

### III. AIR ATTACK OF JULY 18, 1944.

(a) In the night of July 18-19, 1944 a heavy air attack was made on the plant. About one thousand (1,000) high explosive bombs, mostly five hundred (500) pound, fell inside the manufacturing plant. On the south west the boiler house was heavily hit.

(b) The account of the attack was as follows: at 12:55 a.m. first alarm, at 1:03 a.m. "safety operations" was sounded and word was passed, "Attack headed for the plant."

(c) 1:07 a.m. full blow down was given after a red flare was dropped over the plant. Seconds later the bombs started to drop. They came in three waves and lasted about twenty (20) minutes.

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(d) The attack was made easy for the aviators by the lighted conditions, since the artificial fog was started too late. The reason for not starting the fog is unknown. The manufacturing units were brilliantly lighted up by the flares. Brilliant fires were started after the first bomb attack.

(e) Safety operations and emergency shut down proceeded satisfactorily, despite the short interval of four (4) minutes for doing same and taking air raid shelter.

(f) The same satisfactory conditions obtained for the several men in the power house, who had to remain at their posts as long as possible. Nevertheless, they were in their shelters at the start of the bomb falling. Of the six hundred (600) workmen, there were three (3) deaths. These all occurred through one explosion.

(g) On account of the severity of the attack, the water and electric utilities and telephone lines were down. Likewise the destruction of the radio tower made it necessary to send for aid from Cologne.

(h) The aid men and wardens were brought partly by Intelligence and part came by themselves. The fire was spread by numerous explosions, and through the many hours of fighting there was an extremely thick fog. It followed from the Rhine back to Urdeld. Fire water was taken from DHD tanks filled with water, out of the Rhine through a short finished water line, and out of the ash settling basins of the gas works. Great fires spread in the tank farm where four (4) full tanks were located. Also fires spread in the coal mill and the bunkers of the gas works. Besides, there were a series of small fires in the vicinity of the high pressure, the distillation, and the power gas units. The little fires were quickly extinguished, but the large ones lasted to the following noon.

(i) The following damage occurred: Great destruction in the gas production unit, in the coal mill, in the water gas conversion, in the compressor building, the CO purification, in the recycle pumps used for hydrogenation, in the tank farm, and the pump house for heavy oils. Almost all gasoline was destroyed.

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The smaller gas holder for N<sub>2</sub> and H<sub>2</sub>S remained almost undamaged. The cracking, distillation, power gas, dephenolating units were less heavily damaged. Four (4) large tube breaks and a larger number of splits occurred. The fresh water, drinking water, and discharged water lines were broken in many places, also the telegraph and telephone lines.

(j) About twenty (20) percent of the plant was destroyed. The capacity was greatly hurt because the buildings had been hit so heavily.

(k) In ten (10) weeks of accelerated repair work, the plant was restored to forty (40) percent of production.

(l) On October 3 and 11, 1944 two more attacks followed and at each about sixty (60) bombs of one thousand pounds fell on the plant. These caused damage in the high pressure, tank farm, and power house units.

(m) On October 6, 1944 the plant was closed. Of all the bombs dropped on the July 18, 1944 raid, two hundred (200) were duds.

IV. LIST OF IMPORTANT MANUFACTURERS OF MACHINES AND EQUIPMENT.

GAS PRODUCING UNIT

Water gas unit	Pintsch - Berlin
Producer gas unit	Pintsch - Berlin
Piping and steel work	Kolsch - Folserwerke, Siegen
Furnace lining	Dr. Otto, Bochum
Gas scrubber	Keppers, Essen
Gas and air blowers	Theissen, Munchen
Dust removal and cleaning	Jager and Co., Leipzig
Tar pumps	Lurgi, Frankfurt
Ash removal	Weise, Sehne, Halle
Conveyers	Naehar, Chemnitz
Producer and water gas blowers	Pohlig, Koln-Zollstock
	Schiele, Eschborn/Taunus

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IV. LIST OF IMPORTANT MANUFACTURERS OF MACHINES AND EQUIPMENT. (Cont'd.)

Fittings and cocks	Zimmermann u. Jansen, Duren
Gas holders	Neumann, Eschweiler
Tanks	Neumann, Eschweiler
Cooling towers	Otto Estner, Dortmund
Redler conveyors for dust and ashes	Gebr. Buhler, Dresden
Conveyor belt	Clouth, Koln-Nippes

BOILER HOUSE

Steam boilers	Surr A.G., Ratingenb. D'dorf
Boiler feed pumps	Walther, Koln-Dellbruck
Boiler feed turbines	Halberg, Ludwigshafen
Coal conveyors	Borsig, Berlin-Tegel
Fire brick lining	Maschinenfabrik, Magdeburg, K.S.G.
Steam lines	Berlin
Burner control	Karrenberg, Dusseldorf
Temperature control	Seiffert, Eberswalde
Flow regulators	Askania, Berlin
Superheated steam equipment	A.E.G., Berlin
	V.A.G., Mannheim
Boiler feed water treatment	Amag-Hilpert, Nurnberg
Blowdown (?)	Schaffer u. Budenberg,
	Magdeburg
Turbines	Permutit, Berlin
Water pumps	Natorp U. Eberhardt,
	Hohenturm B. Halle
Condensate	A.E.G., Berlin
Low pressure tanks	Rits U. Schweitzer,
	Schwabisch-Gmund
	Vogel, Wien-Stockerau
	Feld U. Halm, Bendorf

CONVERSION, COMPRESSORS  
CO<sub>2</sub> AND CO PURIFICATION

Methane cracking	Bamag, Berlin
Organic sulfur removal	Kuble, Kopp U. Kausch
Exhaust gas blowers	Frankenthal
Air blowers	Schiel, Eschborn i. Ta.
Boilers	Oschatz, Merane i. S.

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IV. LIST OF IMPORTANT MANUFACTURERS OF MACHINES AND EQUIPMENT. (Cont'd.)

Boiler feed units (pumps)	K.S.B. Frankenthal
CO <sub>2</sub> compressor 0.4 ata.	C. Enke and Co. Schkeuditz
Combustion unit for N <sub>2</sub> production	Balcke, Frankenthal
N <sub>2</sub> compressors	Bomag, Berlin
Conversion	Maschinenfabrik Surth
Pump units	Bomag, Berlin
Water gas blowers	ther Amag-Hilpert jetzt
Heating gas blowers	K.S.B. Frankenthal
Heating gas blowers Bau 144	C. Enke and Co., Schkeuditz
Heating gas blowers Bau 38	C. Enke and Co., Schkeuditz
Compressors	C. Enke and Co., Schkeuditz
Boosters	C. Enke and Co., Schkeuditz
CO <sub>2</sub> purifier	C. Enke and Co., Schkeuditz
Pump units	I. Jager, Chemnitz
Fulton turbines	Halberg A. G. Ludwigshafen
CO purifier	Ehrhard u. Schmar, Saarbrucken
Press pumps	Demag, Duisburg
Expansion engine	Gutehoffnungshutte, Sterkrade
Vacuum pump	Halberg A. G. Ludwigshafen
Tanks	Escher Wyss, Ravenburg/W.
Cooling unit	PreB-u. Walswork, Reisholz
Booster	Gutehoffnungshutte vorm.
Oil purification equipment	Haniel u. Lueg, Dusseldorf
	Leuna-Werk, Merseburg
	K.S.B. Frankenthal
	Wilhelmshutte, Sprottau
	Mansfelder Maschinenfabrik,
	Mansfeld
	Eslinger Maschinenfabrik,
	Eblingen
	Demag, Duisburg
	Bergedorfer Eisenwerke,
	Bergedorf b. Hamburg

HYDROGENATION - HIGH PRESSURE

Coal reactors and washers - 700 ata.	Friedr. Krupp, Essen
Coal reactors	D.H.H.V. Dortmund-Horde
Gasoline reactors - 325 ata.	D.H.H.V. Dortmund-Horde

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IV. LIST OF IMPORTANT MANUFACTURERS OF MACHINES AND EQUIPMENT. (Cont'd.)

Regenerators - 700 and 325 atm.	Friedr. Krupp, Essen
	D.H.H.V. Dortmund-Horde
	Bocumer Verein, Bochum
	Pres. u. Walzwerk, Reisholz
	D.H.H.V. Dortmund-Horde
	Bochumer Verein, Bochum
	Pres. u. Walzwerk, Reisholz
	Deutsches Rohrenwerk, Dusseldorf
	Eisenwerke, Kaiserlautern
	I. G. Ludwigshafen, Leuna
	I. G. Ludwigshafen, Leuna
	Leuna-Werke
	Hydrierwerke, Politz
	Chemische Werke, Huls
	I. G. Ludwigshafen
	Schiele, Escheborn i. T.
	I. G. Ludwigshafen
	I. G. Ludwigshafen
	I. G. Ludwigshafen
	Deutsche Rohrenwerke, Dusseldorf
	Demag, Duisburg
	I. G. Ludwigshafen
	I. G. Ludwigshafen
	I. G. Ludwigshafen
	Rheinmetall-Borsig, Dusseldorf
	Ruhrstahl, Witten
	Henrichshutte, Hattingenu, Wolking
	Mannesmann, Dusseldorf, Renscheid
	Deutsche Rohrenwerke, D Dusseldorf
	Fuchs Waggon, Heidelberg
	I. G. Ludwigshafen
	Koch und Sterzel, Dresden
	Ges. f. Elektroschweissung, Dortmund
	Fredenhausen, Offenbach
	Gebr. Woehr, Unterkochen/Wttbg.
Heat removers - 700 atm.	
Product collectors	
Surge tanks	
Preheater construction	
Hairpin tubes - 700 atm.	
Hairpin tubes - 325 atm.	
Exchanger bundles	
Appurtenances	
Circulating blowers	
Gas coolers - 700 atm.	
Air coolers	
Mud coolers	
Gas cooler - 325 atm.	
Reactor crans	
High pressure fittings - 700 atm.	
High pressure fittings - 325 atm.	
High pressure piping	
Tool wagons	
Electric preheater	
Electric transformers	
Electric equipment	
Other cranes	
Conveyors	

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IV. LIST OF IMPORTANT MANUFACTURERS OF MACHINES AND EQUIPMENT. (Cont'd.)

Rotating furnaces	Krupp, Grusonwerk, Magdeburg
Furnace lining	Tonwerk, Beibrich-Wiesbaden
Reducing gears	Friedr. Krupp, Essen
Burners	Wistra G.m.b.H.
Preheater and steam superheater	Walther, Köln-Dellbrück
Crane units	W. Fiebig, Waldenburg/Sehl.
Residue pumps	I. H. Naher, Chemnitz
Other cranes	E. Holscher, Rechlinghausen
Circulating and fresh gas blowers	Kleinschanzlin & Becker, Frankenthal

DISTILLATION

Distillation units A1, A2, A3	Uhde, Dortmund
Distillation units B1, B2, B3	Uhde, Dortmund
Distillation unit B4	Maschinenfabrik Brunn, Königsfeld
Stabilizers 1 & 2	Lurgi, Frankenthal/M.
Hot oil pumps up to 40 atm.	K.S.B. Frankenthal
Water pumps	Hesse, Chemnitz
Pumps for cold products	Weise, Sohne, Halle
A3 column	Ganzler, Düren
Tanks 1000, 2000, 3000 cu. meters	Munk & Schmitz, Köln
Tank 500 cu. meters	Dingler-Werke, Zweibrücken
Centrifugal blowers	Schiele, Eschborn, i. Ta.
Power gas storage tanks	Bamag, Bayenthal G.m.b.H.
Power gas scales	Sterkrade
Weighing lorry	Dopp, Berlin
Other lorries	Schmidt, Düsseldorf Schmidt, Düsseldorf

HYGASVERARBEITUNG und PHENOLWASSERREINIGUNG

Alkacid unit	Dr. Otto, Bochum
Hot and cold caustic pumps	Amag-Hilpert, Nürnberg
Oil scrubber	Bamag, Berlin
Organic sulfur purifier	Bamag, Berlin
Sodium hydroxide wash	Bamag, Berlin
Caustic pumps	Amag-Hilpert, Nürnberg
Hard steel-nozzles	Wallram, Essen
Electric controls for valves	A.E.G. Berlin

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IV. LIST OF IMPORTANT MANUFACTURERS OF MACHINES AND EQUIPMENT. (Cont'd.)

De-pressure vessels 50 and 100 atm.	Pintsch, Berlin D.R.W. Dusseldorf Mittledeutsche Stahlwerke Riesa Chemische Werke, Huls Leuna-Werke Leuna-Werke I. G. Ludwigshafen EMAG vorm. Schwartakopff, Berlin
Repair of tube bundles	
Hairpin tubes - 700 atm.	
Hairpin tubes - 325 atm.	
Paste and presses	
Middle oil injection pumps - 350 & 700 atm.	Balcke, Frankenthal
High pressure circulating pump - 60 atm.	Halberg A. G. Ludwigshafen
Expansion engine	Leuna-Werke

HYDROGENATION LOW PRESSURE

Discharge units	Gebr. Buhler, Dresden
Conveyor units	Maschinenfabrik Buckau
Mill units (sieve rolls, & Konsentra mill)	Gebr. Buhler, Dresden
Automatic balancers	Krupp, Grusonwerke, Magdeburg
Agitator vessel	Schenk & Co., Darmstadt
Product pumps	W. Dohman, Eschweiler
Mud centrifuges	K. S. Edesse, Oschersleben
Widia-nozzles (Wie dremant)	Bergedorfer Eisenwerke, Bergedorf
	Krupp, Essen
	Deutsche Edelstahlwerke, Krefeld
Sand separators	Eisenwerke, Kaiserlautern
Dirty ore centrifuge	I. Haubold, Chemnitz
Circulating pumps	Weise, Sonne, Halle
	Hasse, Chemnitz
Screw conveyor ovens	Uhde, Leuna
Screw conveyor cranes	Peninger Maschinenfabrik und Liebig, Leipzig
C <sub>3</sub> - C <sub>4</sub> unit	Uhde, Leuna
C <sub>3</sub> - C <sub>4</sub> pumps	K.S.B. Frankenthal
C <sub>3</sub> - C <sub>4</sub> compressors	Maschinenfabrik, Surth



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IV. LIST OF IMPORTANT MANUFACTURERS OF MACHINES AND EQUIPMENT. (Cont'd.)

Drives	Westdeutsche Getriebebaugen- sellschaft (Ges. Existiert nicht mehr)
Carbon rich gas compressors	Maschinenfabrik, Surth
Cooling unit	Rehinkalte, Dusseldorf
Drives and cooling compressors	Tacke, Rhine Westf. West- deutsche Getriebebauges
Gasoline rich gas blowers	C. Enke, Schkeuditz, Leipzig
C <sub>3</sub> - C <sub>4</sub> gas holders	Opbergen, Neuss Gutehoffnungshutte, Sterkrade
Phenol removing unit	Dr. Otto, Bochum
Gear pumps	Neidig, Mannheim
Vacuum pumps	K.S.B. Frankenthal
Oil separators	Schumann, Leipzig
Packed towers	Dinglewerke, Zweibrucken
Dirty water pumps	K.S.B. Frankenthal Weise, Sohne, Halle Anag-Hilpert, Nurnberg
Water tanks	Dinglewerke, Zweibrucken Kolsch-Folserweike, Siegen

V. FUEL ADMINISTRATION IN THE GERMAN GOVERNMENT.

(a) The head of all industry in Germany is Dr. Speere. Under him in charge of the chemical industries is Dr. Krauch, The chairman of I. G., who corresponds to the head of our W.P.B. The industries are broken down in the following groups:

- (1) Oil,
- (2) Aluminum,
- (3) Hydrogenation,
- (4) Nitrogen,
- (5) Explosives.

(b) The planning for all armaments under Speere is done by Herr Kehl, chairman of the planning division.

(c) As well as the above mentioned persons there is Herr. Geilenberg, personally picked by Hitler, and responsible only to him, who is in charge of exploiting all hydrogenation plants.

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V. FUEL ADMINISTRATION IN THE GERMAN GOVERNMENT. (Cont'd.)

He is responsible for the Geilenberg Plan which:

- (1) Repairs plants,
- (2) Builds new ones.

Geilenberg was responsible for the decision not to repair Wesseling and moving the workmen elsewhere.

(d) Product Destination.

All of the men at Wesseling seemed ignorant of the ultimate destination of the plant's output. However, the following information was given:

- (1) Motor gasoline - shipped to Berlin, Duisberg, Köln, Mannheim to large tank farms - Standard, Shell, etc. Some lead was apparently added.
- (2) Diesel oil - sent by canal to Holland, Antwerp and Ghent. Orders came from the Zentral Büro.
- (3) Aviation gasoline - destined for plants called WIFO - Munich and Duisberg. Some went to Ruhr oil Co. at Bothrop.
- (4) Special 165<sup>3</sup> C aviation gasoline went to D.H.D. unit at Ludwigshafen. Here the naphthenes were dehydrogenated to aromatics.

(e) New Underground Installations of Hydrogenation Plants.

The underground installations go by the code name "Schwalbe". They are supposedly five in number. Two are in the Elbe valley, between Dresden and Aussig, in the Elbe Sandstein Gebirge, on both sides of the river. One is near Buckeburg and Minden in a natural cave. The fourth is in Thuringia at Berga Kelbia and the fifth, belonging to I. G., is in the Harz mountains in the old gypsum quarries at Niedersachswerfen. The latter also has an A. T. unit (Alkylation Plant).

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