

PERSONAL HISTORY.

I attended the university from 1949 to 1952, specializing in farm machinery design, and graduated as an "agricultural mechanical engineer". In my year, 170 mechanical and 100 electrical engineers graduated from the Budapest University of Technology. Out of the 170 mechanical engineers, there were 16 agricultural mechanical engineers. There was a grave shortage of specialist engineers in the agricultural machinery industry. This branch can be roughly divided into two fields. One is the design and manufacture, and the other the application, of farm machinery. For the first field, the engineers were being trained at the Technology. For the second field, (to direct the use of farm machinery in state farms, MTS and state farm machinery repair shops), a Faculty of Agricultural Mechanical Engineering was established at the University of Agriculture, and this Faculty was later transformed into an independent Technology of agricultural engineering. (Interviewer's remark: This faculty is, at the time of writing, being re-amalgamated into the University of Agriculture.) In other words, the training of designers goes on at the University of Technology, and that of users at the University of Agriculture.

Of the 16 specialists graduating in 1952, about a half did not go out to the field, but stayed on in academic positions to train more farm machinery engineers. This was not necessarily because they preferred to do so, but rather because they were so placed. The placement of graduates was directed by a committee composed of representatives of the Industrial Ministries, the University, the Party and the DISZ. This is how I came to be allocated to the Faculty of Agricultural Mechanical Engineering. My position was that of "professorial assistant" (Tanarsegal, -- roughly equivalent to instructor.) At the chair to which I was attached, only the professor and one other professorial assistant had a degree, five others had not. Two of them had only elementary schooling and were absolute blockheads. One of them used to be a smith on one of the Essterhazy estates, and he was also the Party secretary of the faculty. In later years, the proportion of graduates in the teaching staff improved as young entrants were absorbed.

In August 1954, I was called to the Ministry. My professor was in the Soviet Union since early that year, studying Russian training methods in applied agricultural engineering, and it turned out that he recommended me for a Soviet scholarship.

The Deputy Minister told me of this honor and asked me to prepare for travel to the Soviet Union. He was taken aback when I signified my unwillingness to go, claiming unfamiliarity with the Russian language, and family circumstances. The real reason was that I just hated the idea. He kept at me for an hour, telling me that I will get 1,000 rubles a month in Russia, plus my mother will continue to receive my normal salary at home. I told them that I am working part-time at the Technology too, and they promptly said that they will pay me that salary too and held out to me the prospect of either a Chair or the directorship of a manufacturing firm if I return from the Soviet Union with a doctorate. When I remained unmoved, they asked me to think it over. On the next occasion, they threatened me that adverse consequences for my career might follow my refusal to go. When my professor returned from the Soviet Union, he took over the lecture course in thermo-dynamics I used to give, and in July 1955 I was dismissed, the reason given being that I am unsuitable for the training of new-type Socialist engineers. They could not dismiss me sooner, because they had nobody else in thermo-dynamics. I quickly and luckily found another job at a higher salary, becoming a research engineer in the Farm Machinery Testing Institute of the Ministry of Agriculture. I was not a Party member.

In 1953, my professor attempted to persuade me to join the Party, and he repeated this attempt in 1954. I referred to my religious conviction, saying that for eight years I went to a Benedictine gymnasium. He brushed this aside, as a mere pretext and told me he was a Piarist too, but one gets over such things. He said I seem to be afraid that if the regime changes, all Party members will be hanged. I cheekily replied "Not all of them!" This man, Janos Varadi, who was a Jew, during the Revolution asked the students to provide him with a body-guard, because he feels his life is in danger. Nobody was willing to act as his body-guard, and nor did anything happen to him.

As of the 1st of January 1956, I transferred to the Farm Machinery Development Institute of the Ministry of Steel and Engineering. Formerly, this was called the farm machinery designing bureau. This was the central designing bureau for all farm machinery. I held this job right until the Revolution.

Parallel with these jobs, I held a part-time job at the University of Technology, first as demonstrator attached to the chair of mechanics in the faculty of electrical engineering, and later as an "invited professorial assistant" at the same chair. Very significantly, at this university I was regarded as quite acceptable politically. The reason was that from the Communist point of view the cadre situation was much

worse than at the University of Agriculture, let alone in the Ministries, because here the teaching staff was full of pre-war people, who were irreplaceable unless the regime was prepared to make nonsense of technical education. Thus I, as a post-war product, was regarded comparatively favorably.

THE FARM MACHINERY INDUSTRY.

Collectivization of agriculture brought great changes in the nature of farm machinery requirements. Since 1949, there was a forced switch towards large units of machinery. This went hand in hand with the ceaseless high pressure propaganda for the mechanization of agriculture. My impression is that too much money was spent on propaganda for mechanization and too little on actual mechanization. There were quite inadequate allocations both for investment in the farm machinery manufacturing industry and for farm machinery itself. Only in the last couple of years did they realize that it is a mistaken policy to suppress the production of small machines and to concentrate on high-capacity, large units of machinery. This error cost the country milliards of forints. Small machines were so much pushed into the background that there were months when plough shares for horse-drawn ploughs were not to be had at any price. No resources could be spent on research into small, hand-operated spraying machines, or into ploughs, in both of which there was a crying need for improved types.

If such small machines suitable for peasant farms were manufactured at all, (and their manufacture was turned on and off like a tap), they were pre-war models. This was exclusively a political decision, it used to be said that the whole theme of small machinery is irrelevant and not germane to Socialist Hungary. These fools genuinely believed that there will be no small holdings before long. On the other hand, it was hard to see how they proposed to establish a mechanized Socialist agriculture with the resources they allowed for investment in farm machinery. At a conference of engineers in 1952, it transpired that the same tractor horse-power was in active service in Hungary in that year as in the early '40s. This fact, of course, was never published.

DEVELOPMENT OF NEW MODELS.

The account I am giving below is applicable to all new machinery generally, not only to farm machinery.

The process started with the "Mechanization Main Directorate" of the Ministry of Agriculture stating its requirements. Its outline originated with the Council of Ministers, but the Main Directorate gave a somewhat more specific description. It was then passed to industry, in practice to the farm machinery design bureau of the Ministry of Steel and Engineering. This bureau designed it and passed the design to the appropriate manufacturer according to the latter's profile. The manufacturing firm made a proto-type, sometimes one unit, never more than three, perhaps with small variations. This proto-type was then tested and if approved, the firm manufactured the so-called "Series 0". There were usually between 10 and 50 units in a Series 0. These were sent to MTS and State farms, and on the basis of the experience gathered there, minor modifications could be carried out. Then mass production would start. These stages, taken together, took at least 2 1/2 years and probably more. The design itself used to take six months. If the manufacture of the proto-type was personally pushed by a Deputy Minister,



as happened with the disc-plough, then the whole thing may have been carried out in 2 1/2 years.

Taking the above stages one by one, this is how the thing went in practice.

1.) The requirement arose in the first place by agricultural scientists and practical farming people getting together and deciding that they need such and such a machine. The Mechanization Main Directorate thereupon imported one each of a Soviet, Czech, etc. type plus usually a selection of types from capitalist countries. The Farm Machinery Testing Institute was charged with selecting the best. I or one of my colleagues would then place the imported units on State Farms and start experimenting with them. This was an awkward work, because there was tremendous red tape on the one hand, and no real resources on the other hand, - we had no car to visit the farms, and lost much time on trains, and usually had to build our own measuring instruments in the institute as imported ones were not available. We had strict instructions to give priority to considerations of large scale farming in our experiments. The outstanding example of this political folly was the notorious M-4 combine. This was a Soviet prototype, the blue prints and documentation of which were sold to us by the Soviet Union for an astronomical sum. The documentation was full of elementary mistakes,

extremely badly done, both because of its incompetence and because our manufacturing profiles were different, e.g. we had to depend on cast parts rather than on pressed ones. In the testing experiments, besides the S-4, British and West German types were also tried out. One type, the "Clipper", a British<sup>or</sup>/American model, proved by far the best. We duly recorded these data, but as a result of some inexplicable process the final report of our Institute came to state that the S- , which had a cutting width of 4 meters, (an absurdly exaggerated width for Hungarian conditions) was preferable because it was more "productive". There were hardly any fields in Hungary flat and large enough to enable a 4-meter cutting width to be used. However, the question of the ideal cutting width was treated just like the question of whether there existed an ever-intensifying<sup>sifying</sup> class struggle. At one time, to say that one prefers a lesser cutting width was equivalent to saying that one prefers Imperialism to Socialism. A little later, the director of our Institute, Professor [REDACTED], succeeded in defeating his scientific rivals by his clever toeing of the Party line, and could afford to be more realistic. He came out advocating a more moderate cutting width, and by now we are down at 2.80 meters on the newly produced combines.

Another absurd policy decision was the insistence on type standardisation. We all knew that it was wasteful and impracticable to have one type only of each machine in a country like Hungary where soil and climatic conditions are so varied. Nevertheless, standardisation was persevered with, because this too, was a political decision.

2.) After the Farm Machinery Testing Institute, straight jacketed as it was by irrational policy directions, had worked out the exact specifications of the new type, the Mechanization Main Directorate of the Ministry of Agriculture placed an order for design. The order was negotiated by a committee of representatives of the Ministry of Steel and Engineering, the University and of the agronomists. The completed design was referred back to the committee, which either approved it or referred it back to the designers.

3.) The design was then passed to a manufacturing firm according to the available profiles. In 1957, roughly the following profiles existed: the ploughs TE 330 and TE 430, and the harvester were produced at Mosonmagyaróvár; the Russian combine and threshing machines at the EMAG in Budapest; the single row disc plough, and the ZK cultivator at Törökszentmiklós; tractors at the Red Star (former HSCS) in Káspest. The Red Star manufactured the old HSCS types,

as well as the Russian 50 HP crawler-tractor - its Russian serial number is DT-54, but in Hungary it goes by the name of DT-413. The engine of this latter tractor is not made at the Red Star, but in Csepel, it is actually a Steyr engine manufactured under license, a terribly bad model, but so simple that 16-year old kids and girls, the new kaders at the tractor-stations, could go about with them.

The manufacturing firms were re-profiled practically each year, but the thing somehow never quite worked out. The technological level of the plants was visibly backward, I was assured that there was no progress at all compared to the 1930s. They were getting the poorest raw materials, - the war industries got the best, then came the machine-tool makers, vehicle builders, and so on, and the farm machinery industry was at the end of the materials' queue. The same was true of investment allocations, wage and salary rates and all other priorities, with the possible exception of the EMAG firm which manufactured combines for export, mostly to the other people's democracies, but also to Greece (this was a flop and a great scandal). In the export field, Red Star (HSCS) achieved good results with the tractors it sold to China. The Chinese were so satisfied that HSCS was commissioned to build a tractor factory for them in China.

However, the HSCS tractors are no longer up to date, though they were good in their own time. It was one of the constant themes that we must develop a better type, running on Diesel instead of on crude oil.

But actual development did not really start until the Vehicle Development Institute of the Ministry of Steel and Engineering began to interest itself in it, and competition broke out between it and the Farm Machinery Development Institute of the same Ministry. This competition was probably deliberately allowed to emerge. A new tractor engine for the Russian crawler, to replace the Steyr, is also in process of development. For the old HSCS crude oil engine, a replacement is being produced, a virtual copy of the new Lanz engine. In 1954 or 1955, when they realized the crying insufficiency of the Hungarian tractor fleet, 550 new Lanz tractors were imported. There was great jubilation among agriculturists, as despite the unskilled drivers, many of them mere kids, excellent results were achieved with this tractor and capitalist industry was admired more than ever.

4.) In the next stage, industry would pass the completed prototype or prototypes to the Farm Machinery Testing Institute. More recently, it would first come back to the Farm Machinery Development or the Vehicle Development Institute, and they would pass it on to the Farm Machinery Testing Institute.

In principle, this was a thorough system, but in practice it was far too involved. Lately, there were voices that the manufacturing firms should themselves develop the new type falling into their profile. There were strong arguments for this in terms of directness, etc. But the number of engineering and agricultural experts was limited and it was more economical to have them in a central designing bureau, rather than setting up such bureaux within each individual firm. Gratifyingly, however, they did not make a political question out of this, they did not argue in terms of economic centralism, nor did they say that the permission for firms to do their own designing would lead to a chaos of spontaneity. The argument was quite matter of fact.

When the investigation and testing of the prototype was completed, the Ministry of Agriculture gave the word to industry to start making the Series 0. The 20 or so units made under Series 0 were then placed in State Farms, and the research engineer of the Testing Institute was supposed to keep an individual record on the performance of each, which would have involved visits to each of the 20 State Farms at regular intervals. This proved impossible in practice. Only small modifications could be proposed to a Series 0 machine, and with those modifications, mass production would start.

How much of each model was to be produced, was generally a Council of Ministers' decision. I happened to know that of the TE 330 three-share plough, 10,000 were ordered, and of the ZK cultivator, 2,000. About other types I do not know, as this was not my job.

MANUFACTURING AND DISTRIBUTION

The rate of output of farm machines fluctuated wildly, according to raw material allocations. It was one of the touchiest and most difficult jobs in Hungary to be a materials procurer for a firm. Another touchy and dangerous job was "cooperation" (the letting of sub-contracts). In the case of one special plough, I happened to be given the task of "pusher" (it was the pusher's or expediter's job to keep nagging and bothering the various authorities to secure the letting of sub-contracts and the allocation of materials). The steel for the plough-share was ordered in Diosgyör, and they, without any fore-warning, simply delivered a different specification. This then had to be cold - rolled in the Obuda ship-yard, where there was 30% breakage. The units then had to be sent back to Diosgyör for hardening. The hardening furnace was too small, and the plates got bent. They had to be sent back to the Obuda ship-yard for re-rolling, but Diosgyör then refused to take them again. A battle ensued, and eventually a Deputy Minister had to intervene with threats. Finally, the plough-shares had to travel to Mosonmagyaróvár for assembly. The whole long battle yielded seven of these ploughs!



The distribution of newly produced machinery rested with the Minister of Agriculture. As often as not, the new machine would be sent to just the wrong place, to a State Farm or MTS which they wanted to "strengthen", but where soil conditions were of the wrong sort. They would send an implement requiring hydraulic lifting equipment on the tractor to a State Farm or MTS where there was no such tractor. The implement would then just sit there and nobody would bother about it. It would not have been very difficult to achieve a more rational distribution, but in Hungary everybody will pass for an agricultural expert. ("Mindenki ert a mezogazdasahoz").

The tractor drivers were paid by the acre, which told on the quality of the work and on the life of the implements. They would turn at the end of the furrow without lifting the implement out, which led to many breakages. The drivers were often hostile and deliberately mishandled the machinery, or, out of resentment, they would say about a perfectly suitable machine that "we just cannot use it here", - they just would not take the trouble to learn how to set it for use. There was a depressing lack of spare parts. This led to cannibalism, the people at an MTS would dismantle a new machine and use the parts so obtained to repair other machines.