitö, only a few of them sat in some office in Budapest, the whole technical management was Hungarian and the Russians never bothered us. The only sign of their existence was that our reports had bi-lingual (Hungarian and Russian) headings. It would not have done them any good to try and interfere in the plant, because each refinery is unique, you cannot check and control it until you know it well enough. The local engineers would just lead you around ^{by} the nose. The Russian oil engineers would have had to spend a long time in the plant before they knew their way around, but their service outside Russia

could not be longer than one year at a time. Thus they were content to let us have our own way.

"Having our own way" meant primarily the production of the right plan fulfilment statistics. If we fell behind in a particular period, we were not prepared to forego our bonus, but started to cook the stock records instead. We would overstate the stock figures to an extent sufficient to make up for the short-fall of delivered production, and even if they came out to check, they could never prove that the stock is not there, - wherever they sought it, the missing quantity was always supposed to have just been pumped into some other tank. Having produced 90 and reported 100, we would then request x days stoppage for repairs and maintenance. We would use x - n days for repairs and produce the missing 10 during the n days. However, the trouble was that they would cut the permission for stoppage to the bare minimum, and as a result, it was the repairs and maintenance which suffered, as the time allowed was enough for repairs, but not for repairs and clandestine production. Hence the equipment deteriorated very quickly.

After the sale of Maszolaj to the Hungarian State, there were no significant changes, although a few people were made to exchange desks on a musical chairs basis.

At various times, our directorate belonged to various ministries, (to the Ministry of Chemical Industry, to the Ministry of Heavy Industry, and to the Ministry of Mining and Energy.) The Mineral Oil Industry Directorate had three sections, that dealing with oil production, refining, and marketing. Its director was a former refinery worker, a Rakosite. I forgot¹his name. I did not have much to do with the directorate whilst at Almasfüzitő.

The equipment of the refinery was never particularly modern, and during the war, it suffered heavy bomb damage. The Vacuum Oil Company people saw it and said it would be best to scrap it and build a new one. They did not consider it worth repairing. Instead, the Communists patched it up. Very few investments have been carried out since that time, mainly because the stuff that was needed, the pumps and the instruments, was not produced in Hungary, the Russians would not or could not spare it and apparently we could not afford to import it from the West. The oil machinery factory (Kőolajipari Gépgyár) in Gyömrői street did not produce refinery equipment, it only produced for the wells. However, the maintenance people saved the day, - the maintenance personnel was practically as numerous as the producing personnel and in this way things could be kept going.

The plant had between 800 and 900 employees, 130 administrative, about 300 maintenance, and the balance producing. There were between 15 and 20 graduate engineers in the whole plant. The role of the Communist Party was negligible. The Party organization achieved one thing, the entry into the Party of about 60% of the workers. But those who joined did so in order to be left alone. At most 1/10th of them could be made to attend the meetings, - since most workers were commuters, they could not be kept from home for meetings and "Party life". The Party organization did not interfere a great deal with production processes and technique, if only because they had been made fools of a couple of times. They realized that they have no weapon against unintelligible technical arguments. However, they did interfere with personnel questions. Actually, there was no need for them to worry about production, because the whole technical personnel was interested to keep the throughput as high as possible in order to earn a larger bonus. In fact, the throughput was always as high as the amount of crude we could get from Austria.

As to technique, there was little room for innovation and change, because the refinery was a going concern and technique could not be greatly altered without substantial investments.

As a result, there was no pressure either to adopt Russian methods. Our colleagues did not read Russian anyway, they showed little interest in Russian technical literature. Their opinion was that Russian sources give little that is original, but they do provide good summaries of existing Western technical knowledge, and are therefore useful. It was recognized that Russian books base themselves largely on unacknowledged borrowing from Western works of reference.

It is best not to talk about the quality of our products at all. Only the quantity mattered. We were given certain raw material usage norms, and were not supposed to use more acids etc., so we did not, and hang the quality. We were cursed by the users, but we always said we cannot help it, we are working to rule. The set official quality standards were low in the first place, and those standards we could just about meet. Besides, since the Hungarian motor-car fleet was old, quality requirements were not so high as they are in the West. (With the equipment we had, we could not have satisfied these modern demands anyway.) If a large user, e.g. Navaut, noticed that their lorry fleet is deteriorating quickly because of the poor quality of the lubricants, there was nothing they could do, - they were glad to get any.

OTHER REFINERIES.

In terms of value of product, Almasfüzitő is the biggest Hungarian refinery. It is a complete vertical plant, the process extending from crude to refined products. Austrian crude yields little gasoline, mainly heavy fractions. The Csepel Refinery is physically of similar size, but it produces mainly gasoline, plus such special oils as transformer oils, white cosmetics oils, etc. The refinery at Szöny, 6 km from Almasfüzitő, has a throughput capacity of 50 cubic meters of crude per hour. There is a smaller refinery at Pé^t, and a new refinery has been built in the early '50s at Zalaegerszeg for the processing of Nagylengyel crude. Although a new works, the technology of this plant is conventional too. It has been producing since '53 or so, but it is only partially complete. The little tin pot refinery at Nyirbogdany, and the lardoline works in East Budapest, are hardly worth mentioning. Almasfüzitő was wholly and Szöny partly based on Austrian crude, the latter was getting some Russian crude which used to be called Tujmaz and was very sulphuric and of poor quality.

HUNGARIAN CRUDE OIL PRODUCTION.

(Interviewer's Remark: Respondent's knowledge of this field did not appear to exceed that of the average Hungarian man in the street.)

Oil is like a 16-year old girl, - if you try to rush things, there is trouble. When they found the Nagylengyel field, they talked about enormous reserves, and Rakosi personally gave the instruction to go flat out with the production. They were in too much of a hurry to get it out, and the result was that there is now 30% water in the oil that is coming up, and the outlook for the Nagylengyel field is pretty hopeless.

This is much the same with the earlier find, the Lisper field. In the last few years of the war, the Germans mucked it up with forced production. After the war, the Americans (MAORT) came back and rested the wells. They meant to go slow and nurse the wells back to health. This did not suit the Communists, and to get the production speeded up, they staged the MAORT sabotage trial. So production was started flat out again, and even the gas was not pressed back in the ground, but was sent up to Budapest to help out with the domestic gas supply. So the oil went dead.

The Nagylengyel find came in handily just at the right time. It may well be true that there were "immense quantities", but Rakosi thought that you can get out the same quantity of oil in 5 instead of in 20 years. An absurdly high rate of production was prescribed, and although the experts were up in arms, no objections were brooked, - we were exporting oil right and left, to Poland, Czechoslovakia, and all sorts of other countries. A thermic cracking plant was planned for Győr to refine it, at an estimated cost of 200 million ft. The design of this refinery was Russian. During the war, the Americans sent whole refineries to Russia, and they copied the design of those. To transport the Nagylengyel oil, over 100 million ft. were allocated for the building of a pipeline between the field and Szöny on the Danube, running on the North side of the Balaton via Devecser. About 15 km of this pipeline had been completed when the Nagylengyel field flopped in August '56. There were troubles at the field as early as February '56, but they were explained away, and the failure did not become apparent till August. The damage is not entirely irreparable. A very slow rate of extraction is still feasible. And if treated gently, the field could be regenerated in 15 years or so. The damage was done by making an individual well yield between 2 and 10 cubic meters per day.

Now the position is that neither Lisse nor Nagy-lengyel are really functioning, and hence the need to rely so much on Austrian oil. More recently, there are crude imports from Russia too. The stable feature of the supply situation is the import of 40,000 tons of gasoline from Rumania each year. This gasoline is under 40 octanes! Our gasoline needs are very small, because motor-cars are few and far between, and the lorries are all Diesel. The railways need only a little Diesel oil, there are just a few Diesel cars, and apart from the Budapest - Vienna and the Budapest - Hatvan lines (the latter to be extended to Miskolc), which are electric, the Hungarian railways are all running on steam.

REFINERY DESIGN.

They wanted to have a furfural process lubricating oil refinery in Almasfüzitő, to increase the Hungarian output of better-quality lubricating oil products five-fold. I was seconded from Almasfüzitő to the Chemical Works Designing Enterprise (Vegyıműveket Tervező Vallalat) in Budapest, Lonyay street. This was a designing bureau of the Ministry of Heavy Industry, with about 700 employees. The ^{plant} was to have a processing capacity of 50,000 tons of lubricating oil per annum, and was expected to be ready and to start producing by mid-1958. I had to plan the technological side, with the understanding that on its completion I will be the chief engineer of the plant. The actual designs were completed by the engineering and architectural sections of the bureau, and the project got to the blueprint stage when the Revolution broke out.

It was reckoned to have the major part of the equipment manufactured by the Köolajipari Gépgyár, importing pumps from Eastern Germany and instruments from Russia. Russian instruments are quite good copies of the American ones.

REVOLUTION.

On the 23rd October, I went to the Bem Statue, but did not stay because I had a date. The next morning, I heard of the curfew over the radio, so I went downtown to see what is going on. On my way towards the office, I saw sporadic fights, found the office closed and was going back home, when I ran into some kids on Moscow Square, who were collecting empty bottles. I asked them what the bottles were for, and when they explained, I told them not to mess about with gasoline, but to work with nitroglycerin. They took me to a high-school building, and in the physics laboratory, I began to make nitroglycerin for them. I made enough for 100 or so bottles, (1.5 litres), then went home. This was my only contribution to the Revolution. On the 29th of October, things seemed to be working out alright, so I went to Győr to see my parents. I did nothing in particular there, and after the Russians mucked it all up, I went over the border.

MINERAL OIL AND NATURAL GAS RESEARCH INSTITUTE.

I worked at this Institute on a part-time basis while I was a student. Mainly routine work is going on there, a slavish copying of Western results, - they have a beautiful new building and fairly modern equipment, and there are 150 employees. The head of the Institute is Dr. Michael Freund, a 65-year old senile Jewish professor, who owes his present position to his scientific contributions of 20 years ago. The work has nothing to do with oil exploration, but rather with the scientific problems of refining and oil usage. There is another small research institute at Szöny, devoted mainly to applied industrial problems.

Nominally, this Institute at Veszprem has as much to do with natural gas as with oil, but in terms of natural gas, it is a backwater. We have no independent natural gas sources, only what is being extracted from the Zala oil wells, - the pipeline South of the Balaton is carrying natural gas three days a week to Budapest. Of course, we have these great plans for the "Stalinvaros of the chemical industry", i.e. the Tiszai Vegyi Kombinat (TVK), a large chemical complex at Tiszapalkonya based on Kissarmas natural gas from Transylvania. There is a pilot plant in Rumania, where our engineers go for experience.

My guess is that it will take 15 years till the TVK becomes a going concern. It is intended to produce most basic chemical materials from acetone to fertilizers.

THE TECHNICAL INTELLIGENTSIA.

There is an old and a new technical intelligentsia. Politically, both are indifferent. Nevertheless, the young are ambitious and energetic, as young people always are, but the older people say that because of their drive they must be Communists. Another difference is that the young care much more about the workers. They see the human beings in them, while for the old engineers, the men are just tools. There is still very much a relationship of sub-ordination between engineer and worker, - the young engineers always make the workers keep their proper distance, but on the other hand, when there was a need to cheat so as to help the workers, it was the young who unhesitatingly did so, while the old people were rather more reluctant and apprehensive. This is not to say that they may not have had good reasons for their caution. The need for cheating arose mainly in the setting of work norms, but also in the issue of clothes, - we would always certify acid damage to a man's clothes, because who can say that there was not any?

In their attitude towards the regime, the young technical intelligentsia simply concluded that they must live and live here. They could not go on waiting for the change, they had to fit in.

They all tried to make a deal with their conscience, evading the politically responsible tasks. At job placement time at the University in Veszprem, the AVO put in a request for 5 chemical engineers, and of course not a single student volunteered for these jobs. Then 5 of the reliable kaders were made to go. (Respondent's words: "Were taken away".) I don't know what for, or what happened to them.

The regime's apparent ability to "get things done" did not seem to impress young people a great deal. They quite generally condemned the grandiose, the giant projects, e.g. the Kazincbarcika nitrogen plant, - everybody said they should ^{have} enlarged Pé^t instead. But there was a selective and critical approval of investment activity and progress on sensible lines, although the regime's attempts to jump several stages in industrial development were ridiculed.

The second Five-Year Plan was supposed to be the Plan of the Chemical Industry, and perhaps this is why Arpad Kiss was made head of the Planning Board.

The opinion of engineers was that it would be much better to buy new plant abroad than to get it on a "do-it-yourself" basis, which was much more expensive in the long run.

I never met one engineer who was wholly "positive" - they all had severe criticisms to make on one thing or another. A quite general complaint was the excessive industrial bureaucracy, the innumerable reports, forms, endless plan-drafts, always for the wastepaper basket. The slightest stoppage (e.g. because of a power interruption) was the subject of a report to the ministry. It was always a headache how to draft it, how not to incriminate anybody, at any rate, anybody within our own firm. It was an elementary safety measure never to blame it on anybody, because then you could expect similar consideration from others. On the other hand, we never spared outsiders, e.g. other firms. Doing these reports was difficult, time consuming and nerve wrecking.

The relation between the pre-war and the young technical intelligentsia was much better at the Csepel Refinery (which I visited very often while at the designing bureau) than at Almasfüzitő. In Csepel, the pre-war people had not gone stiff with habit and fear.

In Almasfüzitő, we had 7 directors in 2 1/2 years, all worker kaders and not engineers. All they could do and did do was to sign. They were impotent and completely in the hands of the chief engineer, who was a Party member, but a decent man.

All the chief accountant did was to say "We have no money". The chief engineer became the secretary of the Workers Council during the Revolution. He has afterwards been demoted to a sub-ordinate position in the Csepel Refinery, - lucky for him that he didn't fare worse. I don't know whether there was a Revolutionary Council at the designing bureau, I haven't been there since the 23rd, - on the 24th I found it closed. But I know from acquaintances, with whom I correspond, that 120 of its employees fled to the West after November 4th.

There were only about 50 oil chemical engineers in Hungary who mattered. Of these, very many left, probably the 6 or 8 top ones too. But of the young ones, only I fled. The reason probably is that they were too immobile and reluctant to burn their bridges and leave their hardly earned positions. I could have stayed, - those with whom I made the nitro-glycerin did not know my name, and I had no other crime to account for. On the other hand, the regime is not inviting me back as it is experts in other fields, - they have a glut of chemical engineers who are employed as minor foremen and get 1,200 ft. a month.

FACTORY GUARD.

Till 1954, there was a Blue AVO guard inside the fence around the Almasfüzitő plant. Then they were withdrawn and the "industrial guard" took over, - these were old fogeys in blue uniform and with rifles. One could have stolen the whole refinery from under their noses. The director was the commander of the guard. During the Revolution, they were disarmed by a truck load of people from Komárom who came, I suppose, to get their arms.

PETROCHEMICALS.

There is no petrochemicals industry in Hungary and there are no plans for one. At one time, they did want to make a start, intending to extract toluol and make explosives. This would have meant the castration of Hungarian gasoline, and mercifully the idea was dropped.

Nagylengyel has only a 30% benzine and gas oil content, 70% is a very sulphuric residual oil. Lispe is a relatively light oil. Nagylengyel is good for fuel oil only, and as far as motor oils are concerned, we have to rely on Austrian crude.