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1. The Synthesewerk Schwarzheide was built by the Germans in nine months during 1937. It was taken over and partially dismantled by the Russians after the German defeat and became a Soviet AG in November 1946. From the end of 1946 to date (March 1950) it has operated with a working force (workers, technical and commercial employees, administrative personnel) varying from 4000 to 4500 persons, approximately one-third of whom are women.

2. The present German director of the plant is a man named Weiss, a member of the SED but not a confirmed Communist. The personnel of the Russian management has repeatedly changed since the plant was converted to a Soviet AG. The first Russian General Manager was Makarov, who is not a member of the Russian communist party. His deputy in 1946 was a Colonel Kitshigin, now believed to be dead. Makarov came from the Glavgastoprom, a coal and fuel research institute in Moscow, which belongs to the Russian Ministry for Fuel Industry, where he was chief of a department (Abteilungsleiter).

3. When he was succeeded, in the summer of 1947, by Alexandrov, a member of the Russian CP, Makarov remained with the plant at chief engineer. In the summer of 1948, Alexandrov was replaced by Lavrentiev, a member of the Russian CP and a very ardent communist. He, in turn, was succeeded at the beginning of 1949, by Leontiev, also a member of the party. Leontiev left in the summer of the same year and was replaced by Akopov, an Armenian, (original name Akopian) a member of the party. In March 1950, Akopov was still in charge of the plant.

4. Shortly after the Russians took over the plant, contact was established with Glavgastoprom and that organization opened an office on the plant premises. There was a considerable turnover among the members of this office. They worked in close cooperation with the German staff of the plant's research department. The Institute, whose name was changed to Minefteprom in the fall of 1949, concluded a contract with the plant for certain research projects to be done in Schwarzheide by the Institute members and the members of the German research department. This contract was scheduled to expire on 31 March 1950.*

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5. In 1946 and early 1947, a Professor Rappaport of Glavgastoprom, Moscow, directed the work of the Institute members in Schwarzheide; he was recalled to Moscow [redacted] During the professor's stay in Schwarzheide, Constantin Malkov-Panin was his assistant. After 1947, Engineer Mintshenkov of the Moscow Institute made frequent appearances at Schwarzheide. Mrs. Vassilieva, a chemist, specialist in iso-synthesis, worked in the Schwarzheide Institute office until the summer of 1948, and then returned to Russia. Mrs. Vlassova, a chemist, specializing in methane dissociation, worked there until the summer of 1949; Mrs. Smirnova, also engaged in iso-synthesis, left the Institute office in July 1949. 25X1

6. Dr. Bludov became head of the Institute office after Professor Rappaport's departure [redacted] He was succeeded by a man named Rastunov. 25X1

7. Research projects completed by members of the German research department were referred to Bludov (later to Rastunov) or to Engineer Mintshenkov; they were then given for translation to Dr. Silberschatz, born in Lodz, whom the Russian troops had picked up on their way to Germany and who has since been working for them as translator and interpreter. The translated papers, together with blueprints and samples, were sent, mostly by courier, to the Moscow Institute.

8. The plant has been engaged, under the Germans as well as under the Russians, in the production of hydrocarbons from carbon monoxide and hydrogen by the Fischer-Tropsch process. The raw material used is lignite, which the plant obtains in small quantities from the nearby Franz-Mehring mine (formerly called Marga mine). The bulk of the lignite comes from the Emanuel mine, which belongs to the Friedländer Combine and is also nearby; the Franz-Mehring lignite is of high quality, that from the Emanuel mine of medium quality. The plant produces water gas ($CO + H_2$) from the lignite in generators built in 1937 by the Ruhr firm of Koppers. Originally, the plant had seven such generators two of which were dismantled in the fall of 1946 and shipped to the former IG Farben hydrogenation plant at Auschwitz. Of the remaining five generators, one was out of order until the summer of 1949. From then on, with five generators operating, the plant has, on the average, produced the equivalent of 85,000 normal cubic meters (i.e. at 0 degrees centigrade and 760 mm pressure) of water gas per hour, 24 hours a day and seven days per week.**

9. The next production step is the purification of the water gas from sulphur. This step is necessary because any sulphur remaining in the gas would soil the surface of the contact substance, used in a later production stage with sulphides and thus render it inactive.

10. Purification is carried out in two successive steps: first, rough purification with ferrohydroxide; second, a more thorough purification, with ferrohydroxide combined with sodium bicarbonate. Then, the gas is freed from dust particles by means of the Cortell-Lurgi process, whereby the dust particles collect at the anode of an electrostatic field, wherein tension varies between 15,000 and 30,000 volts.

11. Next, the purified gas is led into synthesis ovens (Synthese Normaldruck Öfen); these are ovens without compressors operating at pressures between 0.5 and 3 atmospheres, built by the Lurgi firm. The ovens contain water circulation tubes, acting as radiators to keep the temperature between 180 and 190 degrees C, the only temperature at which the contact substance works satisfactorily. Each tube is surrounded by a large number of lamellar disks between which the contact substance is placed.

12. The contact substance used at Schwarzheide is mainly cobalt. It is produced in a special section of the plant by precipitating cobalt carbonate upon infusorial earth (Kieselgur) to which small quantities of thorium dioxide and magnesium oxide have been added. This mixture is reduced with hydrogen, leaving a metallic cobalt, plus the two above-mentioned additions on kieselgur, as a workable contact substance.

13. When the Russians took control of the plant there were supplies of cobalt and thorium; most of these were taken away by the Russians however, and since then no new supplies have been received. The plant was therefore forced to recondition and re-use ~~continually~~ the old contact substance. [redacted] 25X1

25X1 [redacted]

14. The Russian plant management subsequently provided kieselgur samples which proved to be of very high quality from Kisatibi in the Caucasus region. But for some reason, kieselgur from Kisatibi was never delivered in quantity. The plant tried for some time to replace it with quartz sand from the Hoyerswerda (Saxony) region, but the attempt failed. Finally, after the discovery of a kieselgur deposit near Coswig in the Wittenberg region, the plant drew its supplies from there.

15. The gas is synthesized in the ovens to a great variety of hydrocarbons in fluid and solid form. Some of the solid paraffins crystallize on the contact substance which, therefore, must be cleaned every two to three weeks. The process is carried out in the following stages:

a. After the water gas has passed through the ovens, it is conducted through two coal towers (Aktivkohletürme) filled with charcoal which absorbs the hydrocarbons contained in the gas. Then, water steam is sent through the towers which separates the hydrocarbons from the charcoal; after the vapor has cooled, so-called A.K. gasoline is separated from it; the boiling point of this gasoline lies between 30 and 180 degrees C and its octane number is 46.

b. After having passed through the coal towers the gas is conducted into Borsig compressors and distilled. The result is a gasoline (Treibgas) having octane numbers between 70 and 75. In the distillation process, propane and butane are separated from the other products; some quantities of these two products are sold by the plant directly to East Zone consumers upon written authorization from the Ministry for Economy.

c. The products mentioned in "a" and "b" above come from the gas after passage through the synthesis ovens (Restgas). The direct product of the ovens, too, is a great variety of hydrocarbons which are separated by distillation into different products, among which are Kogasin 1 (boiling point between 180 and 230 degrees C.), Kogasin 2 (230 and 260 degrees) and other products with boiling points between 320 and 330 degrees. C.

d. After separation of all fluid hydrocarbons from the synthesized product, the solid residue, called "Gatsch", is subjected to vacuum distillation and macro-paraffin is won from it. The Russians did not show much interest in this part of the production until the end of 1948 and the beginning of 1949 when they urgently requested production of highly-bleached paraffin with a high boiling point. Following this request, the plant developed a very white paraffin with a boiling point higher than 90 degrees C. The research department of the plant has continued the development of such paraffin and, in March 1950, had developed, on a laboratory scale, a very white paraffin with a boiling point of 103 degrees C; the method used consisted mainly of washing out with butane all components having lower boiling points.

16. From the summer of 1949 on, after all Koppers generators were in working order, the plant had an output of hydrocarbons of all kinds (fluid and solid) equivalent to a yearly production of approximately 100,000 tons; roughly 50% of this consisted of gasolines.

17. In May 1947, each normal cubic meter of water gas yielded 76 grams of final products; by the fall of 1949, this figure had been increased to 128 grams.*** The entire output, with the exceptions mentioned under paragraph 15b, is taken over by the Derunapht firm in Potsdam, from where it is shipped by rail in tank cars.****

18. As mentioned above, the research department of the plant worked in close cooperation with Russian specialists assigned by Glavgastoprom, later renamed Minefteprom. The research department was administratively independent of the German management until 1949; in the course of that year both it and the central laboratory of the plant were placed under German authority.

19. In the fall of 1949, the research department employed a total of about 120 persons, while the central laboratory had a total of about 200 persons (including specialists, workers, and administrative personnel). Among the specialists who were employed by the research department in March 1950 and are supposedly still there, the following are known:

Dr. (fnu) Geigenmüller, formerly with the Lauta plant of the Vereinigte Aluminiumwerke near Hoyerswerda;

Dr. Hans Siebeneck;

Dr. Rudolf Kaiser, formerly with the Dynamit AG in Christianstadt, Silesia;

Dr. Hermann Denker;

Dr. Gerhard Gottschalk.

20. In September 1946, the research department was headed by Dr. Karl Meyer [redacted] 25X1 In 1946 and early 1947, Malkov-Panin of Glavgastoprom worked in the research department on a project dealing with "condensation of olefines to oils by means of aluminum contacts." Malkov-Panin left before the project was completed and Siebeneck finished it in 1947 using aluminum chloride as the contact substance. In 1946 and part of 1947, Siebeneck, a distillation expert, was also engaged in research on the "oxidation of 'Gatsch' into alcohols by use of air under normal pressure (Fischer process)," project assigned to him by the Glavgastoprom office. Siebeneck did not succeed and the project was abandoned in 1947. He subsequently solved the problem by chlorination, but the Russians were no longer interested. Siebeneck is now (March 1950) working on the following projects:

"Oxo-synthesis, following the procedure used by the Ruhrchemie, Oberhausen";

"Volatilization of oils";

"Production of softening agents from Fischer-synthesis products."

21. Gottschalk is also engaged in volatilization research; Denker works on the "analysis of synthesis products." In October 1948, Kaiser, started research on "Fluid-Synthesis" on the basis of an article published in an American technical magazine provided by Glavgastoprom; this work was not successful and was later discontinued. He was also charged with research on "Synthesis with iron contacts under medium pressure (5 to 40 atmospheres)" which he also abandoned and turned over to Denker early in 1950. Geigenmüller is engaged in the "study of the activity of contacts."

22. Dr. Otto Winter came to the research department of the plant in September 1946 after having been employed previously by the Chemische Technische Reichsanstalt and the Research Institute of the Deutsche Waffen-und Munitionsfabriken in Lübeck; he left the plant in September 1949. During his employment here, he was charged with the following research projects:

a. "Oxidation of propane into olefines without exterior energy supply". This task was assigned to him by the Russians at the end of 1946, and was completed in about a year. The following results were obtained:

95 percent (approximately 1980 grams) of the equivalent of one cubic meter of propane can be converted into:

ethylene	58 volume percent
propylene	15.7 " "
butylene	4.1 " "
	77.8 volume percent of the converted

propane or 1150 to 1200 grams of olefines; the time elapsed in this conversion is .01 - .06 seconds.

In addition, the reaction generates water gas in proportion of 1.62 H_2 : 1 CO, as well as small quantities of methane and carbon dioxide. The reaction takes place without contact substance and without exterior heat supply:

b. "Production of water gas (H_2CO) for Fischer-Tropsch synthesis through dissociation of methane from oxygen, without exterior energy supply." This project was ordered by the Russians in February 1948, and completed in February 1949.

The reaction takes place on the basis of the equation $CH_4 + \frac{1}{2}O_2 = CO + 2H_2$ with the aid of nickel oxide contact substance. One normal cubic meter of a mixture of methane and oxygen in proportion of 66 : 34, containing also 10% nitrogen impurities, furnishes slightly more than 1.7 normal cubic meter of water gas in proportion 2.00 H_2 to 1.00 CO. The resulting gas consists of 60% H_2, 30% CO, 3% CH_4, 1.2% CO_2 and 5.8% N_2:

c. "Iso-synthesis from CO and H_2, according to methods developed by the Germans during the war." This project was ordered by the Russians at the end of 1948 and was completed on 31 August 1949. It was known to the Russians that iso-synthesis had been carried out as secret war work by the Germans in the Coal Research Institute in Mülheim, Ruhr; one of the technicians had been Dr. (fnu) Pichler [redacted] 25X1 Details of the Mülheim experiments were not known in Schwarzheide when the research project was carried out; the results vary accordingly. The Schwarzheide reaction was carried out at a pressure of 300 atmospheres and a conversion temperature of about 437 degrees C. The contact substance used in Schwarzheide was thorium oxide (ThO_2) plus 1% of cerium oxide ($Co\ O_2$), whereas that used in Mülheim was $Th\ O_2$ on a carrier substance of $Al_2\ O_3$. In Schwarzheide, one normal cubic meter of H_2 CO, in proportion 1 H_2 : 1 CO furnished 127 to 150 grams of synthesis products. The fluid part of the synthesis products consisted of gasolines having boiling points of from 40 to 180 degrees C and an octane number of from 84 to 86 (the Mülheim octane number was 78); the gaseous part consisted of a mixture of isobutane and isobutylene (80%) in about equal quantities, and 20% dimethyl ether. The procedure developed in Schwarzheide is an expensive one mainly because the apparatus used requires copper-plated containers and supply pipes of chromium steel. The apparatus used in Schwarzheide was borrowed from the Bunawerke in Schkopau; before it could be returned there however, Moscow ordered its shipment to Russia; early in March 1950, it was packed and ready for shipment in Schwarzheide. The synthesis products were flown to Russia in special pressure containers.

25X1 * [redacted] Comment: At the beginning of March 1950, it was not known whether the contract was extended or whether the Institute had discontinued its activities at Schwarzheide.

25X1 ** [redacted] Comment: The plant operates in three shifts, seven days per week.

*** Comment: The maximum figure reached by the plant was 143 grams in 1943.

**** Comment: The final destination of the output is unknown but it is believed that the bulk of it, if not all, goes to the Russian Army of Occupation.