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TOPIC Weiss Manfred Works, Csepel near Budapest

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Steam Generating Installations.

1. The energy required by the entire Weiss Manfred Works in Csepel near Budapest was supplied almost exclusively by the high-pressure section of the steam-generating installations. (1) This section consisted of three high-pressure, forced-circulation tube boilers working at a pressure of 100 atmospheres and manufactured by the Sulzer Firm in Winterthur, Switzerland. The maximum output per unit was 50 tons of steam per hour. One high-pressure boiler was partially dismantled by the Soviets in 1945; later it was reconstructed and had been in use again since the summer of 1948. The high-pressure turbine was seriously damaged by bombs but it was repaired. The low-pressure stage in the steam plant consisted of three generators which were also seriously damaged by fire during the war and were put in order again. In addition to utilizing the steam from the high-pressure section, these generators could also be fed by a low-pressure boiler installation. This boiler installation comprised 16 boilers which had internal flues and worked at a pressure of 12 atmospheres. The electric switching installation which was underground was fully automatic. Under the high-pressure boilers were the rooms considered bomb-proof since the ceilings, which also served as foundations for the boilers, were of reinforced concrete and 250 cm thick.

2. There were also two smaller steam generating plants in the Weiss Manfred Works. One, near the joinery, was intended chiefly for producing additional superheated steam in winter. The second plant was not far from the turbine house and consisted of eight steamriser boilers driving a 6,500 kw low-pressure turbine. This plant was also seriously damaged during an air raid on 27 July 1944 but it had been repaired and was employed in times of peak-load. In front of the boiler house was a purifying basin from which the cooling water for the steam condenser was taken. The purifying plant was fitted with a mechanical filtering device.

3. The steam installations burned pulverized Dorog coal with an admixture of 10 percent of Borsod coal. (2) Most of the coal arrived by ship from Dorog and was discharged in the harbor. Ten percent of the plant's need, mostly low-grade coal from Borsod and Matra, arrived by rail. The coal harbor could berth two tow barges each able to hold as much as 60 to 80 freight cars. In front of the harbor were the coal bunkers and a free area for dumping coal.

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4. From the dump the coal was transported to the elevated bunkers by means of conveyor belts and from there dropped into pulverizers which were on the bottom floor. There the coal was ground to a dust with a "6400" type screen letting 95 percent of the dust through. The coal dust was sucked up by fans (Ventilator) along with the combustion air and blown upwards into the high-pressure boiler room. A soaring flame was produced. The slag in the form of powder was removed automatically. The feed water was supplied by pumps erected in front of the boiler house. Pre-softened water and condensation water from the low-pressure boilers were used as feed water. At first the feed water ran through a "Wofatit" installation where, by a process involving the exchange of the bases of artificial materials (**Kunststoffbasen**-austausch), the water was softened so that its residue was 0.2 grams per cubic meter. The feed water was also carefully checked by the analytical chemist, whose laboratory was on the second floor on the platform of the steam control stand. The high-pressure steam was conveyed to a Swiss high-pressure turbine from the Escher Wyso Firm in Zurich; the expanded waste steam went to the low-pressure turbine.

5. The chief engineer at the steam-generating installations was Ladislaus Leva, a graduate engineer. Engineer Wilhelm Szolanyi was another official in this department, and the analytical chemist was Desiderius Moso.

The Laboratory

6. The chemical laboratory of the Weiss Manfred Works was completely destroyed during an air raid on 27 July 1944. During the same bombardment the laboratory of the aircraft factory burned out. Immediately after the arrival of the Russians the material-testing methods were entirely reorganized. The various laboratories were united and placed under single control, and they were all accommodated in the reconstructed aircraft laboratory. (3)

7. The material-testing office was headed by a director who was under the direct orders of the general management. The head of this office in December 1949 was Dr. Josef Veroe, a 50-year old university professor. Formerly Veroe lectured on metallography in the Mining Academy in Sopron (Oedenburg). About 1935 Veroe was granted a scholarship in the U.S.A. Veroe, who is married and a Catholic, comes from Slovakia and speaks fluent Hungarian, German, English and Slovakian. His chief field of research in 1949 was the course of crystallization in steel ingots and the accompanying **phenomena** such as distribution of the gas content, pollutions and behaviour of components of alloys. Veroe united in his person the qualities of a practical man and a theorist in a most fortunate manner. He was held in high esteem by his colleagues and was much respected by the management and the central administration of the heavy industry. The new regime left him alone as he never took part in politics.

8. The laboratory employed a managing director, four analytical chemists, a mechanical engineer, two technicians, eight assistant chemists, eight additional helpers in the room for testing solidity, eight unskilled workers for preparing material, and four charwomen.

9. The testing of material took place in four sections, each of which was managed by a specialist. The sections worked independently. The different sections were the chemical section, the metallographic section, the spectroanalytical section and the mechanical section. The chemical section was under the direction of Dr. Ladislaus Mazor. Mazor, formerly a chemist with the bauxite mining industry, joined the Weiss Manfred Works in 1943. Mazor, a Protestant, was 38 years old in 1949 and married. He attended communist seminars. The metallographic section was directed by Mrs. Tasnady-Kub, née Palma Szeki. She was formerly an analytical chemist in the bauxite industry and joined the Weiss Manfred Firm in 1942. At first she dealt with light-metal analyses and later with spectro-analytical problems. After the reorganization she was entrusted with the management of the metallographic section. She is a divorcee, 45 years old in 1949. One of the

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laboratory's oldest permanent employees in this section was Elizabeth Kutsa, who had been a metallographical assistant in the plant for as much as 30 years, with an interruption of a few years. Kutsa, a Roman Catholic, was 52 years old in 1949.

10. The spectro-analytic section was managed by Dr. Tibor Toeroek. He graduated in Budapest and later was an assistant to Professor Gerlach in Munich for some time. He joined the Weiss Manfred Plant in 1938 and introduced the spectro-physical metal-testing method. He speaks Hungarian and German and was learning Russsian. He is 40 years old, married, and a member of the Reformed Church. He is an enthusiastic frequenter of the Communist seminar. The mechanical-testing section was headed by Graduate Engineer Geza Vecsey. He formerly worked in the aircraft plant and was afterwards transferred to the section for mechanical tests. He speaks Hungarian, German and a little English; he was 39 years old in 1949, a Protestant, and unmarried.

11. In the material-testing office, the work of the various sections was coordinated, the daily work being assigned according to the requirements of the plant. The main work comprised 12 analyses per day for the open-hearth plant (Siemens-Martin Plant) and 14 steel analyses per day for the electric steel plant. The material-testing department also made analyses of the casting material and raw material of the iron foundry, of crude iron and alloys for the steel-plant administration and 15 to 20 analyses per day of various alloys for the aluminum rolling mill and the ingot foundry, chiefly annealable magnesium-manganese alloys. The brass foundry demanded 10 to 12 analyses per day, most of them being simple electrolytical copper determinations. Every week the enamel plant sent in a large amount of raw material. The super-refined-steel control section submitted shavings from each charge, and, in case of doubt, even submitted shavings from each ingot for checking and, if advisable, for identifying the various charges. These tests were chiefly qualitative analyses and were performed on the basis of spectro-analytical methods.

12. Each individual plant was required to ask for checks of this kind from time to time and, since there were a large number of plants, the number of analyses to be made was remarkably high. Most of them could be made with spectographs, although for the determination of carbon the volumetric method was used. Dr. Toeroek, however, had been trying for a long time to use the spectrograph even for these analyses. The mechanical-technical examinations included the determination of the strength (Festigkeit), elongation, and tensile strength (Bruchdehnung), with the elongation limit set at 0.2 percent. Each charge required a specific number of tests. For superrefined steels there were about 10 specifications, for ordinary open-hearth steels the number was only three or four. An adequate number of notched bar impact tests (Kerbschlaegen) were performed for each charge. With special steels such as those used for steam-boiler tubes, the permanent steel strength was also determined. For steels which were intended for oscillating mechanical stresses thepermanent strength and the Woehler-curve were recorded.

13. To the mechanical laboratory was attached a modern valve-testing machine which, however, was not too important at the end of 1949, since the production of internal combustion engines had dropped considerably. The laboratory was equipped with a 100-ton tensile-stress testing machine (Zugfestigkeitsmaschine), one for 50 tons, two for 10 tons, one for 5 tons and one for 3 tons. In addition there was a micro-strength testing apparatus. For carrying out permanent-strength tests several machines of different types were available. The laboratory had an installation for executing spray and submersion tests with subsequent strength tests.

14. Apart from the charge tests mentioned above, many individual plants, including the tube-making plant, the rolling mill and the metal works, continuously sent in a certain amount of samples from routine production. The aluminum rolling mill had its own strength-testing machine and sent in samples only from time to time. The refined steel control office also sent in semi-finished products, annealed

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bars, and profiled steel products. The average number of strength tests per day ranged between 200 and 250 tests. The metallographic section's examinations were not compulsory; only the steel plant used the Herpy-method for classifying the steel according to its original austenitic crystallization, a method applied 10 years ago according to the American system. The aluminum rolling mill submitted samples for having the heat treatment continually checked.

15. The principal tasks of the laboratory were set by Dr. Veroe himself and referred to his research work. His main line was research on the process of primary crystallization with ingots of different metals, preferably steel. He was particularly interested in the cause of anomalies and their subsequent influence on further treatment. He also was trying to procure the rich scientific material which had been destroyed when the old laboratory burned down and he intended to evaluate this material on the basis of the latest scientific developments.

16. The Soviet Acceptance Committee was particularly concerned with the metallographic tests. The quality inspection was carried out very carefully by various agencies, chiefly made up of engineers. These agencies which were continuously changing, constantly posed objections. The material concerned, such as tubes, machines, and war materiel, was first subjected to a mechanical-technological test, and then to a metallographic test; and, in cast of objection, it was also examined chemically. The methods employed in connection with the quality inspections conformed to standard procedures. Apart from the quality inspection groups, no other Soviet supervisory body was in the laboratory. [redacted] that the Russians did not fully recognize the spectographic testing method and only admitted the chemical test as a second test.

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17. The chemical and spectographical-physical methods were the same as applied everywhere in smelting and metal works. The instruments and apparatus were all built after German prototypes or were original German equipment such as the spectograph Qu-24 and a glass spectograph of the Zeiss Firm. The balances are Sartorius products, the Stroehlein apparatus were made by Hungarian firms. Part of the chemicals were old stocks, partly of Hungarian origin. The laboratory could quite easily be equipped so as to meet requirements since the supplying firms were still well stocked from former times.

Steel Plant and Foundry.

18. The Weiss-Manfred enterprise's steel plant and foundry included an open-hearth plant, in operation since 1912. (4) On the platform were four open-hearth furnaces but only two of them were working at a time. The two others were either being stripped or rebuilt. Each of the furnaces had a capacity of 35 tons. The charges fluctuated between 30 and 34 tons. The furnace was Pacura-fired, the consumption being 135 kg of oil per ton of steel. (5) Because of this excellent fuel, the charging periods were short, namely 3.5 to 4 hours. Pacura offered the additional advantage of making it possible to smelt the steel with less sulphur and of considerably shortening the refining process which follows the smelting of the steel. It was possible to keep down the average percentage of sulphur to between 0.025 and 0.03 percent. The Soviets ordered raw steel from this shop for the production of welding electrodes. [redacted] since most of the crude iron supplied by the Soviets from Zaporozhye was itself very pure, containing not more than 0.07 percent sulphur and phosphorus together.

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19. The open-hearth furnaces were charged by means of charging machines, and the raw metal produced was transported by means of a special railroad track and elevators. In front of the platform were the casting pits. The casting

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ladles are towed by a crane. The direct railroad connection guaranteed very rapid transport of the chill molds and raw ingots. The furnaces were basic,utilizing such materials as burnt Dolomite and magnesite stone from Austria. Immediately after the war magnesite was also obtained from the region of Kosice in Czechoslovakia. The weight of the blocks (ingots) was generally not more than 350 kg. The cast ingots were conveyed to the compensation pit and, after cooling, to the stock pile where they were cleaned, tested and assorted according to the chemical condition in which they were found.

20. Electric steel was manufactured in the Heroult furnaces, which had been in operation since 1915. Two electric furnaces of the Héroult system and with a capacity of 6 tons each were in the same building as the open-hearth furnaces. These electric furnaces, driven by a three-phase-current, were basic furnaces made with burnt, tarred dolomite; the charging time was between three and four hours. The furnaces were charged in cold condition. The electric steel section had much practical experience in the manufacture of special steels. The program of the two furnaces included chrome-manganese, chrome-nickel-molybdenum, chrome-vanadium, chrome-vanadium-aluminum and chrome-vanadium-tungsten steels. Up to three charges of special steels were charged per day and furnace. The ingots were cast there in the same manner as in the open-hearth furnace. The current consumption per ton of raw steel was 280 kwh.

21. Most of the special steels were made into drop forgings and shipped in semi-finished state. All tube billets were made of electric steel. In lieu of finished graphite electrodes Soderberg electrodes were experimentally inserted. (6) These experiments had not yet been terminated and no definite result in favor of one or the other method had been obtained. As a considerable amount of scrap was used in this process, rapid analysis was necessary during the smelting process. This analysis was made in the laboratory on the second story of Steel Foundry II. This laboratory, equipped only for determining a few essential constituents, determined the percentage of carbon, nickel, manganese, chromium, molybdenum, vanadium, sulphur and phosphorus. The determination of the technological qualities took place in a forge. For evaluating the charges, micrographic tests were made. These tests were executed in the micrographic laboratory of the annealing shop where a Busch microscope was available. For classifying fying the qualities the **Hertz** method was applied; and the corroding test with hydrogen **was** made at a temperature of 1,000° C.

22. In Steel Foundry I the steel needed for the casting process was smelted in a 3-ton-Héroult furnace. The same workshop also housed the molding shop and the core-making section. The plant has much experience in the utilization of alloys containing a high percentage of manganese; such alloys were required for wear-resisting parts, such as rail crossing points and chain links for armored cars. In November-December 1949 urgent orders were received especially for these latter items. Opposite the Steel Foundry I was Steel Foundry II, a new plant completed after the war. It also was equipped with a 5-ton Héroult furnace. The core-making and molding sections there were fully mechanized and worked according to modern principles. The electric furnaces in Foundries I and II were operated under the management of the open-hearth plant, and only the technical part of the casting operations was dealt with by a casting specialist, Laszlo Dianicska, who, however, was not equal to his task. The plant, utilized to capacity, worked in three shifts. The fact that Soviet supervising engineers were at the plant on a permanent basis indicated that orders for the U.S.S.R. were executed there. The management of the plant itself did not know which articles went to the U.S.S.R., since it got its orders only from the Central Directorate of Heavy Industry. At the end of 1949 large quantities

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of fire-proof steels were being supplied to the cracking plant of the TATA Briquette Works. The steels were alloyed with 25 percent nickel and 1 to 1.5 percent aluminum. Experiments were being made making cast iron in the electric furnace. The advantage of this method was the fact that larger quantities of homogenous material were obtainable and that the alloying of the iron was under better control. These advantages, however, were offset by considerably increased operating costs.

23. In the same shop as the 6-ton Héroult furnaces there was also a high-frequency steel-smelting furnace. It was furnished by the Siemens Firm in 1942. Its capacity was 800 kg of smelted steel. Refining work was not done in this furnace, but this furnace was **indispensable** for producing high-quality special steels. The charge used in the furnace was a pre-refined steel which went into the crucible either in liquid condition or in the shape of cast cylindrical pieces. In this furnace tool steels were smelted, chiefly the so-called triple-alloy steel, which was contained 3 percent chromium, 3 percent tungsten and 1 to 2 percent vanadium. The waste of the whole steel plant was re-processed in this furnace.

24. Three cupolas were available for the production of cast iron. The capacity of each of these cupolas was 300 kg per hour. Molding was done in the large casting bay. The sand dressing and molding installations were obsolete and scarcely mechanized. The Three-Year Plan provided for full mechanization but up to the end of 1949 little had been done in this respect. Pieces up to 2 tons are cast there. Bathtubs and other **plumbing** equipment were there in large quantities and sent to the enameling plant. The charges which were alloyed with nickel, molybdenum and small percentages of chromium were prepared in the ladle. Packing rings for combustion engines were smelted separately and alloyed in a small electric furnace, casting by centrifugal action. Experiments with electric cupolas were under way, but the erection of such a unit had not been definitely decided upon at the end of 1949. Crude iron was supplied by Czechoslovakia and Poland, and the U.S.S.R. furnished cast iron for special purposes. The manufacture of engine parts was the chief mission of the plant. The cast-iron section worked to capacity.

Machine Tool Plant.

25. Even during the war the production of high-grade machine tools was started at the Weiss Manfred Works in Csepel. (7) At first the production was for the firm's own requirements, afterwards also for the Association of Manufacturers of Daimler-Benz Aircraft Engines. The production covered lathes, three types of plain drilling machines, two types of radial drilling machines, two types of vertical milling machines and various tool-mold grinding machines. The production of machine tools was resumed immediately after the end of the war. First of all radial drilling machines were delivered to the Soviets as reparations. By and by new types were added. At the end of 1949 the production program comprised the following machines: two types of radial boring machines, differing only in the size of the wings; high-performance universal milling machines; vertical milling machines; involute-gear milling machines; frame speed drillers; upright drilling machines; hydraulic circular saws; and plate shears. These machines were manufactured in series, and certain special machines for the plant's own use were also made as special construction jobs.

26. The radial drilling machines, of types RF 3 and RF 2, were originally built at the Weiss Manfred Works under a license obtained from the Braun A.G. Firm in Zerbst (R 52/D 98). (8) Specifications of these machines were as follows. The column at the right gives the alternate measurements where the two types differ:

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Maximum overhang from pillar to extreme position of the drilling spindle:	1,500 mm	1,750 mm
Minimum overhang	425 mm	
Maximum radius	1,725 mm	1,975 mm
Maximum height between base plate and under edge of the drilling spindle:	1,750 mm	
Vertical position of the overhang	1,150 mm	
Spindle stroke	350 mm	
Drilling capacity (Bohrfaehigkeit)	60 mm	
Motor power	8.5 HP	

These radial drilling machines can be used for cutting threads, ranging between 1.5 and 3 inches in diameter. The monthly output of these machines was 50 pieces. The major part of the production was delivered to the U.S.S.R. Only the machines which had been rejected by the acceptance committee were for sale in the free market in Hungary.

27. The high-duty universal machines, types UF 21 and UF 22, were originally built at the Weiss-Manfred Works under a license of the Reinicker-Firm in Chemnitz (H 51/K 66). (9) Data on these machines are as follows:

Table	1,410 x 320 mm
Speed of spindle, maximum	1,600 rpm
Maximum longitudinal motion	1,150 mm hand-operated 1,035 mm motor-driven
Maximum cross motion	285 mm
Maximum distance between table and milling spindle	500 mm
Minimum distance between table and milling spindle	80 mm
Vertical motion of table distance	450 mm
Distance between milling spindle and under edge of bracket	175 mm
Required power	8.5 HP

The Weiss-Manfred Works' monthly capacity for this type of production was 15 pieces. Ninety percent of the production went to the U.S.S.R.

28. The plant also manufactured vertical milling machines of type VF 21; originally built under a license of the Reinicker-Firm, Chemnitz. Data on these machines are as follows:

Table	1,410 x 320 mm
Maximum speed of spindle	1,600 rpm
Maximum longitudinal motion	1,150 mm
Maximum cross motion	285 mm
Vertical motion of table	500 mm
Required power	8.5 HP

29. The involute-gear milling machine manufactured by the Weiss-Manfred Works was of type KFM. This machine was not built before or during the war. On special demand of the U.S.S.R., the production of this machine was included in the Five-Year Plan. The specifications of this machine are as follows:

Maximum module	3.5
Maximum number of dentations	150
Required power	4.5 HP

The plant's monthly production capacity of this type of machine was 15 pieces. This machine was intended exclusively for the automotive industry.

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30. The frame rapid-drilling machine of type GyF 20 manufactured by the plant was built during the war and was designed by specialists of the plant. Specifications of this machine are:

Smooth variable automatic feed	
Drilling capacity	3 to 20 mm
Table	350 x 350 mm
Drilling spindle stroke	150 mm
Maximum table feed (Tischbewegung)	800 mm
Maximum distance between table and spindle	150 mm
The pillar is prismatic and, therefore, the table is not rotatable.	
Required power	1.5 HP
Speed, ranging from	80 to 4,000 rpm

31. The pillar drilling machine of type Gy 35, developed by the plant, was built during the war. Data on this machine are as follows:

Smooth, variable automatic feed	
Drilling capacity	10 to 35 mm
Table	450 x 450 mm
Drilling spindle stroke	200 mm
Maximum table feed	800 mm
Minimum distance between table and drilling spindle	150 mm
This pillar is prismatic and, therefore, the table is not rotatable.	
Required power	3 HP
Speed	30 to 1,400 rpm

The GyF 20 and the Gy 35 machines were built in series of two, three or four machines. The monthly output of the two types was 35 pieces. (10)

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32. Hydraulic circular saw of [redacted], developed at the plant, was not built during the war nor prior to it. Its specifications are as follows:

Diameter of saw with automatic-hydraulic feed and variable drive	450 mm
Speed	80 to 200 rpm
Cuts material up to maximum size	150 x 150 mm
Required power	8.5 HP

33. The Weiss Manfred Plant also manufactured tin shears of type ML 2500/15. Formerly the tin shears were only made individually. They were developed at the plant. Data on these shears are:

Table	2,650 x 1,400 mm
Cuts plates up to	2,500 mm in length
and	15 mm thick
Required power	4.5 HP

The monthly production of the circular saws and tin shears was 10 to 15 pieces. (10) At the end of 1949 the production dropped considerably. Home requirements are nil, and the Soviet demand for these machines had apparently gone down considerably.

34. All the machines described, except the ball bearings and measuring instruments were made entirely of material produced in the plant. The castings were furnished by the cast-iron section under Engineer Laszlo Dianicska, and machined in the machine shop under Engineer Johann Kiabocskoi. The electrical equipment was made in the electrical section headed by Engineer Laszlo Kocsis. The electric motors were also made in the electrical section. The drawing section was headed by Engineer Andreas Kelemen. The crude iron was of Soviet origin, but smaller quantities arrived from Sweden. The ball bearings came from Sweden, from Germany via Switzerland, and of late also from the U.S.S.R. The instruments installed were all of Hungarian make.

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35. The price for the reparations deliveries was fixed on the basis of 1938 prices, in other words far below the prices on the world market. For settling of accounts the prices were based on a rate of exchange of 1 Dollar to 5 Forints. The deliveries to the U.S.S.R. were not paid for but were settled by transferring them to the reparations account. The dates of delivery were met punctually by the plant. A very strict quality inspection was made by a Soviet commission, which included engineer officers. General manager of the plant Engineer Ferencz Biro was responsible for the smooth running of the plant. Biro had emigrated to Moscow and returned to Hungary as a Soviet officer in 1945. (11)

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25X1X [redacted] Comments.

(1) For [redacted] of the main steam-generating installations at the Weiss Manfred Works, see Annex 1.

(2) The coal district of Dorog is just south of Esztergon/Gran. The coal district of Borsod lies north of **Miskolc** in the northeastern part of Hungary.

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25X1X (3) For the [redacted] layout sketch of the laboratory, see Annex 2.

(4) For the [redacted] layout sketch of the steel plant and foundry, see Annex 3.

(5) The fuel called Pacura is a fuel oil whose boiling point is over 350° C.

(6) The Soederberg electrodes are continuous electrodes which, as compared with the ordinary electrodes, reduce expenses by 40 to 75 percent and make possible continuous operation of electric steel furnaces. As electrodes are a bottleneck throughout the satellites, the use of Soederberg electrodes will presumably alleviate the **shortage**.

25X1X (7) For the [redacted] layout sketch of the machine tools plant see Annex 4.

(8) This is the former Franz Braun A.G. at 43 Karl Marxstrasse, Zerbst, Anhalt, which produces lathes, drilling machines, facing lathes, center lathes, and drilling lathes for hollow shafts. The firm is now a nationalized plant and is incorporated into the VVB(Z)WMW and has the number 32/329/1000.

(9) This is the former J.E. Reinicker A.G. at 66 Bernhardtstrasse, Chemnitz, which manufactures high-quality machine tools, milling machines, gear cutting machines, grinding machines, and lathes of every description. The firm is **now** a nationalized plant, incorporated into VVB (Z)WMW as plant No 32/360/1018.

(10) It is not clear whether these monthly production figures are for both machines together, or whether that many of each type were produced per month.

(11) The importance of the Weiss-Manfred enterprise is indicated by the fact that it is under the direct control of the Directorate of Heavy Industries in Budapest, whereas the other plants in the Hungarian heavy industry are under their individual Industrial Centers and can get in touch with the Directorate of Heavy Industries in Budapest only through their respective centrals. Prior to its nationalization in 1948 the Weiss Manfred concern was made up of four stock-holding companies: the Aluminum Works **Inc.**, the Aircraft and Combustion-Engine Works, Inc., the Steel and Metal Works, Inc., the First Hungarian Cannery and Metal Ware Factory, Inc.

Organizationally the Weiss Manfred works on the **Csepel** Island are made **up** of a heavy-industry section, a section for agricultural machines and consumer goods, and an ammunition factory. The heavy-industry section comprises one steel plant with four open-hearth furnaces, four electric furnaces (system Héroult), one high-frequency steel furnace; a rough rolling mill with two gas furnaces; a fine rolling mill where in addition to telephone wires, in particular cartridge-case sheets for infantry ammunition are made; a tube-making plant where in particular round iron rods with bore-hole diameter of 4 to 5 cm, and also gas main pipes and stiffening tubes for aircraft are made, a hydraulic-hammer section where nails, horseshoes, breech mechanisms and semi-finished parts for rifle projectiles (bullets) are made; an iron

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foundry; a railroad car factory which, allegedly, started production in late 1949; a lathe shop; a tinsmith's shop; and a screw-cutting shop.

The Agricultural Machines and Consumer Goods Section comprises the following: an iron foundry; a welding shop where bridge-building parts are made; a joinery for the plant's own requirements; a crane factory where cranes for the plant's own use are made; a tube assembly shop; a machine-tool factory, easily convertible to war production; a bicycle factory which made shells during the war; a factory making small ironware such as iron stoves of various descriptions, stove pipes, bicycle pumps, bicycle bells, etc.; and an annealing shop.

The Kalman-Lang Factory under the Weiss Manfred Works produces aircraft engines, combustion-engine parts, ball bearings, precision tools etc. The Ammunition Section of the Weiss-Manfred works comprises: a main drawing office which works for all sections of the Weiss Manfred Works; a machine shop which manufactures engine parts for the plant's own requirements and eight to ten lathes per month but which could be converted to war production at any time; a rolling mill with a capacity of 20 tons per month; a nail-making section, easily convertible to war production; a knife-treating section; a wire-making factory with a capacity of 60 to 70 tons per month; an aluminum foundry; a metal and pipe plant where, among other things, surgical instruments of silver are made; a brass rolling mill with a capacity of 8 tons per month; a band rolling mill which, with a capacity of 300 tons per month, rolled the material for the ammunition and also produced 32 tons of tin foil per month; an enameling shop; a welding shop; Ammunition Shop I, with a monthly production of 2.5 tons of ammunition; Ammunition Shop II, with a monthly production of about 80 to 100 million rounds of infantry ammunition; Artillery ammunition plant with a capacity of 52 tons of artillery ammunition per month; an underground infantry shooting range; and a test room for aircraft engines with a wind tunnel.

The following additional production was recently reported at the Weiss Manfred Works: "People's Cars" and trucks; motorcycles of the 100 cubic centimeter class and the 125 cubic centimeter categories (1,000 units per month); fighter aircraft engines; naval engines, and armor plates for two armored trains.

The total area of all the plants belonging to the Weiss Manfred Works on Csepel Island in the Danube River was about 5 km long between 800 and 2,000 meters wide. For a sketch of this area, see Annex 5. The total number of workmen was stated to be 21,600 in mid-August 1948. During the war about 30,000 workmen were employed there.

5 Annexes: Sketches.