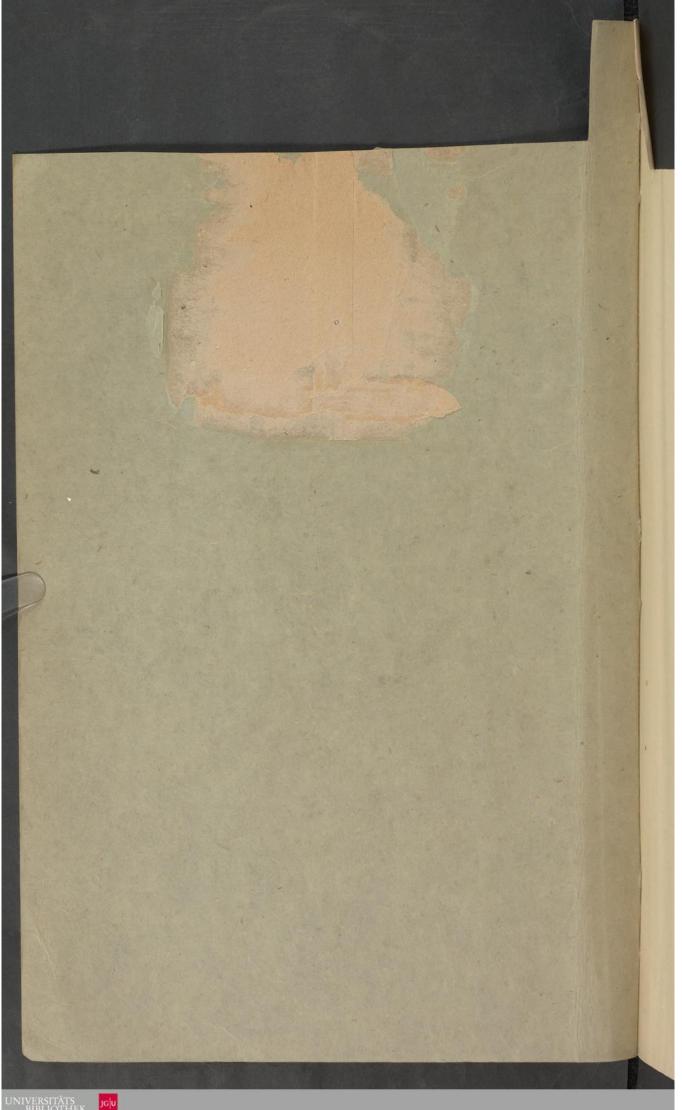
# THE

# BOMBER'S BAEDEKER

(Guide to the Economic Importance of German Towns and Cities) 2nd (1944) Edition.

> Part I. AACHEN-KÜSTRIN

> > Enemy Branch (Foreign Office & Ministry of Economic Warfare)



THE BOMBER'S BAEDEKER

(Guide to the Economic Importance of German Towns & Cities)
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PARTI

AACHEN-KÜSTRIN

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Enemy Branch,
(Foreign Office & Ministry of
Economic Warfare).

#### PREFACE

- The 1944 edition of the "Bomber's Baed revised and amplified version of Part III of edition, which it replaces. It has been extended scope to cover all towns in Germany (regardless of size) which are of any industrial significance, and it has been possible to expand the number of industrial establishments listed in each town. Information relating to the activities of particular factories has been revised in the light of the latest available intelligence.
- 2. As in the previous edition, enterprises have been grouped under fourteen industrial headings as follows:-
  - Transportation
  - Public Utility Services
  - Solid Fuels
  - Liquid Fuels & Substitutes

  - Iron, Steel, & Ferro-Alloys Non-Ferrous Metal Smelting, Refining, & Manufacture
  - Aircraft & Aero-engines
  - 8. Shipbuilding
  - Other Engineering and Armament Industries 9.
  - Chemicals & Explosives 10.
  - Textiles, Rayon, Pulp & Paper Rubber & Tyres 11.
  - 12.
  - 13. Leather
  - 14. Food industries
- The descriptions of activities and the figures in the column entitled "Priority" are intended only as a general guide to the size and relative importance of the individual undertakings. The basis on which the "Priority" ratings have been allotted is as follows:-
  - Factories of outstanding importance 1+ in the German war effort.
  - Major plants in major industries 1
  - Minor plants in major industries

Major plants in minor industries

- Factories of relatively small importance in the German war effort.
- Factories which are almost certainly of little importance in the German war effort and establishments concerning which the available information is not sufficient to enable any priority rating to be allotted.



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Some of the works included without priority are new establishments the activities of which are uncertain; some of them would doubtless rank for inclusion in one of the four priority groups if full information were available.

In allotting priorities account has been taken of the damage inflicted in area attack only in cases where the productivity of the factory concerned appears to have been permanently affected. In other cases factories are assessed on the basis that they have been fully repaired and are fully active. Owing to the speed with which repairs are put in hand in some cases, it did not seem practicable to give weight to damage which may prove to be temporary in assessing priorities which are intended for long-term reference. The priority rating of a factory in the Bomber's Baedeker consequently does not necessarily reflect its current importance and should not be used for the purpose of appreciations without reference to its current damage status. If the demand from users justifies it, however, periodical statements can be issued to show the current status of damaged factories as well as other amendments.

4. Owing to its increased size it has been necessary to bind the new edition in two parts, of which the first includes, in alphabetical order, the towns AACHEN to KÜSTRIN; and the second the towns LAHR to ZWICKAU.

Each part is accompanied by maps showing: -

- a) All towns covered by the 1944 edition of the Bomber's Baedeker.
- b) The method of division of the industrial area of the Ruhr into fourteen districts.

An index is in course of preparation.

5. Enquiries relating to this report should be addressed to:-

E.B.3 Enemy Branch (F.O. & M.E.W.) Lansdowne House, Berkeley Square, London, W.1.

> Enemy Branch, (Foreign Office & Ministry of Economic Warfare). May 1944

# AACHEN (Rhineland)

50° 47' N. 6° 5'E: 275 miles from London: (Population 164,000)

Aachen is an important railway junction on one of the main routes from North-West Germany into Belgium and France. It is the centre of a large coal-mining area, and many of the companies exploiting these mines have their administrative offices in the town. In peace-time textiles formed the main industry in Aachen proper. There are a large number of spinning and weaving mills, many of which were closed early in the war. The leading firms of Aachen's engineering and rubber industry are mentioned below. The town has been heavily damaged by bombing, and the production of several of these firms reduced, but much of the industrial damage, particularly to the main factories, has been repaired. The industries are mainly grouped in the North East corner of the town along the Jülicherstrasse, and in the Rothe Erde district, east of the town centre. Several of the textile mills in the Jülicherstrasse, which have been closed down, are now said to be used as dummies. The central part of the town is closely built, and has largely preserved its mediaeval character.

TYPE AND DESCRIPTION OF OBJECTIVES	LOCATION	PRIORITY RATING	
Transportation  Railway Junction	Aachen-West	(2)	

The main line Westwards from Cologne passes round the Southern edge of the town centre and crosses an important viaduct immediately to the East of the main railway station. At this station the line divides, one branch leading to Verviers and Liege, 25 miles West of Aachen, and the second leading Northwards round the town centre to the Aachen-West Station, near to which, a second important track leads by another route to Liege. From the Aachen-West Station, a main line leads North East to Krefeld and the Ruhr. These are the trunk lines which connect the industrial Rhineland direct with Antwerp and, through the Meuse valley, with North Eastern France. Further important branch lines lead from Aachen North East to Maastricht and Holland, and, from the Nordbahnhof Station, to Jülich and the coal mining region to the North East of the town.

## Marshalling Yards Aachen-West (2)

Immediately to the North West of the Aachen-West Railway Station is the largest of the town's goods yards, with marshalling yards capable of handling 3,000 wagons per 24 hours. There are other goods stations immediately to the West of the main railway station, and in the Rothe Erde district to the East of the town.

Railway Repair Shops

Aachen-West

(2)

These are medium-sized repair shops undertaking the repair of goods wagons. They adjoin the goods yards West of the main railway station.

#### Public Utility Services

Power Station

Aachen

(3)

The municipal power station has a capacity of  $50~\mathrm{MW}_{\odot}$ 

Gas Works

(3)

The Städtische Gaswerke (Municipal Gas Works) supplies the town of Aachen and most of the surrounding area. Its sales in 1936 amounted to about 650 million cubic feet of gas.

# Solid Fuels

Gewerkschaft "Carolus Magnus" Palemberg

Ubach-Palenberg

(3)

The Carolus Magnus Mine lies about 10 miles North of Aachen at Ubach-Palenberg. It has a coking plant of 100 ovens and a maximum rated dry coal capacity of 350,000 tons per annum. In 1936 the hard coal output at this mine was 1 million tons.

Gewerkschaft Karl Alexander

Baesweiler

(3)

This company has a mine and coking plant at Baesweiler about 9 miles North-North East of Aachen. The coking plant has 20 ovens and a dry coal capacity of 60,000 tons per annum. In 1936 the hard coal output of the mines was about 1,000,000 tons.

## Engineering and Armaments

H. Krantz

Industriestr.

(3)

The Maschinenfabrik H. Krantz formerly specialised in the making of textile machinery. The plant employs approximately 1,000 workers and is believed to be now converted for the manufacture of arms and small arms components as well as S. A. A. Situated within the factory site of this firm is the affiliated works of H. Krantz Söhne employing about 300 workers on armaments.

Garbe Lahmeyer A. G.

Jülicherstr.

(2)

This firm formerly specialised in the making of cheatrical dynamos and accessories, as well as steel cylinders and other pressure containers. It has been reported that these works have been partly turned over to the making of small electric motors for U-boats, submarine accessories and other armaments. It is believed that 2,000 to 3,000 workers are employed.

Waggonfabrik Talbot

Jülicherstr.

(3)

These railway wagon builders specialize in bodybuilding and self discharging wagons and are now also building heavy military vehicles. 800 workers are employed.

Anton Veltrup & Co.

Jälicherstr.

(3)

This firm is reported now to employ some 500 workers on the manufacture of tool machines for Junkers and for submarines.

Schumacher

Aachen

(3)

The Schumacher Metallwerk A. G. (Schumag) are specialists in precision machine tools and employed some 700 workers before the war.

#### Rubber and Tyres

Englebert & Co. G. m. b. H.

Rothe Erde

(1)

The pre-war capacity of these important manufacturers of rubber tyres and tubes was 75,000 truck and motor tyres per annum. During the war the plant was largely concentrated on the heavier truck tyres, the production of which rose to 6,000 per month. Approximately 1,000 workers are employed. These works are reported to be making tyres with 85% Buna content. There was no aeroplane tyre production before the war, but it is believed that a proportion of these were later included in the factory's output. This factory also turns out retreaded and bicycle tyres. Its reclaim capacity is believed to be 200 tons per annum.

Pongs & Co.

Rothe Erde

(3)

This firm manufactures a wide range of technical rubber goods.

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# AALEN (Wasser-Alfingen)

48 50'N. 10 5' E:

490 miles: (17,000)

#### Engineering and Armaments

Maschinenfabrik Alfingen-Kessler A. G. Wasser-Alfingen (1)

It is believed that in 1942 this factory employed some 3,500 workers (including a large number of P/W.) on the machining of crankshafts for aero-engines, submarines and motor vehicles. Approximately 30 to 40 per cent. of the total output is reported to be in the form of aero-engine crankshafts.

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- 5 -

# AHLEN (Westphalia)

51° 45' N. 7° 55' E:

345 miles: (26,000)

Ahlen is situated on the main railway line from Berlin to the Rhineland and lies between Bielefeld and Hamm. It has no great industrial significance, though there are a few white metal and enamel works, two of which are mentioned below. There are also several small shoe factories, but no other industries which are individually of note.

# Non-Ferrous Metal Manufacture and Fabrication

Rollman & Tovar A. G.

Ahlen

(3)

This firm has three separate works in Ahlen engaged on metal moulding, stamping and enamelled work.

Schomaker & Cie. A. G.

Ahlen

(3)

This firm manufactures white metal products of various kinds.

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# AKEN (Province Saxony)

51° 50' N. 12° E:

525 miles: (12,000)

Aken is 5 miles West of Dessau, and on the South bank of the Elbe. There are no industries of importance, apart from the non-ferrous metal works mentioned below.

#### Non-Ferrous Metal Manufacture and Fabrication

Aluminium Werke Aken A. G.

Aken

(2)

This works is built in a forest on the left bank of the Elbe, and on the Eastern side of Aken. These works went into production in 1938. Its estimated output as per September 1943 is 10,000 tons of aluminium per annum. The magnesium capacity is 8,000 tons per annum.

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#### A L B B R U C K near Waldshut

47° 36' N. 8° 8' E:

460 miles (6,800)

Public Utility Services

Rheinkraftwerk Albbruck-Dogern A.G.

Albbruck

(2)

The capacity of this power station is 72 MW. So far as is known there is no local transmission, the whole of the output of the plant being supplied over three 100 kV lines to Tiengen substation.

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#### ALLENDORF (Hesse Nassau)

50° 50' N. 8° 50' E:

390 miles: (20,500)

Formerly a small village, Allendorf is reported to have recently grown in size owing to the building of the explosives and filling factory of the Dynamit A.-G.

#### Chemicals and Explosives

Dynamit A. G.

mel

ote.

3)

nr. Allendorf

(2)

This factory is operated by DYNAMIT A. G. It has been constructed in the course of the present war. It has been reported by ground sources as being of exceptionally great size, and as being associated with a variety of activities. Photographic cover of September, 1941, suggests that the plant is engaged primarily in the production of finished propellant powders, but does not show it to be extremely large. On the other hand, a variety of reports received in 1942 and 1943 suggest that great extensions have been made during the last two years, the proposed completion date being given as September, 1943. In view of the number of such reports, it must be assumed that a very considerable powder factory now exists at this site, but it is not possible to give an estimate of its capacity. The factory is situated near Kassel slightly to the east of Allendorf village.

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#### ALLENSTEIN (East Prussia)

53° 45' N: 20° 50' E:

880 miles: (48,000)

Allenstein is on the main railway from Berlin to Insterburg and the Eastern Front. It is situated in the Southern part of East Prussia. The town is mainly an agricultural market centre and apart from the Railway Repair Shops mentioned below, there are no industries of importance.

#### Transportation

Railway Repair Shops

Allenstein

(2)

These are large repair shops employing some 3,000 workers and undertaking the repair of all kinds of rolling stock.

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# ALSDORF (Rhineland)

50° 55' N. 6° 10' E:

270 miles: (20,000)

Alsdorf is 5 miles Northeast of Aachen and its industrial activity is chiefly connected with the coal mines in the surrounding district. There is no other industry of importance other than a liquid fuel plant listed below.

## Public Utility Services

Power Plant

Alsdorf

(3)

This thermal electric power plant is adjacent to the coal mines of Eschweiler Bergwerks Verein A.G. and has a capacity of 37 mW. A large proportion of the power is supplied to the Aachen region.

Gas Works

Alsdorf

The coking plant of the Eschweiler Bergwerks Verein A. G. which is mentioned below under Solid Fuels, supplies gas through the long distance system to industries as far as Cologne.

#### Solid Fuels

Anna Coal Mine

Alsdorf

(2)

The Eschweiler Bergwerks Verein A. G. owns five large coal mines in this area, of which two, the "Anna" and the "Maria" pits, are in the immediate vicinity of Alsdorf. The total output of the mines of this concern is 8 million tons per annum. Adjoining the "Anna" coal mine is a large coking plant with 498 ovens, of which 173 are modern, and an annual capacity of 1 million tons of coke. The coking plant at the Maria mines which has 45 ovens is believed to be inactive.

#### Liquid Fuels

Teernerwertungs-Ges. m. b. H.

Alsdorf

(3)

This is a branch of the Duisburg firm of the same name. It is mainly engaged on distillation and processing of coal

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# ALTDAMM (nr. Stettin)

53° 25' N. 14° 40' E:

640 miles: (15,200)

Altdamm is on the right bank of the Oder opposite to Stettin, from which it is some four miles distant. The normal peace-time industries include flour milling and a wood pulp factory. Its importance has now greatly increased owing to the development of the large aero engine works mentioned below.

#### Aircraft and Aero Engines

Pommersche Motorenbau

Altdamm

(1)

These works employ some 3,000 workers and build aero-engines chiefly for Junkers type aircraft. The factory includes testing and experimental shops and is believed to \*\*188\*\* undertake a certain amount of repair work.

(The location of this plant is sometimes given as Arnimswalde).

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# ALTENA (Westphalia)

51° 15' N. 7° 40' E:

340 miles: (17,000)

Along the valley of the River Lenne, in which Altena is one of the principal towns, there are a number of industrial settlements which, though many are individually small, are collectively of great importance to the German metal industry. Two of the larger plants in Altena are mentioned below. There are, however, a very large number of smaller factories and workshops engaged in all kinds of light metal work.

#### Engineering and Armaments

V. D. M.

Altena

(2)

The works of the Vereinigte Deutsche Metallwerke vorm. Basse & Selve, comprise metal foundries, rolling mills, wire drawing plant for the fabrication of nonferrous metals, and also a motor works where small Diesel engines are produced. They employ some 800 workers. The nickel refinery of this works has a capacity of 2,500 tons per annum.

Gebr. Knipping

Altena

(3)

The Nieten & Schraubenfabrik Gebr. Knipping, which is controlled by the Vereinigte Stahlwerke A.G., specialise in rivets and screws of all types. There is also a wire drawing plant. Some 700 workers were employed before the war when the output was said to be 1900 tons per month. The firm is known to be one of the principal suppliers of rivets and screws of the Reichsbahn.

Friedrich Petig

Altena

(3)

from area the amount bell area make

This firm employs several hundred workers in the manufacture of machine tools, precision hand tools and measuring instruments.

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ALTONA (Schleswig-Holstein)

See under Hamburg.

## ALTENBURG (Thuringia)

51° N. 12° 25' E:

550 miles:

(44,000)

Altenburg is 25 miles South of Leipzig, and is on the main line from North Germany to Munich via Hof. It lies to the South of an area of large br. coal deposits, and is an administrative centre for the firms exploiting these. The manufacture of sewing machines was among the town's peace-time industries, and the factory mentioned below is now engaged on armaments. The town's other activities are mainly agricultural, and there are a number of small factories making hats and gloves.

#### Engineering and Armaments

(3)

Hermann Köhler A. G.

Altenburg

(3)

This firm, which makes a well-know type of sewing machine, considerably extended its plant and the number of workers in 1935-37 and is no doubt now turning out products of direct value to the armaments industry.

# ALTÖTTING (Bavaria)

48° 14' N. 12° 40' E:

615 miles:

(5,800)

Altotting is a small town about 6 miles West of Braunau/Inn (Austria). A number of industrial establishments are reported to have been erected in this area since 1939 but little firm intelligence is available as to their activities.

# Chemical and Explosives

Bayerische Stickshoffwerke A.G.

Gendorf

(3)

A new large chemical works said to be engaged on explosives and/or propellants is believed to have been erected here but satisfactory confirmation of this is unavailable. According to ground reports the factory is also know as the Anorgana Werke and employs more than 1,000 workers.

# AMBERG (Bavaria)

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49° 25' N. 10° 50' E:

550 Miles:

(30,000)

Amberg is on the railway line which runs eastwards from Nuremberg to the Czechoslovakian frontier. It is approximately 60 miles East of Nurenberg. Its present industrial importance is due to the Luitpoldhutte steelworks, which are mentioned below.

#### Engineering and Armaments

#### Luitpoldhutte

Amberg

(3)

The Amberg steelworks of the Bayerische Berg-Hütten & Salzwerke A.G. (Lumpoldhütte) have been taken over by the Hermann Göring concern, and are believed to be working to full extent of their capacity. The works are not on a large scale. There are three blast furnaces and a steelworks adjoining.

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#### AMMENDORF (Saalkreis), Province Saxony

51° 30' N. 12° E.

520 miles:

(15,300)

Ammendorf has a number of industries ranging from br. coal to chemicals and engineering but the only large factory within the bounderies of the town is Gottfried Lindner A.G. suppliers of bodies for commercial vehicles.

#### Solid Fuels

Riebeck'sche Montanwerke

Ammendorf

(3)

This firm operates a number of br. coal mines near Ammendorf with a total annual output of three million tons and 150,000 tons of briquettes.

## Engineering and Armaments

Gottfried Lindner A.G.

Ammendorf

(2)

This is the largest individual works in Germany specializing in bodies for commercial vehicles and buses. It normally employs some 2,000 workers but this number is believed now to exceed 3,000.

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#### ANDERNACH/Rhine

50° 26' N. 7° 24' E: 337 miles:

(13,800)

#### Engineering and Armaments

Remy, van der Lypen & Co.

Andernach

(3)

This is a very well equipped works producing tinned and lacquered coldrolled steel strip at a rate of 5,000 tons per month. Normally the works employ some 1,200 hands.

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# ANDREASHÜTTE (Silesia)

50° 35' N. 18° 30' E:

800 miles:

(5,000)

Andreashutte is situated on the main railway line between Oppeln and Beuthen. Apart from the large works mentioned below, there are no industries of importance.

# Engineering and Armaments

VOHAG

Andreashutte (3)

The Andreashutte works of the Vereinigte Oberschlesische Hüttenwerke A.G. comprise foundries, rolling mills and drop hammers. They produce barrels for machine gums, bogey wheels, and suspension components for tanks and gum carriages. 2,000 workers are employed. For further particulars of the VOHAG see under GLEIWITZ.

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## ANKLAM (Pomerania)

53° 50' N. 13° 14' E: (20,000) 600 miles:

Anklam is situated on the River Peene, on the main railway line between Berlin and Stralsund. It is the junction for Swinemunde. The town's normal industries, which are on a small scale, include sugar refining, iron foundries and engineering works. The Peene is navigable for small craft and there is some shipping traffic. Anklam's importance however is now due to the aircraft works mentioned below.

#### Aircraft and Aero Engines

Arado Flugzeugwerke

(1) Anklam

These works make aircraft components, including wings and tail units, for the Brandenburg factory of the Arado concern. Complete training ai are assembled here. Some 2,000 workers are Complete training aircraft employed.

# ANNABERG (Saxony)

50° 35' N. 13° E: 575 miles: (20,000)

Annaberg is close to the former Czechoslovakian frontier. The Auto Union A.G. of Chemnitz have an iron foundry which is mentioned below, and it has also been reported that the A.E.G. have evacuated one of their laboratories to this town. Normally Annaberg specialises in the manufacture of decorative braids, tassels, cords and similar fancy textile products.

## Engineering and Armaments

Auto Union A.G.

Annaberg (3)

An iron foundry belonging to the Auto Union of Chemnitz is established in Annaberg.

A.E.G.

Annaberg

The Annaberg branch of this important Berlin firm normally made electric switches, lampholders, sockets, distribution board fittings and other electrical The factory has been appliances on a small scale. enlarged since 1939.

# Annahütte (Brandenburg)

51° 34' N. 13° 54' E:

604 miles.

(3,500)

This small mining town lies approximately 3 miles South East of Finsterwalde. It has no industries other than those connected with or part of a number of br.coal mines which are situated in the near vicinity.

#### Solid Fuels:

"Grube Werdmannsheil"

Annahütte (-)

Those mined are owned by the Niederlausitzer Kohlenwerke A.G. This br.coal mine produced 1,200,000 tons of brown coal and 139,000 tons

of briquettes in 1937.

#### Grube Annahütte

Annahütte (-)

These mines are owned by the Heye Braunkohlenwerke G.m.b.H. and in 1937 produced 1,275,000 tons of brown coal and 400,000 tons of briquettes.

# ANSBACH (Bavaria)

49° 20' N. 10° 40' E: 490 miles: (25,000)

Ansbach is situated in Mittelfranken, some 15 miles Southwest of Nurmberg. It is a market town for the surrounding agricultural district, but has no important industries.

# ARNIMSWALDE (near Stettin)

See under Altdamm.

# ARNSBERG (Westphalia)

51° 25' N. 8° 10' E: 355 miles: (15.000)

Arnsberg is on the railway line from Hagen to Kassel It is a small industrial town in the Southern section of Westphalia on the upper reaches of the River Ruhr. Its main products are wood pulp, paper and cardboard.

# Testiles, Rayon, Pulp and Paper

Feldmühle

Armsberg (-)

This is a branch factory of the Feldmühle Papier and Zellstoffwerke A.G. a widespread concern making wood pulp and paper. The Arnsberg factory specialises chiefly in the production of cardboard. 450 workers are employed.

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(-)

## ARNSTADT (Thuringia)

50° 50' N. 10° 55' E:

485 miles:

(22,000)

Armstadt is 7 miles South of Erfurt and before the war the main activities were the manufacture of china, porcelain, and leather gloves. In 1938 an important factory was erected here by Siemens & Halske. This is mentioned below.

# Engineering and Armaments

Siemens & Halske

Arnstadt

(2)

These works were built in 1938 and produce precision instruments, including those used in U-boats. Nearly 5,000 workers are reported now to be employed in this and in an adjacent plant erected by A.E.G.

Meta Werk

Armstadt

(3)

The Meta Metallwerk G. m. b. H. is reported to be making anti-tank shells. This company is believed now to be associated with the Polte arms works of Magdeburg.

Rudolf Ley A.G.

Arnstadt

(-)

This firm specialises in the manufacture of machinery for the boot and shoe industry.

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## ASCHAFFENBURG (Bavaria)

50° N. 9° 10' E:

420 miles:

(43,000)

Aschaffenburg is on the main line from Frankfurt a. Main to Wurzburg and Southern Bavaria. It is 25 miles East of Frankfurt. The town is built mainly on the right bank of the River Main, and it is an important transhipment port for the waterborne traffic between North Western and Southern Germany. There are a number of industries of various kinds, of which the most important are precision tools, and paper and cellulose.

#### Transportation

Inland Harbour

Aschaffenburg

(3)

The River Main, which is canalised for heavy barges as far as Aschaffenburg, is planned to take through traffic to the Danube when the projected Main-Danube Canal has been completed. At present Aschaffenburg is the chief Southern terminal point for this barge traffic, and a considerable tonnage, largely consisting of coal from the Ruhr, is carried by water to this point and despatched from here to Southern Germany. The harbour consists of two dock basins, on the left bank of the Main at the Western end of the town.

ASCHAFFENBURG (contd)

100	Management desired des		
	Railway Repair Shops As	chaffenburg	(3)
	These are medium sized repair shops under the repair of goods wagons.	rtaking	
	Railway Traffic Centre		(3)
2)	This includes small shunting, goods and marshalling yards.		
	Public Utility Services		
3)	A switching and transformer station Asson the 110 kV line operated by the Bayernwerk company is situated about 600 yards of the docks.	chaffenburg	(3)
"	The Stadtische Elektrizitatswerke (Municipal power station) is of some importance to the local industry. Ash	affenburg	(3)
		affenburg	
,	Engineering and Armaments	arrenburg	(3)
-)			
		affenburg	(3)
0)	These works belong to the Gesellschaft fu Lindes' Eismaschinen A.G., Wiesbaden. Th make a variety of machine and hand tools particularly for the motor vehicle indust as well as vertical gas engines of medium h.p.	ry	
	Aba Werke Ash	affenburg	(2)
	This firm makes precision tools and specialises in machine tools for aeroengine and aircraft component manufacture. Approximately 650 workers are employed.		
	Mikron Werk Asc	haffenburg )	
	Ultra Prazisionswerk Asc	haffenburg }	(2)
3)	Johann Fischer Asc	haffenburg }	
	The above are three of the largest among a number of factories in Aschaffenburg which make precision tools, gauges, and measuring instruments.	1	
	B. Seibert Ascl	naffenburg	(2)
	This firm was originally engaged in steel construction and bridge building. The ris now being utilised for heavy repairs to A.F.V's and is said to employ some 2,000 workers.	plant	

workers.

# ASCHAFFENBURG (Contd)

Armament Factory

Aschaffenburg (-)

It is reported that approximately 9 kms. to the South of Aschaffenburg, a factory has been erected, which employs over 1,000 workers and makes U-boat screws and aircraft propellers. Confirmation of this report is lacking.

# Textiles, Rayon, Pulp and Paper

Zellstoffwerke

Aschaffenburg

(3)

This is one of the main works of the Aschaffenburger Zellstoffwerke A.G. and manufactures cellulose and paper. They employ some 3,000 workers.

Buntpapierfabrik A.G.

Aschaffenburg

(-)

This is a large scale paper works which specialised before the war particularly in the manufacture of dyed and coloured papers.

----000

# ASCHERSLEBEN (Province Saxony)

51° 45' N. 11° 30' E: 500 miles: (40,000)

Aschersleben lies 20 miles to the South of Magdeburg on the plain immediately to the North of the Hartz Mountains. It is on an East to West railway line, which connects it directly with Halberstadt, Bernburg, Köthen and Dessau, the four other towns where important Junkers works are situated. The principal firm is Aschersleben is the Junkers factory described below. The normal peace-time industries include paper mills, engineering works, and the manufacture of woollen blankets. There are several brown coal mines in the neighbourhood, one of which, the Concordia, supplies fuel to the Aschersleben electric power station.

#### Public Utility Services

(3)

(-)

Power Station Aschersleben (3)

The Concordia electric power station is a thermal plant with a capacity of 70 MW.

## Aircraft and Aero Engines

Junkers Werke Aschersleben (1)

This important factory of the Junkers concern concentrates mainly on the construction of fuselages for Ju.88's. The production capacity is believed to synchronise with the production of wing sets at Halberstadt. The fuselages are despatched to Bernburg for assembly. Ju. 52 fuselages are also produced at Aschersleben. According to ground intelligence nearly 7,000 workers are employed.

#### Engineering and Armaments.

Deutsche Tiefbohr A.G. Aschersleben (2)

This firm specialises in the manufacture and installation of well-boring machinery and mining equipment. Some 800 workers were employed in 1939.

Billeter & Klunz Aschersleben (3)

This firm, which has an iron and steel foundry, manufactures machine tools particularly planers and grinders. Some 600 workers are employed.

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## AUE (Saxony)

50° 35' N. 12° 40' E: 555 miles: (26,000)

Aue is 10 miles South East of Zwickau. In peace-time the chief products are small cutlery and tin plate. In addition to the three factories mentioned below, there are several other smaller metal working firms in Aue which it is believed have now been turned over to making S.A.A. and small arm components. Other industries include the manufacture of shirts and cotton garments.

/NON-FERROUS

## Non-Ferrous Metal Manufacture and Fabrikation

# Sächsische Blaufarbenwerke A.G. Aue and Oberschlema (2)

These are the largest German nickel smelting plants with a combined capacity of 2,000 tons of nickel per annum out of a total German capacity of 5,300 tons per annum. The plant can refine about 200 tons of cobalt annually.

#### Engineering and Armaments

(2) Aue Wellner

The Sächsische Metallwarenfabrik A. Wellner Sohne A.G. normally manufacture cutlery but are now converted to armament manufacture, and produce small arms components. They are reported to employ some 3,000 workers.

(2) F.A. Lange

This firm employ some 1,500 workers and is now producing small arms components, land mines etc. Their peace-time products were chiefly tin plate and small cutlery.

Hiltmann & Lorenz (3)

The works of the Maschinenfabrik Hiltmann & Lorenz A.G. specialise in iron and steel plate pressing machinery for all ranges of products, from steel helmets to heavy motorcar chassis frames. The plant operates a subsidiary factory at Niederschlema near Aue with a foundry, a crucible furnace of 6 tons capacity, for castings requiring high tensile strength. Some 1,200 workers were employed before the war at the two works.

(3) Hutschen-Reuter A.G.

This firm, which employed 300 workers before the war, is now specialising in M.G. belt sections for 25 mm anti-tank guns, in landmine casings, and in metal containers for naval ammunition.

(3) Erdmann Kircheis Auchammer

These works are tin plate stampers and pressers supplying in particular some of the smaller automobile factories. They employed some 1,000 workers before the war. It is believed that this number has been maintained and that the firm is now acting as a subcontractor of the Volkswagen works at Fallersleben. Auchammer is an outlying district of Aue.

> -----/AUERBACH

na (2)

(2)

(2)

#### AUERBACH (Saxony)

50° 30' N. 12° 25' E:

550 miles:

(20,000)

Auerbach is 13 miles East of Plauen. The town normally specialises in brocades, tapestry materials and similar products. There are no industries of importance.

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AUGSBURG (Bavaria)

48° 20' N. 10° 50' E:

540 miles:

(186,000)

Augsburg is 30 miles North West of Munich, and is an important traffic centre and railway junction.

Apart from a few factories individually of considerable importance as producers of primary products for the armed forces there is no general industry of high priority in this area. Most of the large cotton weaving and spinning mills have closed down due to shortage of raw materials and to a lesser extent labour shortage.

Transportation

Railway Junction

Augsburg

(2)

(3)

(3)

(3)

Five important railway lines meet in Augsburg. It is on the main line from Munich through Donauworth to North-West Germany, and a second trunk line leads westward from Augsburg to Ulm. To the South the main connection through South-West Bavaria to Lindau on Lake Constance, diverges from the Augsburg-Munich line South of the town. A further branch leads North Eastward to Ingolstadt.

Railway Repair Shops

Augsburg

(2)

These are large works which are situated to the South of the Morellstr. Railway Station. They undertake the repair of all kinds of rolling stock.

Public Utility Services

Städtische Gas Werke

Augsburg

(3)

This is the main Augsburg Gas Works. It supplies the major part of Augsburg proper and most of the suburbs and in 1936 sales amounted to 460 million cubic feet of gas.

The Lechtal Werke A.G.

Gersthofen

(3)

Operate at 25,000 kW. power station at Gersthofen under the name Lech-Elektrizitäts-Werke A.G.

# Aircraft and Aero Engines

Messerschmitt A.G.

Haunstetterstr. (1+)

These are the parent works of the Messerschmitt concern, and are situated adjacent to an airfield two miles South of the city centre, on the way to Haunstetten. They have been considerably enlarged during the war and have now five separate plants in this vicinity engaged on the design and production of their own types of fighter aircraft. More than 10,000 workers are The Augsburg group of factories of employed. the Messerschmitt company accounts for a large proportion of the total cutput of the 410 Messerschmitt type aircraft. The Augsburg works include the main research and experimental department, and are engaged on the design and production of the Messerschmitt prototypes.

Martin Schmittmer

Schackstr.

(2)

This firm specialises in air-frames and aircraft body components. They are reported among other products, to manufacture a large proportion of the total requirements of pilot seats for the Me. 210's and 410's.

#### Engineering and Armaments

M.A.N. Maschinenfabrik

Stadtbachstr.

The Augsburg works of the M.A.N. Maschinenfabrik A.G. are the largest single plant of this concern. They are situated in the Northern part of the town. The M.A.N. are the leading German makers of Diesel engines, they produce all types and sizes of these, from complete U-boat Diesel propulsion units and diesels for other ships, to the types used in A.F.V's and military transport. It is believed that some 10,000 workers are now employed at the Augsburg plant, which is of the highest importance to the German war effort. In the course of the war this plant has been completely reorganised and considerably extended. New workshops have been erected to the west of the factory site and factories adjacent to the North and North-West are believed to have been incorporated into the M.A.N. complex. variety of armaments components are believed to be made in the new workshops, whilst the acquired buildings are used as stores, dwellings and repair shops.

Keller & Knappich

Ulmerstr.

(1)

The works of Keller & Knappich G.m.b.H. specialise in peace-time in the construction of welded and rivetted tanks and large containers, and in pressings and stampings,

/and

and metal tubing which were supplied to the Messerschmitt aircraft works. They are now reported also to make aero-engine and armement components, and to have a second plant engaged on components of U-boat Diesel engines. Two-thirds of the total of 5,000 workers employed by this firm are said to be engaged in this second plant, which is of recent construction and partly built underground but within the old factory site.

## Eberle & Cie. A.G.

(1+)

Pfersee

(3)

This firm specialises in the manufacture of watch springs, small band saws, and similar products, and is one of the leading firms in this branch.

#### Augsburger Federnfabrik

Bleichstr.

(3)

This firm, which normally manufactures light springs of all kinds, is now reported to be engaged mainly on components for aero engines.

#### Zahnräderfabrik

Hindenburgstr. (2)

The Zahnräderfabrik Augsburg A.G. vorm.
Joh. Renk, are makers of transmission units,
gear boxes, and axles. Their works are in
the South Western quarter of the town. They
employed approximately 1,000 workers before
the war.

#### L.A. Riedinger

Ottostr.

(-)

The Riedinger Bronzewarenfabrik is situated close to the M.A.N. works, and formerly specialised in lamp fittings and similar bronze products. It is believed that this factory has now been incorporated into the M.A.N. complex.

#### Chemicals and Explosives

#### F.B. Silbermann

Haunstetterstr. (3)

These chemical works are equipped with large scale testing and research laboratories, and employ some 2,000 workers. It was reported in 1942 that highly secret tests of a new type of poison gas and other chemical warfare materials were being carried out in these works. The works is believed to be fully active.

#### Textiles, Rayon, Pulp and Paper

Ballonfabrik

Austr.

(2)

The Ballonfabrik Augsburg, which was formerly known as A. Riedinger, is reported to be the largest balloon factory in Germany and to /em

/employ

(1)

employ some 4,000 workers.

Baumwollspinnerei a. Stadtbach A.G.

Augsburger Buntweberei

Spinnerei & Weberei Pfersee A.G.

Stadtbachstr. (-) Wolfzahnstr. Augsburgerstr.

These three firms are the most important of some twenty textile mills situated in Augsburg. No firm evidence regarding their present activity is available but it is believed that all three factories are now incorporated into the M.A.N. complex.

# AUGUSTENTHAL (Westphalia)

51° 27' N. 7° 40' E: 335 miles (1,000)

Two miles south of Allena, the small town of Augustenthal only has some 200 inhabitants but possesses a wire-drawing plant (a) and (b) a steel works said to be producing special steel for precision tools ball-bearings, and cash-steel rods and (c) a wire-drawing plant also making spiral small springs for instruments, and small screws.

# Engineering & Armaments

1) Ernst Selve (3) 2) R. & H. Plate 3) Friedrich Boesner

## BADEN-BADEN (Baden)

48° 45' N. 8° 15' E:

420 miles: (33,000)

Baden-Baden lies some 20 miles South West of Karlsruhe. It is primarily a health resort, and has no industries of importance.

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# BAD GODESBERG (Rhineland)

50 45' N. 7 10' E:

320 miles: (32,000)

Bad Godesberg lies a few miles to the South of Bonn on the main railway to Koblenz. The town is chiefly noted as a health resort, and apart from a few small engineering works, has no industries of importance.

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## BAD HOMBURG (Hesse Nassau)

50° 15' N. 8° 35' E:

390 miles: (19,000)

Bad Homburg is situated approximately 10 miles North of Frankfurt a. Main, on a branch railway from Frankfurt to Friedberg. The town is chiefly a health resort, and apart from the important rubber works mentioned below, contains no industries worthy of note.

#### Rubber and Tyres

Peters-Werke

Bad Homburg

(2)

The Peters-Pneu-Renova-Werke specialise in the repair and retreading of tyres, and normally employ several hundred workers. The works are of considerable importance in this branch.



# BAD KREUZNACH (Rhineland)

49° 50' N. 7° 50' E:

370 miles: (30,500)

Bad Kreuznach is in the valley of the Nahe, and on the main railway from Cologne through Bingen to Saarbrücken. It is a junction from which branch lines lead to Kaiserslautern, Neustadt and Mannheim. The town is well-known as a health resort, but contains a number of minor industries, including chemicals, leather and engineering. Apart from the two works mentioned below, none of these are of individual importance.

#### Engineering and Armaments

Seitz-Werke

Bad Kreuznach

(3)

The Seitz-Werke G. m. b. H. normally employ several hundred workers on the manufacture of filters, weighing machines, and all types of machinery for the wine industry. They are probably now making small arms components and other war products suitable for this type of plant.

## Leather

Rothe A. G.

Bad Kreuznach

(-)

The Lederwerke Rothe A. G. manufacture all types of leather products and normally employ some 300 workers.

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#### BAD OEYNHAUSEN (Westphalia)

52° 10' N. 8° 50' E:

385 miles: (15,000)

Bad Oeynhausen is on the main railway from Osnabrück to Hannover. The town contains no important industries apart from that mentioned below.

#### Engineering and Armaments

Eisenwerk

(3) Bad Oeynhausen

The Eisenwerk Weserhätte A. G. employ some 2,000 workers on the manufacture of all types of dredging and excavating machinery.

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# BAMBERG (Bavaria)

49° 50' N. 10° 55' E:

495 miles: (57,000)

Bamberg is on the main railway from North Germany through Coburg to Nürnberg and Munich. It is 30 miles North of Nürnberg. An important branch line leads Northwest from Bamberg to Schweinfurt. The town contains a number of small industries, including engineering works, textiles, and leather goods, but none are of importance.

## Transportation

Railway Repair Shops

Bamberg

.(3)

These medium sized railway workshops are engaged on the repair and maintenance of goods wagons.

# Textiles, Rayon, Pulp and Paper

Kalikofabrik

Mussstr.

(-)

The Bamberger Kalkiofabrik A. G. (which was formerly owned by the Winterbotham Book Cloth Co., Ltd. of Manchester) employs some 300 workers and manufactures

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#### BARMEN

See under Wuppertal.

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#### BASDORF (Brandenburg)

53° 5' N. 13° 20' E:

580 miles: (10,000)

Basdorf is a small settlement 10 miles North of Berlin, on a branch railway line. Apart from the important works mentioned below, Basdorf has no other industries.

#### Aircraft and Aero Engines

B. M. W.

Basdorf

(1)

These aircraft works were formerly known as the Brandenburgische Motorenwerke G. m. b. H. but have now been taken over by the B.M.W. concern of Munich. Some 10,000 workers are reported to be employed on the manufacture of high powered radial aircolled aero-engines.

# BAUTZEN (Saxony)

51 10' N. 14 30' E:

630 miles: (42,000)

Bautzen is in the Eastern area of Saxony, 30 miles East of Dresden and on the main railway from Dresden to Görlitz. There are a number of engineering firms, one of which is of considerable importance, and the town has also several textile factories, and a paper mill which is mentioned below.

#### Engineering and Armaments

Waggon Fabrik

Neusche-Promenade (2)

The Waggon und Maschinen Fabrik A. G. vorm. Busch belongs to the Linke-Hoffmann concern of Breslau. The company manufactures all types of railway wagons and electric locomotives, as well as lorries and buses. The plant includes an iron foundry which produces railway couplings and malleable castings. The annual capacity is reported to be 3,000 goods wagons, 500 passenger coaches, 1,000 lorries, 2,000 automatic couplings, and 250 electric locomotives! Some 2,000 workers were employed in 1939.

(\* Narrow gauge type.) Johne-Werk

Schäfferstr. (3)

The Johne-Werk A. G. employ some 500 workers on the manufacture of machinery for the paper, rubber and celluloid industries.

Nowak

Martin-(3)Mutschmannstr.

August Nowak A. G. are engaged on the production of wheels, axles, and other components chiefly for horse drawn vehicles. They are also reported to be experimenting in the use of plastics. This factory employs several hundred workers.

# Textiles, Rayon, Pulp and Paper.

Papier-Fabriken A. G.

Bautzen

The Vereinigts Bautzner Papier-Fabriken A. G. have their main works in Bautzen, and a branch factory at Obergurig in Saxony. The company manufactures all types of paper and paper products, and employs some 800 workers.

BAUTZEN (contd.)

#### Food Stuffs

Zuckerfabrik

Bautzen

(-)

The Oberlausitzer Zuckerfabrik A.G., whose parent works are at Löbau in Saxony, have a sugar refinery at Bautzen, where several hundred workers are employed.

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# BAYREUTH (Bavaria)

49° 55' N. 11° 35' E:

525 miles: (45,000)

Bayreuth is 35 miles North East of Nürnberg and is a junction for several branch lines serving the district of Northeastern Franconia. The town has a few textile works, of which the largest is mentioned below, but has otherwise no industries of importance.

It has been reported that the Messerschmitt company has two small branch factories at Bayreuth engaged on the development of new types of aircraft but firm evidence of such a development is lacking.

# Textiles, Rayon, Pulp and Paper

Weberei

Tunnelstr.

(-)

The Mechanische Baumwoll Spinnerie und Weberei A.G. Bayreuth, is a cotton spinning and weaving mill in pre-war days employing some 1,400 workers.

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# BELGARD (Pomerania)

54° N. 16° E:

700 miles: (17,000)

Belgard is on the main railway from Stettin to Danzig. A branch from Belgard serves the small coastal town of Kolberg, and Belgard is favourably situated to form a railway junction for the coastal settlements on this stretch of the Baltic. The town itself has no industries of importance.

# Public Utility Services

Kraftwerk

Belgard

(3)

This thermal power station is on the M.E.W. system, and has a capacity of 32 MW.

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# BENRATH (Rhineland)

See under Dässeldorf.

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# BENSBERG (Rhineland)

50° 55' N. 7° 10' E:

320 miles: (16,000)

Bensberg lies at the end of a branch railway some 12 miles
East of Cologne. Its principal activity is concerned with the lead and
zinc mines in the Sauerland district, on the Western edge of which the
town is situated.

#### Non-ferrous metals

Berzelius Metallhutten G.m.b.H.

(3)

Controlled by the Metallgesellschaft A.G. of Frankfort/ Main this firm had a capacity of 18,000 tons per annum of zinc metal.

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# BENSHEIM (Hesse)

49° 40' N. 8° 45' E:

405 miles: (16,000)

Bensheim lies on the main railway midway between Darmstadt and Heidelberg, and a branch line leads from Bensheim to Worms. The town is chiefly noted as a fruit growing centre. It contains a few small paper and woodworks, none of which are worthy of note.

# BERGEDORF (Hamburg)

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50° 30' N. 10° 50' E:

460 miles: (20,000)

Bergedorf is adjacent to the Vierländer, a large market garden suburb of Hamburg and is situated 8 miles from the city on the main railway to Berlin. It is the chief centre for this vegetable market. Bergedorf contains a few minor engineering firms and a small asbestos factory, but none are of individual importance.

----000----

# BERGHEIM (Rhineland)

50° 57' N. 6° 40' E:

295 miles:

(13, 300)

This town lies about 12 miles due West of Cologne. It embraces the neighbouring villages of Nieder- and Oberaussem, Kenten, and Quadrath-Ichendorf. Its industry is small, with the exception of the Fortuna and Nieder- Aussem power plants, the Fortuna mine, and an alumina plant at Kenten-Bergheim.

# Public Utility Services

"Fortuna" Kraftwerk

Quadrath

(1)

This plant, owned by R.W.E. but controlled by "Rheinisches Elektrizitätswerk im Braunkohlenrevier A.G.", consists of two generating stations, Fortuna I and II. The plants have a capacity of 65 MW and 140 MW per annum respectively. Brown coal is supplied from the adjacent Fortuna mine.

Nieder-Aussem Kraftwerk

Neideraussem

(2)

This generating station, owned by the Braunkohlen u. Brikett-Fabrikation of Cologne, has a capacity of 51 MW.

#### Solid Fuels

and

"Fortuna" Briquette Works

Quadrath

(3)

These two briquette works are adjacent to the Fortuna power stations and are owned by the Rheinische A.G. für Braunkohlenbergbau. u. Brikettfabrikation. They had in 1937 a daily output of 1,800 tons of briquettes.

"Fortuna" Brown Coal Mine

Oberhaussem and Quadrath

(3)

This mine, belonging to the Rheinische A.G. für Braunkohlenbergbau u. Brikettfabrikation, had, in 1937, a daily output of 10,000 tons of brown coal. Workers at that time in the mine and briquette works totalled some 700.

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BERGHEIM (contd.)

#### Non-Ferrous Metal Manufacture and Fabrication

Aluminium Industrie A. G. (Martinswerk)

Kenten-Bergheim (1)

This company, Swiss-owned, but controlled since the war by VAWAG, is one of the largest plants of its kind in Germany. Its annual capacity of alumina as per September 1943 was estimated to be 140,000 tons or nearly 25% of the total German production, and its workers are estimated to number some 4,000.

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# BERGISCH-GLADBACH (Rhineland)

51º N. 7º 15' E:

325 miles:

(22,000)

Bergisch-Gladbach is situated on a branch railway some 12 miles East of Mthlheim. The town contains a few small engineering works, in addition to the firms mentioned below, and there are a number of paper and cardboard manufacturers, none of which are of importance.

#### Engineering and Armaments

Hager & Weidmann

Jacobstr.

(-)

The engineering works of Hager & Weidmann A.G. normally employ some 200 workers on the mammfacture of generators, boilers, ovens, and all types of welding machinery.

Berger & Go. G. m. b. H.

Bergisch-Gladbach (-)

This machine factory, whose equipment includes an iron foundry, manufactures machinery and installations of all types for the rubber, washing and brick industries, and particularly fettling shop equipment. The company normally employs some 300 workers,

#### BERLIN

52° 30' N. 13° 20' E: 580 miles: (4,400,000)

#### General Introduction

Berlin, the capital of the German Reich, and the third largest city in the world, is not only the political and economic administrative centre of Germany, but ranks also as the most important industrial and manufacturing city on the Continent of Europe.

The suburbs and built-up area extends from East to West for some 20 miles, and from North to South approximately 17 miles. The administrative boundaries have been extended by the inclusion of surrounding districts to give a total area of 345 square miles.

The chief industrial areas lie firstly, to the North-west, including Spandau, Siemenstadt, Wedding, Tegel, and Reinickendorf, and secondly, to the South and South-east including Marienfelde, Tempelhof, and Johannistal. There are other well-established industrial areas, such as Lichtenberg and Schöneberg, which are respectively in the eastern and southern quarters of the city. Further industrial extension is taking place in various outlying portions of the administrative area.

The course of the river Spree, which is navigable, runs approximately from South-east to North-west through the centre of the city. At Spandau it joins the Havel, which flows from North to South along the western border of Berlin. The Teltow canal, which leaves the Spree near Treptow and runs through the Southern outskirts of Greater Berlin, joins the Havel near Potsdam and forms a link to relieve the water-borne traffic through the centre of the city.

Great use has been made of the waterways around Berlin in order to connect the capital with the Elbe and the Oder. Large inland harbours have been constructed. The most important of which is the Westhafen, where 70 large ships can be loaded simultaneously. The Westhafen is connected with the Spree and with the Havel, which it joins at Spandau. From the Havel (North-west of Berlin) ship canals have been built giving direct access in the East to the Oder, and in the West to the Elbe. By this means navigable waterways connect Berlin directly with Stettin and the Baltic, and with Hamburg.

The main railway artery between Western and North-eastern Europe runs through Berlin. There are three large railway stations on this East to West line. In addition main lines radiate from five other terminal railway stations to all parts of Germany. The local and suburban traffic is served by the electric Stadt- und Ringbahn, the extensive network of which extends over the whole area. This is supplemented by the large system of the Hoch- und Untergrundbahn, which runs partly underground and partly as an elevated railway, and by the tramway and bus services.

All the leading firms have administrative offices in Berlin.
These are largely concentrated in the central city area between
Alexanderplatz and the Eastern end of Unter den Linden, and also in
the neighbourhood of the Potsdammerplatz.

Running South from the Western end of Unter den Linden is the Wilhelmstrasse, in which are situated the Chancellery, the War Office, the Air Ministry and other Government departments.

/The

The principal shopping centres of Berlin, which contain several large department stores, are Leipzigerstrasse, Alexanderplatz, and Tauentzienstrasse, in Charlottenburg.

#### Industries

The firmly established and significant position held by the industries of Berlin within the German productive machine is primarily due to their scope and diversity, both of which have been further developed during the war.

The electro-technical industry (including radio) still maintains its important and leading position and is represented by large firms of world-wide repute such as the A.E.G., Siemens & Halske A.G., Siemens Schuckert A.G., and Telefunken Ges. für Drahtlose Telegraphie m.b.H., Osram G.m.b.H., and others.

The general engineering industry is also of substantial importance, as is shown by the well-known firms engaged in it, such as Rheimmetall Borsig A.G., Ambi-Budd Presswerke G.m.b.H., Deutsche Industriewerke A.G., Berliner Maschinenbau A.G. (vormals L.Schwartzkopff), and Daimler-Benz A.G.; it is, in fact, Berlin's second-largest branch of industry. The aircraft industry is represented by B.M.W., Dornier, Heinkel and Focke-Wulf, and general engineering by numerous makers of precision tool and of precision and optical instruments.

Berlin's chemical, clothing, and food industries, are also of more than local importance.

#### Industrial Areas

The chief industrial areas are located outside the Ringbahn, along the water and railway routes. These routes are arranged in three main belts:- the river Spree and the canals associated with it; the railway which encircles the outskirts of the compact built-up area, i.e., the Ringbahn; and an outer ring of communications which consist of the Havel and Tegel See to the West, the Teltow canal from Potsdam to Kopenick to the South, and the Industrie Bahn to the North from Tegel to Lichtenberg.

An important feature of the three outstanding industrial areas is that there are only small residential areas in their immediate vicinity. In order of importance these are:-

#### (1) Spandau, Charlottenburg, and Siemenstadt.

This west-central part of Berlin is of the highest importance. Here there are very big blocks of factory buildings and also a special port. Among others, the electrical equipment and cable works of Siemens & Halske A.G., Siemens Schuckert A.G., A.E.G. Turbinenfabrik, the Ges. für Elektrische Unternehmungen L.Loewe A.G., Osram G.m.b.H., and the B.M.W. are located there. The second and third largest of the BEWAG power stations are also in this area.

### (2) Treptow and Schöneweide.

The manufacture of electrical equipment of all kinds is predominant within this area, and, although the A.E.G. has its largest individual plant at Brunnenstrasse, Wedding, the three most important electrical equipment and cable works of the company are to be found here. The most important of Berlin's non-ferrous metal plants and the main works of the important Accumulatoren Fabrik A.G. (A.F.A.)

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A. G. ,

are located in the Schöneweide district. There are other engineering works, motor vehicle and metal works. The largest of the BEWAG power stations is at Rummelsburg, near the Treptow area.

## (3) Tegel, Wittenau, and Reinickendorf.

Important engineering and armament-production plants are to be found here. The most prominent of these are the Dornier and the Heinkel air-craft-components factories, the Argus aero-engine factory, Maschinenfabrik Prometheus G.m.b.H., and the Deutsche Waffen- und Munitions- Fabriken A.G.

To the North there are many small and scattered factories, the chief of which are at Lichtenberg, where Siemens Planiawerke and a number of other engineering works are located. To the South, at Mariendorf, Tempelhof and Britz, the chief factories lie on the South side of the Tempelhof airfield. Industries are also to be found on the Eastern outskirts of Neukölln.

The suburban areas, most of which lie far outside Berlin, have been developed mainly during the last twenty years. As a rule they are largely residential, but in some cases industrial development has taken place. The greatest extensions have been made along the railways to the North-west towards Hennigsdorf and Cranienburg; to the North-east to Bernau: to the East beyond Mahlsdorf: to the South-east beyond Kopenick to Wildau; to the South to Lichtenrade: and to the South-west around the South of the Havel See to Potsdam.

### Transportation

a) West Harbour	West Harbour	(1)
b) East Harbour	East Harbour	(1)
c) Spandau-South Harbour	Spandau-South Harbour	(3)

Berlin is second only to Duisburg as an inland port. It has accommodation for vessels up to 1,000 tons and is connected by canal with most parts of Germany. The most important of the nine large transhipment harbours of Berlin are the East and West Harbours. The latter is the largest and most modern and consists of three basins with a granary, customs sheds, and ten warehouses. The East Harbour is a development of the river bank with warehouses, granary, cold-storage plant, etc., (see also under "Foodstuffs").

/ Marshalling Yard

Marshalling Yard

Tempelhof

(1)

Passenger Stations

Goods Yards

Tempelhof marshalling yard and the main Potsdamer and Anhalter passenger stations and their respective goods depots, carriage repair workshops, and loco depots, extend South from the inner city to Tempelhof The Anhalter station is East of the Potsdamer station, and is the terminus for services operating to Dresden, Halle, Leipzig, Frankfurt a/M, Bavaria. Potsdamer station is the terminal point for main line service to Köln and the Rhineland via Magdeburg and Wuppertal. Tempelhof goods depot with its adjacent railway facilities is located on the South side of the circular railway known as the "Ringbahn" and is one of a number of such goods depots serving the inner city. Tempelhof marshalling yard has a throughout capacity of 3,000 wagons per 24 hours; during the inter-war period it was working at 85% of capacity, but under war conditions it is probably working to full capacity and may be regarded as one of the vital rail targets of the Berlin area.

The main routes on which the target lies are:to Dresden, Prague and Vienna to the South:

to Leipzig, Halle, Mannheim to the South-west: and

to Magdeburg, and Northern France (via Köln) to the West-South-West.

Railway Repair Shops

Tempelhof

(1)

The main locomotive depot, and large railway workshops were reported to employ some 5,000 people during the inter-war period. locomotive centre the workshops were reported to possess a large capacity and to be equipped for the handling of passenger, freight and switching engines. Facilities for coach and wagon repair are said to be of medium capacity only. Approximately two-thirds of workshops area have been gutted as results of air attacks.

Marshalling Yard and Railway Repair Shops

Grunewald

(1)

This target includes the Westkreuz junction as well as a switching and rectifier station (junction of Stadtbahn and Ringbahn) and the electricity distribution station for these railways. The repair shops are engaged on goods-wagon and passenger-coach work and are believed to employ 1,700 workers.

/Putlitzstrasse

(1)

(1)

(1)

Putlitzstrasse, Lehrter and Spreeufer Moabit goods stations and Lehrter passenger station. (1)

This is an important goods station with large storage facilities including grain silos and general goods stores (see also under "Foodstuffs").

Schlesischer station sidings, Schlesischer- (1)
workshops and goods yards. Bahnhof

This is one of the principal passenger stations of Berlin. The workshops are engaged in the repair of goods wagons and are believed to employ 2,300 workers. This target area includes the Ostkreuz station (junction of Stadtbahm and Ringbahm) and the electricity distribution centre for these railways.

Friedrichstrasse Station Friedrichstrasse (1)

The Friedrichstrasse main line passenger station and underground station complex lies in the heart of the city. It is one of the principal passenger stations of Berlin. The area covered by this objective includes the crossing of the Stadtbahn (East-West electric railway) over the river Spree, and beneath it the North-South Underground Station and the North South city line station. The latter line connects the terminal points of Stettiner station to the North with Potsdamer and Anhalter stations to the South.

Marshalling Yard, Goods Station and Johannisthal (2) workshops Schöneweide

The Johannisthal marshalling yards have a capacity of 4,200 wagons per 24 hours, handling traffic from the South-east, Cracow, Breslau and Gleiwitz. Repair of rolling stock of all types is carried out in the railway workshops. The goods station which forms a small part of the target area has large storage facilities.

Railway Repair Shops Berlin- (2)
Schöneweide

Repair and maintenance of electric motor vehicles for the Berliner Stadtbahn is carried out at these works by some 3,000 workers.

/Marshalling Yard

(3) Rummelsburg Marshalling Yard Rummelsburg Marshalling Yard has a capacity for 2,800 wagons in 24 hours. The yard is of primary importance, standing at a point where heavy traffic to and from the Northern parts of the eastern front comes into the Berlin suburban area. It is also an important transhipment centre. (3) Pankow Marshalling Yard 2,700 wagons per 24 hours is the normal capacity of the Pankow Marshalling Yards handling traffic for all points North of the city, Stettin and the Baltic coast. (3) Wedding Underground Railway Workshops This is a secondary repair and maintenance works of the Berlin Underground Railway system. Neukolln Görlitzer Station (3) The Gorlitzer passenger station is of some importance being the only sizeable station in this area. Westend Goods Station Charlottenburg (3) The Westend goods station includes to the North a number of main lines converging on Berlin's centre. Marshalling Yard and Goods Station Lichtenberg (3) 2,000 wagons can be handled at the Lichtenberg marshalling yards every Traffic is handled for 24 hours. Danzig and East Prussia. Goods Station and Locomotive Sheds Gesundbrunnen (3) This target consists of the Gesundbrunnen Junction, the Nordbahn Goods Yards, and a number of locomotive sheds. Stettiner Station Berlin-Nord (3) The Stettiner Bahnhof is one of Berlin's principal passenger and goods stations. Underground Railway Charlottenburg (2) (Ruhleben) The Charlottenburg (Ruhleben) station is the principal repair depot of the Berlin Under-

/Alexander Platz.

ground railway system. The station also

includes a storage depot of considerable capacity.

ERLIN (contd.)		
Alexander Platz	Alexanderplatz	
This target consists of a group of passenger stations.		
Tranway Depot	Wedding:Between Ufer and Gott- sched station.	
This is the central repair depot in Ber Working in co-operation with the depot Wittenau, all major repairs can be hand here.	at	
Tramway Depot	Wittenau; Between Cyclopstr. and Hermsdorferstr.	
The Wittenau depot is engaged on the assembly of tram tracks, major repairs and reconstruction of trams and buses. The depot includes the main stores of the Berliner Verkehrs Betriebe.		
Tramway Depot	Wedding Mallerstr.	
The Wedding tram depot is capable of housing 200 trams.		
Tramway Depot	Britz, Gradestr.	
This is another large depot of the Berl Verkehrs Betriebe.	iner	
Omnibus Depot	Treptow	
The Treptow depot is solely engaged on repair and maintenance of buses. Some 2,000 workers are normally employed.	the	
Tramway Depot	Lichtenberg	
This is one of the main repair centres the Berlin Tram company.	of	
Transway Depot	Britz	(
The Britz depot of the Berlin Tram Comp is mainly engaged on the repair and main tenance of motive power units.		

(2)

#### PUBLIC UTILITY SERVICES

# I. ELECTRICITY SUPPLY

### Abbreviations

BKL (BEWAG).....Berliner Kraft- und Licht (BEWAG)- A.G. EWAG.....Elektrowerke A.G.

MEW............Märkisches Elektrizitätswerk A.G. ESA......Elektrizitätswerk Südwest A.G.

#### General

The city is supplied from external sources chiefly by the EWAG and the MEW systems. The BKL (BEWAG) controls all the main power stations in the city. The total capacity of the generating stations is 1,250 MW.

### External Supply

There are two main outside systems of supply to the city. The first, the EWAG system, supplies current from Golpa-Zschornewitz and Trattendorf. These lines enter Berlin at Spandau and at Rummelsburg and thence are linked up to the BKL (BEWAG) system. Two lines come from Trattendorf; one skirts the northern suburbs and enters at Spandau, the other connects with BKL (BEWAG) system at Friedrichsfelde.

The other is the MEW system, which encircles Berlin and introduces current from the power stations at Finkenheerd, Finow, and Hennigsdorf.

#### Berliner Kraft- und Licht (BEWAG)- A. G.

"Deutsche Edison" was founded in 1883 and in the following year was granted a concession to supply electrical current to part of the city of Berlin. This concession was transferred to the Städtische Elektrizitätswerke on its formation. Later, this company became the Berliner Elektrizitätswerke (BEW), and the concession was extended to cover the whole of the city of Berlin. In 1915 the city itself took over the direction of the firm under the name Städtische Elektrizitätswerke Berlin (STEW), but this was again altered in 1923 to Berliner Städtische Elektrizitätswerke Akt. Ges. (BEWAG).

In 1931 the Berliner Kraft- und Licht-Aktiengesellschaft (BKL) was formed to administer the electrical installations owned directly by the city and those owned by BEWAG. The BEWAG capital was transferred to the new company and two other Berlin companies - Elektrowerke A.G. (EWAG) and Preussische Elektrizitäts Aktiengesellschaftalso became shareholders of the new company.

Finally, in 1934, BEWAG and BKL were completely amalgamated to form the present Berliner Kraft- und Licht (BEWAG) - A.G.

In 1938, BKL (BEWAG) - the new company - acquired the firm of Elektrizitätswerk Stdwest A.G. (ESA) and so widened its territorial interests to Schöneberg, Wilmersdorf and

Public Utilities (Electricity)

Schmargendorf. In the same year, as a result of an agreement made in 1928, it acquired from Märkisches Elektrizitätswerk A.G.(MEW) territorial interests in Dahlem, Lankwitz, Lichtenrade, Mariendorf, Stdende, and Tempelhof. Thus BKL (BEWAG) acquired the interests in the whole of the city as far as the small outlying districts of Wannsee and Buch. The company claims that this is the largest system of electrical manufacture and distribution in any one city in the world.

BKL (BEWAG) power station

Klingenberg

(1+)

This is the largest of the thermal power stations owned by the Berliner Kraft- und Licht (BEWAG) -A.G., which supply electricity to the Berlin area. Built in 1926/28, it operates on base load and has an installed capacity of 270 MW. but is designed for an ultimate capacity of 540 MW. It is situated on the North bank of the river Spree in the South-east of the city on a site of 50 acres; the main control room for the BKL (BEWAG) system is in the nine-storied office block which also houses large water tanks on its top floor.

From a 30 kV switch house at least 48 three-phase. 30 kV underground cables are operated in pairs and are connected to different substations in the Berlin area. There is also a 30 kV connection to the adjacent 81 MW. Rummelsburg station.

BKL (BEWAG) power station

Berlin-West

(1+)

This station is the second largest of the BKL (BEWAG) system and has an installed capacity of 228 MW. in 1929/1932, it is situated on the North bank of the river Spree in the western area of the city near the Siemens works at Siemenstadt. It was originally operated mainly to supply part of the Berlin day load, the night load being supplied by the Klingenberg station and by long-distance transmission from the large brown-coal-fired stations at Golpa-Zschornewitz, Trattendorf, Lauta, Finkenheerd, and elsewhere. The small Unterspree power station is situated 300 yards to the South-west, on the bank of the Spree. The main supply at 30 kV from the station is through underground cables to the Berlin city network via the 30 kV switch house. Supplies are also given direct to the nearby Siemens works. In addition to auxiliary supplies some small local supplies are probably given at 6.3 kV via the 6.3 kV switch house.

BKL (BEWAG) power station .

Charlottenburg

(1)

This thermal power station, owned by BKL (BEWAG), has an installed capacity of 109 MW. Built in 1900, it was completely reconstructed in 1925 in two sections, of which one, with a capacity of 59 MW., operates on base load, while the other plant, which has a capacity of 50 MW., meets the peak load. It is situated in the western area of the city, on the North bank of the

BERLIN ( contd.) Public Utilities (Electricity)

> BKL (BEWAG) power station (contd.)

Charlottenburg

(1)

There is a 30 kV substation conriver Spree. taining twelve 6/30 kV transformers of a total capacity of 116 MW. and one 30/3 kV inter-bus transformer of 8 MW. capacity. Local supplies are connected by underground cables to Spandau, Knie, the Siemens works, Moabit, and to the nearby 100 kV. substation. The 100 kV substation connected the Berlin 30 kV underground cable system with the 100 kV transmission system. One 100 kV line goes to Spandau, 6 miles to the Northwest, and one to Moabit, from there continuing to Friedrichsfelde substation (9 miles East of Charlottenburg). The electrical output is supplied to Berlin. Steam is also supplied at 281 lbs/sc.in. for a district-heating system.

BKL (BEWAG) power station

Rummelsburg

(1)

This station is situated in Rummelsburg, a suburb in the South-east of Berlin, on the North bank of the river Spree within  $\frac{1}{2}$  mile of the Klingenberg station and has an installed capacity of 81 My.

A 100/30 kVA substation close to the generating plant transforms 100 kV supplies from the EWAG grid to 30 kV for local distribution. One 100 kV double-circuit line goes to the Friedrichsfelde substation, 4 miles to the North, and one to Golpa-Zschornewitz. The substation serves for local distribution at 30 kV rather than for supplying electricity externally.

A 6/30 kV substation connects the 100/30 kV substation to the generating station, and contains at least two 6/30 kV transformers each of 18 MW. capacity; it connects the generating station to the 30 kV grid of the Berlin area and with the 100/30 kV substation it also serves for local distribution at 6 kV.

BKL (BEWAG) power station

Moabit

(2)

This is one of the oldest stations of the BKL (BEWAG) system supplying the Berlin area and has an installed capacity of 81 MW. It is operated for peak load and standby purposes. It is situated in the North-west central district on the Schiffahrts-Kanal and consists of 2 parts; are composed of a large number of reconditioned old units or replacements, which made identification of plant difficult.

A substation for 100/30 kV steps down the supplies received through the 100 kV grid for distribution over the Berlin 30 kV grid. The substation is partly open air and partly in the old engine house; it contains at least 5 transformers each of 16 MW. Long distance 100 kV lines pass to Spandau, 7 miles distant, and to the Friedrichsfelde substation, 8 miles East of Moabit. A 6/30 kV substation gives supplies to the Berlin 30 kV grid. Local distribution is also at 6 kV.

BERLIN ( contd.)
Public Utilities (Electricity)

BKL (BEWAG) power station

Wilmersdorf

(2)

This station on the BKL (BEWAG) system is situated at Wilmersdorf, a South-western suburb of Berlin close to the Rudolstadterstrasse, and has an installed capacity of 62 MW. This station was built by ESA in about 1905 and supplies the South-western area of Berlin. It is believed that the Wilmersdorf station is now used by BKL (BEWAG) for standby purposes only. An A.C./D.C. converter plant is attached to the station. The city of Berlin is supplied at 6.6. kV and at lower voltages, and supplies are also given to the underground railways.

It is possible that this station has been connected by BKL (BEWAG) to the 30 kV Berlin grid and that a 30/6 kV substation has been added to serve as a local distribution centre.

BKL (BEWAG) power station

Spandau

(1)

This station on the BKL (BEWAG) system is situated on the Havel See near Spandau, a North-west suburb of Berlin and has an installed capacity of 56 MW. The generating plant is used for standby and peak load only.

One double ciruit line goes to Trattendorf, one to Brandenburg (there connecting to Golpa-Zschornewitz and Diesdorf), and one to Charlottenburg. There is a 100 kV connection to Henningsdorf (5 miles to the North).

Local supplies are given at 6 kV, and to the Berlin grid at 30 kV.

This station contains one of the main substations in Berlin. It has at least two 100/30 kV transformers, each of 16 MW. capacity and transforms the supplies received from the 100 kV grid to 30 kV for local distribution.

It is the terminus of the 220 kV line which was partially constructed before the war and is now probably completed; starting at Brauweiler, the line reaches Spandau via Koepehenwerk, Bielefeld, Lehrte, Harbke, Diesdorf (Magdeburg), and Brandenburg; a distance of 385 miles by this route.

EWAG switch station

Friedrichsfelde

(2)

This important switch station is owned by EWAG and is situated on the east side of the city. Two 100 kV lines from Golpa-Zschornewitz and Trattendorf power stations pass to Berlin. It is also connected to the Moabit and Rwmmelsburg transforming stations. The elimination of this station would seriously affect the city's external supplies and it is, therefore, an important target.

(2)

Public Utilities (Electricity)

BKL (BEWAG) power station

Unterspree

(3)

This station on the HKL (BEWAG) system is situated on the South bank of the river Spree opposite to the Berlin-West station, and has an installed capacity of 36 MW. It supplies the underground railway system.

BKL (BEWAG) power station

Schöneberg

(3)

This station, built by ESA, is now on the EKL (BEWAG) system and is situated in the Schöneberg district, to the South of the city and 2 miles East of the Wilmersdorf station. It is a reserve plant and has an installed capacity of 20 MW.

BKL (BEWAG) power station

Oberschönenweide

(3)

This station had a capacity of 36 MW. It was closed down in 1933 and converted to a 30/6 kV transformer station.

Public Utility Services

II GAS SUPPLY

General

(3)

(3)

Up to 1939 gas supply in Berlin was undertaken by two companies, the Berliner Städtische Gaswerke A.G., with works at

Charlottenburg Danziger Str. Lichtenberg Neukölln Tegel

leased to the company by the Municipality, and the Gasbetriebs-gesellschaft A, G, a subsidiary of the Deutsche Gasgesellschaft A, G, with works at

Gitschinerstr. Schöneberg Mariendorf

In 1936 the Berliner Städtische Gaswerke sold 390,600,000 cu.m. of gas and the Gasbetriebsgesellschaft 133 million cu.m.

In 1939 the Berliner Städtische Gaswerke (Gasag) took over from the Deutsche Gasgesellschaft the operation of its three Berlin works, and thus unified gas supply in the city. In Greater Berlin there still remained, however, two independent municipal gas-distributing concerns, those at Niederbarnim and Teltow. Of these the former obtains gas from the GASAG, and the latter from the Potsdam works of the Deutsche Continental-Gas-Gesellschaft.

Municipal Gasworks

Charlottenburg (2)

The gasworks is leased by the Municipality to the Berliner Städtische Gaswerke A.G. and is situated just East of Jungfernheide Station. It is bounded in the North by the railway, East by the Verbindungskanal, and South by Gausstrasse. The area of the site is 13½ acres. Maximum daily capacity is estimated at 300,000 cubic metres of gas per day, while normal annual output is about 60 million cubic metres. Electricity supply is taken from the town supply at 3,000 volts A.G., which is converted to 220 volts (D.G.) for the old part of the works, to 380 volts (A.G.) for power, and to 220 volts (A.G.) for lighting. Water is drawn from the adjacent Canal.

Municipal Gasworks

Danziger Str.

(2)

The gasworks is leased by the Municipality to the Berliner Städtische Gaswerke A.G. and is situated immediately to the West of Weissensee Station; it is bounded in the North by the railway, South-west by Danziger Strasse, and South-east by Greifswalder Strasse. The area of the works is 24 hectares.

Municipal Gasworks (contd.)

Maximum daily capacity is estimated at 370,000 cubic metres of coal gas and 100,000 cubic metres of water gas. Electricity is taken from the town supply at 6,000 volts and transformed at the works to 220 volts. Water is obtained from 2 wells by pumps.

Municipal Gasworks

Lichtenberg

(2)

The gasworks is leased by the Municipality to the Berliner Städtische Gaswerke A.G. and is located East of the river Spree and just South of Rummelsburg goods station. It also adjoins the Klingenberg power station. The plant has been completely rebuilt since 1934. Maximum daily capacity is estimated at 300,000 cubic metres per day; annual output is probably between 90 and 100 million cubic metres. There is a by-product plant for sulphate of ammonia.

Municipal Gasworks '

Neukölln

(2)

The gasworks is leased by the Municipality to the Berlin Stadtische Gaswerke A.G. and is located in the angle formed by the Schiffahrtskanal just North of Kaiser Friedrichstrasse station. It is bounded on the North by the canal, on the East by the railway, and on the South by the Kaiser Friedrich Strasse. There are 2 holder stations, one at Rannerstrasse (4 holders) just South-west of the gasworks, the other at Fichtestrasse (4 holders) which is immediately East of Kaiser Friedrich Platz. The gasworks covers an area of approx. 75,000square metres. Maximum daily capacity is 400,000 cubic metres of gas per day; normal annual output being about 100 million cubic metres. There is also a water-gas plant and a sulphate of ammonia plant.

Municipal Gasworks

Tegel

(1)

Leased by the Berlin Municipality to the
Berliner Städtische Gaswerke A.G. The
gasworks is situated on the East side of
the Tegeler See and stretches eastwards
from the lake along the North side of
Berbauer Strasse to the railway, South of
Tegel station. Maximum daily capacity is
estimated at 616,000 cubic metres of coal
gas and 240,000 cubic metres of water gas.
There are by-product plants for sulphuric
acid ("chamber" process) and sulphate of
ammonia. Electricity supply is taken from
the town system at 6,000 volts and is
converted to 470 volts for power and 220 volts
for lighting. Water is obtained from artesian wells.

#### Municipal Gasworks

Formerly owned by the Deutsche Gasgesell-schaft, this gasworks is situated at Gitschinerstrasse 19/31, Berlin, S.W.68.

Maximum daily capacity is estimated 50,000 cubic metres of coal gas per day. The gasworks also has a water gas plant.

Gitschinerstr. (3)

#### Municipal Gasworks

Formerly owned by the Deutsche Gasgesell-schaft, the gasworks are situated South-west of Schoneberg railway Station at the intersection of the Potsdam line with Berlin circular railway (Ringbahn). Maximum daily capacity is estimated at 100,000 cubic metres of coal gas and 50,000 cubic metres of water gas. There are four gasholders.

Schöneberg (3)

#### Municipal Gasworks

Formerly owned by the Deusche Gasgesell-schaft the gasworks is situated just South of the Teltow Canal, on the East side of the railway, and is bounded on the South by Lankwitzer Strasse.

Maximum daily capacity is estimated at about 650,000 cubic metres of coal gas and 250,000 cubic metres of water gas. There are two principal gasholders. The works has its own water supply system.

Mariendorf (1)

## III. Water Supply.

Water Works Lichtenburg (3)

Berlin's principal waterworks.

Städt Wasser Werke Tegel (3)

The Tegal Water works is one of the largest in the Berlin area.

### Liquid Fuels and Substitutes

Deutsch Amerikanische Petroluem Ges.

Tempelhof '3)
Saalburgerstr.

Oil storage depot with a capacity 33,900 tons in 18 tanks. Processing also takes place here but only on a small scale. Heavy fuel oils, lubricating oil and motor spirit are usually the main types in storage.

/Deutsch

Deutsch Amerikanische Petroleum Ges.

Plotzensee, Saatwinkler Damm (3)

Oil-storage depot with 4 large tanks. It acts as a filling station and includes a small M.T. repair works.

Rhenania Ossag Mineral Oelwerke A.G.

Spandau Rhenamiastr. (3)

Oil-storage depot with a capacity of 20,000 tons.

"Alminag" Allgemeine Mineralol u. Asphalt K.G.
"Betalag" Berliner Tanklager K.G.

Spandau Rauchstr.

Oil-storage depot consisting of about 30 tanks of various sizes.

Rhenania Ossag Minerolwerke A.G.

Rummelsburg

(3)

Oil-storage depot with a capacity of 21,000 tons.

### Non-Ferrous Metal Manufacture and Fabrication

Admos, Allgemeines Deutsches Metallwerk G.m.b.H.

Berlin-Oberschoneweide Wilhelmshofstr.

(2)

This factory produces bronze and lead-alloy castings and pressings, and special manganese-bronze. The works include an important research and development plant engaged on evolving special alloys for munition factories. At the given address are also domiciled the Admos Bleibronze Dr. Springorum K.G. and the Admos Rubel-Bronze Vertrieb Dr. Springorum & Co. K.G.

Deutsche Messingwerke Carl Eveking

Berlin-Niederschoneweide, Berlinerstr.

(2)

This works produces brass, copper and light-metal alloys; semi-finished and finished products, chiefly castings and pressed parts for aircraft, aero-engines, and other purposes. Its alloy capacity is believed to be between 7,500 and 10,000 tons per annum.

a) Zinkwalzwerk Reinickendorf G.m.b.H.

b) Hirsch Kupfer- u. Messingwerk A.G. c) Ruhrstahl A.G.

Berlin-Reinicken- (3) dorf-West.

Berliner and

Kienhorststr. These three firms are on one site. A & B are engaged on zinc and aluminium rolling; whilst C is an iron

Huttenwerke Kayser A.G.

and steel storage depot.

Berlin-Niederschoneweide Spreestr.

This copper refinery has a capacity of 20,000 tons of copper per annum. It includes a copper fabricating plant and rolling mill producing rods, bars etc. The main works of the Huttenwerke Kayser is at Länen.

Zinkhüttenwerke/

m (3)

(2)

(2)

- (3)

Zinkhuttenwerke Oberspree

Berlin-Oberschone- (3) weide. Both sides of Tabbertstr. and W. side of Nalepastr.

This is a small zinc smelting and refining establishment.

Durener Metallwerke A.G.

Berlin-Wittenau (2)

This is a branch factory of the Duren firm and, like the parent plant, it is mainly engaged on the production of light-metal alloys for the aircraft and other industries. It is an important maker of air-screws.

"Apag" Aluminium Prazisionsguss

Berlin-Neubabels- (3)

Apag specialises in the production of light-alloy castings including bodies for magnetic mines.

### Aircraft and Aero-Engines .

B.M.W. Flugmotorenwerk Brandenburg G.m.b.H. Berlin-Spandau (1)

The Spandau works of B.M.W. is reported to employ more than 4,000 workers, It is mainly engaged on the manufacture of aero-engines and components which are supplied to the works at Basdorf.

Argus Motoren G.m.b.H.

Berlin-Reinickendorf

(2)

Medium h.p. air-cooled aero-engines, propellors, aircraft wheels, brakes, hose-pipes, and couplings, rudder bars, and a variety of other aircraft components, are the principal products of this factory.

Henschel Flugzeugwerke A.G.

Johannisthal

Flottenstr.

(2)

The Johannisthal plant of Henschel is engaged on the manufacture and assembly of Hs.129 and Hs.130.

Hugo Heine

a) Berlin-Lichten-

berg

b) Berlin-Friedrichshain. Warschauerstr.

Wooden and metal variable-pitch airscrews are made on a fairly large scale at the factories of Hugo Heine.

Focke-Wulf Flugzeugbau G.m.b.H.

Berlin-Johannisthal(2) Segelfliegerdamm

This plant has been engaged on the manufacture of wings and other components for F.W. 200's.

Elektron/

Elektron Co. G.m.b.H.

Berlin-Spandau (2) Potsdamerstr.

Light-metal (magnesium) castings, aero-engine pistons, fuselage parts, landing wheels, trailing wheels, under-carriage parts, and hydraulic apparatus are believed to be produced by the Elektron Company on a large scale.

Norddeutsche Dornier-Werke G.m.b.H.

Berlin-Reinicken (3) dorf. Waldstr.

Ground reports suggest that some 500 workers are employed at this factory on the manufacture of small components for the Wismar works of this company.

Heinkel-Werke G.m.b.H.

Rerlin-Reinicken- (3) dorf-Ost

Machining of parts for the Heinkel factory at Oranienburg is believed to be the sole activity of this relatively small works.

Luftfahrtgerätewerk Hakenfelde G.m.b.H.

Berlin-Spandau (3) Streitstrasse

A small variety of aircraft dashboard instruments are produced by this firm.

Rotadisk G.m.b.H.

Berlin-Reinicken- (3) dorf Ost

Aircraft wheels and brakes are reported to be the principal commodities turned out by Rotadisk.

Weser Flugzeugbau

Berlin-Tempelhof (3)

The modification centre of this firm at Berlin-Tempelhof may have been extended and have taken up the assembly of Ju. 87 aircraft.

Flugzeugreparaturwerk Rudow G.m.b.H.

Berlin-Adlershof (3)

This is an aircraft and aero-engine repair depot working on a variety of types.

Jordan Bremsen A.G.

Berlin-Neukölln (3) Lannstr.

Airbrakes and compressors are believed to be the main if not sole products of this company.

Gesellschaft für Luftfahrtbedarf (G.F.L.) Teltow

(2)

These are the headquarters of the centralised German control organisation for the supply of spare parts and materials for the aircraft industry.

Heinkel/

ism (2)	Heinkel-Werke G.m.b.H. Oranienburg- (1
-	Construction and assembly of multi-engined bombers particularly He.177 and wings for the Ju. 88 are undertaken at this works which is reported to employ 8-10,000 workers.
oken (3)	Henschel-Flugzeugwerke A.G. Schonefeld-Ubek, (1 Berlin-Grunau (N. end of Aerodrome)
	Design and construction of Ju. 88 aircraft is undertaken at this factory which is reported to employ 7,500 workers.
cken= (3)	Robert Bosch G.m.b.H. Klein-Machnow (2
urg	This is a factory of the well-known Stuttgart firm.  Magnetos, ignition equipment, spark plugs, coils, distributors for aircraft, are among its principal products. It has been reported that fuel-injection pumps are also produced here.
du (3)	Bücker Flugzeugbau G.m.b.H. Rangsdorf (3)
	This factory is reported to be making Bloker types of single-engine trainers as well as gliders.  It is believed to employ some 2,000 workers.
oken= (3)	Hirth Motorenbau Waltersdorf G.m.b.H. Waltersdorf Berlin-Teltow
. 0 (3)	Hirth Motoren are engaged on the production of aero- engines and the assembly of aero-engine superchargers. Estimated personnel 2,000.
hof (3)	Junkers Flugzeug & Motorenwerke A.G. Schönebeck (2)
a (3)	Air-frame components and water-cooled aero-engines are the products of the Schönebeck branch of the Junkers company. Estimated personnel 2,000.
hof (3)	Arado Flugzeugwerke G.m.b.H. Babelsberg- (2) Potsdam
ln (3)	This works makes air-frame components for the Brandenburg factory and is believed to employ some 3,000 workers.
	A.E.G. Wildau (3)
(2)	Ground reports suggest that this factory is engaged on the production of air-frame components.  Approximately 1,000 workers are believed to be employed.

Mechanische /

Mechanische Werkstatten Neubrandenburg G.m.b.H. Berlin-Britz (3) Stideroderstr.

Aircraft armament fittings, e.g. machine-gun mountings, bomb and aerial-torpedo release gear, small aerial bombs, etc. are believed to be the principal products of this plant which has been reported to employ some 700 workers.

Propellerwerk Gustav Schwarz K.G.

Berlin-Waid- (3) mannslust, Oraniendamm

This firm is solely engaged on the production of metal and wooden blades for variable pitch

Zahnradfabrik Friedrichshafen A.G.

Wittenau

(3)

This is a relatively small factory of the well known Friedrichshafen firm.

propellers, but its output is believed to be small.

Henschel-Flugzeugwerke A.G.

Schonefeld (Uber Berlin-Grunau) S. end of Aerodrome. (3)

Aircraft repair depot.

Flugzeug Reparaturwerke, Alfred Friedrich

Strausberg near

(3)

Aircraft and aero-engine repair depot.

### Engineering and Armaments

Rheinmetall Borsig A.G.

Berlin-Tegel

(1)

This very important works normally employs some 25,000 workers and, in one of its main departments, specialises in the production of general engineering plant. The major part of the works is believed now to be engaged on the mass production of field guns, A.A. and A.T. guns, machine guns, ammunition for field and A.A. guns, torpedoes, mine bodies, aerial bombs, tank and A.F.V. components, forgings, drawing presses for shell production, etc.

Ambi-Budd Presswerke G.m.b.H.

Berlin-Johannistal (1)

This factory employs several thousand workers and is the leading German producer of pressings of all types for motor transport, A.F.V's, tanks, etc. The site of this factory includes Ford's Berlin factory.

A.E.G./

ritz (3)

A.E.G. Cable Works (Allgemeine Elektrizitäts Berlin-Oberschone- (1)
rstr. Gesellschaft) (Kabelwerk-Oberspree) weide (Oberspree)

A very wide range of electric cables including gas—and oil-filled cables together with associated goods, wireless apparatus, telephone and telegraph apparatus; insulators, transformers, high-tension switch gear and protective devices; steam turbines (including the largest types), condensers, reduction gears, turbo-pumps, and boiler feed-pumps, blowers, etc., are made at this important works on a large scale. The plant includes mechanical and physical testing laboratories and is the largest German cable manufacturing works and the only German firm making gas—filled cables.

A.E.G. Transformer Works (Metallwerke Oberspree) (-)

The Metalwerke Oberspree making transformers and hightension switch gears, etc., is included in the factory site of the above works.

A.E.G. Maschinenfabrik Berlin-Wedding (1)
Brunnenstr.

This plant is known as the Brunnenstrasse Werke of A.E.G. It specialises in the manufacture of electric submarine engines and motors, generators, resistances, fuses, fans, dust extractors, light-railway equipment, cranes, and pumms.

Siemens Planiawerke A.G. für Kohlefabrikate Berlin-Lichtenberg (1)
Lichtenbergerstr.

This is the leading German producer of carbon electrodes.

Siemens-Schuckert Werke A.G. Berlin-Garten- (1)

Commonly known as the Kabelwerk Gartenfeld this works is mainly engaged on making cables and insulated and uninsulated wire of all kinds for the transmission and distribution of electric power; also electrical machines, and apparatus of a fairly wide range.

Siemens & Halske A.G. Berlin-Siemenstadt (1)

This works is commonly known as Wernerwerk. It is the leading German producer of telephone and telegraph equipment, signalling apparatus, apparatus for transformers and oil switches, electric clocks, photographic equipment, electric measuring apparatus of many kinds, relays and heating elements, television and broadcasting sets, measuring instruments for the chemical industry etc. It is situated on the North bank of the river Spree adjacent to the Western outskirts of Berlin and also adjacent to the important cable works of Siemens-Schuckert A.G. at Gartenfeld.

Siemens-Schuckert/

(1)

stal (1)

Siemens Schuckertwerke A.G.

Berlin-Siemenstadt (1)

This works area includes the following Siemens-Schuckert factories: - Schaltwerk, Dynamowerk, Elektromotorenwerk, Metalgiesserei, Kleinbauwerk, Kabelwerk, and Metallwerk. The principal products of this group of factories are power and lighting installations, including power-station generators, rotary converters, transformers, condensers, rectifiers, dynamos, switch gear, electric motors of many kinds (including submarine motors), heating apparatus; radio valves, photo-electric cells; furnaces and electrolytic plant, automatic current regulators for furnaces; electrical equipment for submarines, torpedo discharge gear; electrical equipment for hydrogenation plants, etc. Next to Bosch at Stuttgart this is also the largest concentration of production of ignition generators and sparking plugs. The factories are situated on the North bank of the Spree adjacent to the Western outskirts of Berlin, and next to the important cable works of Siemens-Schuckert A.G. at Gartenfeld.

Accumulatoren Fabrik A.G.

Berlin-Oberschöne- (1) weide.

(1)

This is the main A.F.A. works in Berlin and it has a considerable output of accumulators, accumulator components and dry batteries.

Deutsche Waffen- und Munitions-Fabriken A.G. 1) Berlin, Wittenau Borsigwalde Eichborndamm

2) Eichborndamm
3) Eichborndamm

All three Berlin works of the Deutsche Waffen und Munitions Fabriken A.G. are engaged on the manufacture of machinery and installations for the production of ammunition. In addition they make machine guns, small arms, and S.A.A. as well as precision tools and other engineering products. The three works together are believed to employ about 5,000 workers.

Deutsche Industriewerke A.G.

Berlin-Spandau (1) Freiheit

Several thousand workers are believed to be employed by this plant on the manufacture of special machinery for the production of motor vehicles and locomotives; tools, jigs, and metal castings, including lightalloy castings; also gun components, small arms, as well as plunger-type aircraft pumps.

Berliner/

(1)

3- (1)

(1)

(1)

Berliner Maschinenbau A.G. (vorm.L.Schwartzkopff) Wildau (1)

The factory is at Wildau near Konigswusterhausen, about 17 miles South-east of Berlin. All types of main-line steam locomotives are made, also Diesel models. The estimated pre-war capacity was 100-120 locos per annum and there were 2,000-2,500 employees. This firm has another works at Berlin-Wedding.

Borsig Lokomotivwerke G.m.b.H. Hennigsdorf

These works, situated about 2 miles South of Hennigsdorf, produce all types of main-line steam locomotives and electric locomotives. They are estimated to have had a pre-war capacity of 100-120 locos per annum and to have employed 1,500-2,000 workers on loco. construction.

Berliner Maschinenbau A.G. (vorm.L.Schwartzkopff) Berlin-Wedding(1) Scheringstr.

Precision machine tools; torpedo components, gyroscopes, depth-setting gears, propeller components; electric torpedoes; air compressors for submarines; and a variety of other armaments are made at the Wedding works of the Berliner Maschinenbau A.G. on a large scale. This plant works in conjunction with the firm's main establishment at Wildau.

Daimler-Benz A.G. Berlin- (1)
Marienfelde

The Berlin-Marienfelde works of the Daimler-Benz A.G. is primarily engaged on the manufacture of D.B. aero-engines and tanks, tractors and lorries; also Diesel engines, naval supersonio-wave apparatus, and other armaments. They are reported to employ over 8,000 workers.

Knorr-Bremse A.G. Berlin (1)

This firm specialises in the production of compressed air brakes; it also has a considerable output of equipment for submarines; machine guns; compressors, rail and tramway material, etc. and may still be making narrow-gauge locomotives on a small scale. It is situated to the North-east of the Ostkreuz station and facing on Hirschbergerstr.

Pallas Apparate G.m.b.H.

Berlin-Wedding(1)
Ackerstr.

(1)

This is one of Germany's leading makers of carburettors, especially for aero-engines, and it is also an important producer of fuel-injection pumps and other engine components.

Mix/

Mix and Genest A.G.

Schoneberg (2) Geneststr.

This important firm makes a wide range of telephone, telegraph, and electrical signalling equipment, wireless sets, dictaphones; also pneumatic tools. It is believed to employ about 3,000 workers.

Ges.für Elektrische Unternehmungen A.G. (formerly L. Loewe)

Hüttenstr. (19

Electric fire-control instruments, electric firing mechanisms, range finders and a wide range of other electrical instruments are the principal products of this main works of the 'Gesfürel", company. It is reported that about 5,000 workers are now employed by this firm in its three Berlin works.

A.E.G. Apparatefabrik Treptow

Berlin-Treptow(1) Hoffmanstr.

Low-tension switch-gear and protective devices; wireless apparatus, aircraft radio equipment, compasses, supersonic devices, aviation magnetos, and direction finders etc., are made by this firm on a large scale, also film and sound film apparatus. More than 5,000 workers are reported to be employed here.

A.E.G. Turbinenfabrik

Berlin-Charlottenburg

This is the leading German steam-turbine works. It is also an important maker of condensers, pumps, etc., and has been reported to build Diesel engines. It is believed to employ several thousand workers. The area covered by these works extends North and South of Sickingenstr.

Telefunken Ges. für Drahtlose Telegraphie m.b.H.

Berlin-Max Str. (1)

This is one of the leading German manufacturers of wireless transmitting and receiving sets for all services purposes.

C. Lorenz A.G.

Berlin-(1) Tempelhof\*

This is one of the leading German producers of wireless sets for military purposes, blind-flying apparatus and other aircraft instruments; it also makes telephones, teleprinters, and railway signals and before the war made household wireless sets. It is situated on the North and South banks of the Teltow canal, East of Tempelhof Hafen.

Bergmann/

Bergmann Elektrizitäts A.G.

Berlin-Reinickendorf (1)

Steam turbines, electric vehicles of various kinds, electrical plant and motors; high— and low-tension cables, insulating materials, sectional steel tubes, etc.

Osram G.m.b.H.

(1)

ptow(1)

(1)

nirg

str.

(1)

(1)

Berlin-Lichtenberg (1)

This is the leading German maker of radio valves, electric light bulbs and associated products. It works in conjunction with two Berlin branches at Charlottenburg and Siemensstadt. A large proportion of its products are sold through and under the name of Telefunken. The works is at Ehrenbergstr. facing on Stralauer Allee on the North bank of the river Spree and immediately North-east of the Oberbaum Bridge.

Julius Pintsch K.G. (Southern works).

Berlin 0.17 Breslauerstr. (2)

This works is believed to employ about 1,200 workers on the production of search-lights, signalling apparatus, etc.

Julius Pintsch K.G. (Northern works)

Berlin 0.17 Andreastr. (2)

Military signalling instruments; electro-technical appliances etc., also industrial plant for oil-refineries are made at this plant which is believed to employ about 1,000 workers.

Büssing-Nag, Vereinigte Nutz-Kraftwagen A.G. Berlin-Wiessensee

(2)

This factory is normally engaged on lorries, heavy and light tractors, omnibuses, etc., and it is believed that this production programme has been retained during the war. Recent extensions are believed to be engaged on repair and maintenance of military transport. One department is reported now to specialise in the production of direction finders.

Maschinenfabrik Prometheus G.m.b.H.

Berlin-Reinickendorf Ost. Hæuptstr.

Gears, gear boxes and rear axles for road vehicles, gears and reduction gearing for tanks and aircrafture made by this firm, which is only of secondary importance in the road-vehicle industry, but is believed to supply a fair proportion of the gears required by the Junkers group of aircraft factories.

Fritz Werner A.G./

Fritz Werner A.G. Berlin-Mariendorf (2)

Fritz Werner A.G. is of importance as a maker of milling and grinding machinery and boring and rifling machines for S.A. manufacture.

Raboma Maschinen-Fabrik Hermann Schoening Berlin-Borsigwalde (2)
Holzhauserstr.

This factory is believed to be the largest German producer of radial drilling machines; it also makes several types of machine tools on a small scale.

Elektro-Thermit G.m.b.H.

Berlin-Tempelhof (2).

South bank of
Teltow canal

This is one of the leading German producers of welding apparatus.

Deutsche Nileswerke A.G. Berlin-Weissensee (2)

This is an important machine-tool works specialising in compressed-air tools, lathes, and grinders, and believed to employ some 2,500 workers.

A.E.G. Transformer Works

Berlin-Oberschöne- (2)

Weide

Transformers and insulating material are the principal products of this large works.

V.K:F. Erkner (1)

The Erkner factory is situated about 18 miles S.E. of the Berlin centre. The works is estimated to possess floor space of about 350,000 square feet arranged in a modern layout on a site of 25 acres which is well marked by woods and lakes. One the basis of its size it is estimated to employ 2,000-3,000 hands. It is believed to concentrate on heavy aircraft bearings.

V.K.F. Neukölln (?)

Neutral sources insist that a V.K.F. plant is located in KOEPENICKERSTR., NEUKOLIN, but there is no such street in that district, nor is there a ball-bearing plant in any of the five other streets of that name in Berlin. There is, however, a small factory, formerly known as RIEBE, which was acquired by the V.K.F. combine at its formation, and which is the most likely identification for the reported plant.

Norddeutsche Kugellagerfabrik Berlin-Lichtenberg (2)

This small factory, situated adjoining the Lichtenberg railway sidings, is engaged in the production of standard bearings of indifferent quality in the medium range of sizes. It was acquired by the Fischer combine before the war and is believed to employ about 500 hands.

Askania/

(2)

(2)

(2)

(2)

(-)

Askania Werke A.G.

A) Berlin-Mariendorf (2) Grossbeerenstr.

(2)

B) Steglitz C) Friedenau

This firm makes a wide range of optical and precision instruments, including direction finders, fire-control apparatus, remote-control gear, compasses, altimetres, speedometers, cameras, etc., and is believed to employ 7,000 workers in its three Berlin factories. According to reports the assembling and testing of the instruments is carried out at the FRIEDENAU factory.

Dr. Cassirer & Co. A.G. Berlin-Spandau (2)
(Havelwerk) Rauchstr.

The works manufactures lead-covered power cables for high and low tension. They were opened in 1930 and all the lead-presses and armouring machines for lead-covered cables were transferred here from the original works in Charlottenburg. The works now belong to the SIEMENS interest represented by ELEKTRISCHE LIGHT- UND KRAFTANLAGEN A.G.

Siemens-Schuckert Werke A.G. Berlin-Spandau . (2)

This factory is chiefly engaged on assembly of telegraph, signalling and similar apparatus as well as military W/T sets.

Ges. für Elektrische Unternehmungen A.G. Berlin-Charlottenburg (2) Wiebestr. and Klarenbachstr.

Machine tools and small tools such as milling outters and high-speed tools, castings, etc. are made at the Charlottenburg branches of this firm on a fairly large scale.

Osram Lamp Works Berlin-Charlottenburg (2)

This factory makes radio valves and associated products. Its main works is at Berlin-Lichtenberg.

Osram Glassworks Berlin-Siemensstadt (2)

Radio valves and glass components for electric light bulbs, etc. are made at this factory on a large scale. Its main works is at Berlin-Lichtenberg.

Blaupunktwerke G.m.b.H. Werk I. Berlin-Wilmersdorf (2)

This is a subsidiary of BOSCH and is mainly engaged on the production of wireless apparatus, transmitting and receiving sets.

Blaupunktwerke/

Ge

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DISTORDING ALONG COMMENCE OF THE PROPERTY OF T	Berlin S.O. 36 Kopenickerstr.	(3)
This is the assembly and despatch unifor the aforementioned factory.	t	
a) Altkett G.m.b.H. (Werk I) b) Fahrzeug- und Gerätebau G.m.b.H. c) Otis Aufzugwerke G.m.b.H. d) Hauptwerkstatt für Postkraftwagen.	Borsidwalde	
This is a group of 4 factories situat on one large site bordered by Breiter and Innungstr. Their individual acti are as follows:-	nbachstr.	
a) A.F.V. assembly		(2)
b) motor transport	}	
o) lifts and hoists	}	171
d) M.T. repairs. Overhaul of post office lorries used in Berlin area.	} .	(3)
autsche Benzimhren G.m.b.H.	Berlin-Tempelhof Bergmannstr.	(3)
Electric fuel feed-pumps and other electron apparatus are made by this firm on a failarge scale.		
ebr. Leutert	Berlin-Oberschöne- weide Rummelsburger Chausee	(3)
Leutert is of some importance as a manufacturer of transformers and insula material.	ting	
Nordbau" Norddeutsche Motorenbau G.m.b.H.	Berlin- Niederschöne- weide Berlinerstr.	(3)
Small Diesel motors are made by this fi	790	

Small Diesel motors are made by this firm which is reported to employ about 800-4,000 workers.

Dr. Cassirer/

Dr. Cassirer & Co. A.G. (parent works)

Berlin-Charlottenburg (3)

(3)

This factory is situated facing on Keplerstr. and bordered on the South by Gustav Adolfstr. This is the original, but now less important, factory and manufactures only rubber—insulated cables and wires. The lead presses and armouring machines for paper—insulated cable have been transferred to the Spandau works. The works are owned by the Siemens interests.

Siemens & Kalske A.G. Wernerwerke Berlin-Haselhorst

This plant is believed to be solely used for stores of general electro-engineering equipment.

Klockner-Humblodt-Deutz A.G. (Werk Magirus) Tempelhof Bessemerstr. (3)

This is a motor-transport repair works employed chiefly on military vehicles and reported to employ some 1,200 workers.

Ariadne Draht- und Kabelwerke A.G. Berlin-Lichtenberg (3)
Boxhagenstr.

Insulated wire and cables are the principal products of this company.

Carl Flohr G.m.b.H.

Borsigwalde. (3)

Between Strasse 22

Innung Flohr and

Herzog Strn.

Lifting gear and hoists are made by this factory on a large scale.

Stahlbau Wittenbau G.m.b.H. and
Wittenauer Maschinenfabrik G.m.b.H. Borsigwalde,
Innungstr.

Constructional steel, bridge material, oranes, lifts, machine components, etc. are made by these two firms, which are working as one unit.

(a)/

(2)

(3)

(3)

(3)

a) Getriebebau G.m.b.H. b) F. Stolzenberg & Co. (3) c) Maschinenfabrik Reinickendorf West Otto Aeron Waldstr. These three engineering firms are believed to be closely associated with each other and to produce a fair range of machine tools. Gustav Genschow & Co. A.G. Neukölln (3) Abt. Waffenfabrik Bouchestr. Small arms and S.A.A. are the main products of this firm. Jordan Bremsen A.G. Neukölln (3) Lahnstr. Air brakes and compressors are believed to be the principal products of this company. Ehrlich & Graetz Neukölln (3) Elsenstr. This firm makes electrical apparatus, wireless sets, etc. a) Reichs-Telegraphrn Zeugamt b) Troitsch A.G. Tempelhof a) Industriestr.
b) Colditzstr. (3) These firms specialise in: a) Telephone and telegraph equipment.
b) Cables and wire rope. Berlin-Marienfelde, (3) Siemens-Apparate G.m.b.H. Siemensstr.

This factory is believed to be engaged on

This factory is believed to be engaged on aircraft instruments and other precision apparatus.

Siemens-Apparate G.m.b.H. Berlin-Lichtenberg (3)
Krimhildstr.

This factory is believed to be engaged on aircraft instruments and other precision apparatus.

(a)/

(3)	a) R.Stock & Co. b) Hartex G.m.b.H.	Mariendorf Grossbeerenstr.	a)	(2
	These firms occupy the same factory site and make:-  a) Machine tools, especially grinding, bori and milling machinery.	ng,		
	b) Drills and hydraulic presses.		ъ)	(3
(3)	Zeiss-Ikon A.G. formerly a) Goerzwerke.	Friedenau, Reinstr.	a) (	
(3)	These works occupy one factory site and their activities are:-  a) Manufacture of optical instruments, particularly range finders, binoculars, and fire-control apparatus.			
1-1	b) Friedenauer Technische Werkstatte:-		ъ) (	3)
	b) are the research and development laboratories of the Goerzwerke.			
(3)	Auto-Union A.G.	Wilmersdorf	(	3)
	This is a M.T. repair and maintenance depo It is situated between Cicero Mansfelder a Eisenzahnstr. and Hohenzollern Darm.	ot. and		
(3)	D) Auto-Inion A C	Wilmersdorf Nestorstr.	(	3)
/2)	These three firms occupy one site. They are:- a) M.T. repair and maintenance depot. b) M.T. repair and maintenance depot. c) General engineering workshops.	}		
, (3)	Auto-Union A. G.	Spandau	(3	3)
	This is a repair and maintenance of militatransport.	CA.		
(3)		Strausberg Mr. Berlin	(3	5)
	This plant specialises in milling, grinding, boring and rifling machines and other machines for S.A. factories.	ne		
	Gema (Gesellschaft für Elektroakustische Mechanische Apparate)	Berlin- openick	(3	)
	Field communication apparatus such as wirel transmitters, telephones, etc. are the principal products of this firm.	ess		

CHEMICALS AND EXPLOSIVES/

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#### CHEMICALS AND EXPLOSIVES

Gevaert-Voigtlander Berlin- (3)
Spindlersfeld

Photographic materials including cameras and paper are made at this works on a large scale.

Kodak A.G. Kopenick (3)

Cine- and ordinary films are produced at the Köpenick works of the Kodak A.G. whose largest producing unit is at Stuttgart.

Zeiss-Ikon Film-Werke Zehlendorf (2)

This factory was formerly known as the Goerz Werke. It is believed that 10% of the total German production of recommaissance film is accounted for at this works (the remaining 90% is concentrated at the Agfa plant at Bitterfeld-Wolfen). A branch of this firm is at Berlin-Friedenau (see under Engineering and Armaments).

J.D. Reidel-E. De Haen A.G. Berlin-Britz
Riedelstr. (2)

This factory normally employs about 2,000 workers on the production of pharmaceutical and medicinal preparations.

Schering A.G.

a)BerlinCharlottenburg
b) Wedding

c) Adlershaf

This is one of the leading German manufacturers of pharmaceuticals, medicinal preparations, serums, synthetic camphor, etc. It has three factories in Berlin as follows:-

Berlin-Wedding: This factory houses the main offices of the company and the research laboratories. It also carries out all the tabletting and packaging of the pharmaceutical products, and has besides a small manufacturing capacity. The plant produces iodine and bismuth preparations, and a proprietary product "Atophan" (cinchophen, for the treatment of gout). Staff employed were 1,000 clerical, 200 research chemists, and 500 other workers, before the war.

Berlin-Charlottenburg: All buildings of this factory are leased to other firms with the exception of one floor where the bacteriological research is carried on. It also finished the preparation of insulin supplied by the Berlin-Adlershof plant. All products were sent to Berlin-Wedding for packing and distribution. This plant employed 50 research workers.

Berlin-Adlershof:/

Berlin-Adlershof: The bulk of the pharmaceutical products is carried out at this factory. A large variety of products are manufactured, including hormones, pharmaceutical ether, synthetic narcotics (e.g. veramon), Urotropine (Hexamethylene tetramins) and a variety of mixed preparations, commercial solvents, reagents for laboratory works, and numerous fine chemicals are also made. Semi-finished insulin is prepared here and then sent to Charlottenburg for finishing. The production of laboratory reagents is second only to that of E. Merck, Darmstadt. The factory is believed to employ 1,500 workers.

Schering is also a large manufacturer of sodium hypophosuphite and phosphoric acid, it is also the largest manufacturer of glycerophosphates in Europe, being responsible for 25/30 tons out of an estimated world consumption of 50/60 tons p.a. Where this manufacture is carried out is not known, but it is probably at the Adlershof factory.

"Agfa" Universum Film A.G.

Tempelhof

(-)

Situated in Oberlahnstr. the site comprises, the head office, studios, and workshops of the Ufa film company.

Kindermann & Co.

This is a small factory making films, photographic material, etc.

I.G. Farbenindustrie

Rummelsberg

(-)

Situated in Hauptstr. the site includes the I.G. distribution centre and the distribution centre for Aceta rayon products.

Chemische Fabrik Grunau A.G.

Grunau

(3)

Situated in Regatterstr. this firm makes pharmaceutical and medicinal preparations on a fairly large scale.

Auergesellschaft A.G.

Oranienburg

(1)

This is one of the most important German makers of anti-gas equipment, particularly gas masks, escape apparatus, incandescent gas-mantles, luminous paints, and a large variety of other chemical products.

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# BERNBURG (Anhalt)

51° 45' N. 11° 45' E: 510 miles: (40,000)

Bernburg is situated approximately 25 miles South of Magdeburg on the railway from Dessau to Aschersleben. The town's growth is due to the surrounding salt deposits which are exploited by the chemical works of the Deutsche Solway-Werke A.G. Bernburg, however, is now chiefly important owing to the large Junkers Assembly Works.

### Transportation

Railway Repair Shops

Bernburg

(3)

These medium sized railway workshops are engaged on the repair and maintenance of goods trucks and passenger coaches.

### Aircraft and Aero Engines

Junkers

Bernburg

(1)

Situated at the Northern end of the Bernburg aerodrome, some 2 miles North West of the town, is the main assembly plants of the Junkers Flugzeug und Motorenwerke G.m.b.H., whose parent works are in Dessau. The components for this plant are supplied by the works at Aschersleben, Halberstadt, Schönebeck and Rüsselsheim. In 1942 an average of some 55 Ju. 88's and 20 Ju. 52's were being produced each month. Latterly, however, the plant has begun the assembly of Ju. 188. This is a development of the Ju. 88 and is used for night bombing, intruding and torpedo bombing. In 1942 some 2,500 workers were reported to be employed at the Bernburg plant.

#### Chemicals and Explosives

Kåliwerke Solvayhall

Köttenschestr. (1)

The Deutsche Solway Werke A.C., whose parent works are in Bernburg, were formed to exploit the rich salt deposits in this district.

The firm has another large factory at Ostermienburg in Anhalt. The Bernburg plant manufactures soda bicarbonate, soda ash (ammonia soda) and magnesium soda and potash.

The soda ash capacity of the plant is 240,000 tons per annum, or 41% of the total German production of soda ash; crude potash capacity 420,000 tons per annum; and potash salts are produced at a rate of 200,000 tons per annum. In 1936 a total of 6,000 workers were employed in the two factories at Bernburg and Osternienburg.

# BETZDORF SIEGTHAL (Rhineland)

50° 45' N. 7° 40' E:

300 miles:

(12,400)

Betzdorf Siegthal lies on the main railway from Cologne to Siegen, and is a junction for Wetzlar and Giessen. The town's activities include an engineering works, a few small metal working plants, and food factories. The firm mentioned below, however, is the only plant worthy of note.

### Engineering and Armaments

Quast

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(3)

Betzdorf

(2)

The Quast Maschinenfabrik G.m.b.H., whose parent works are in Cologne, are reported to have opened a branch factory at Betzdorf in October 1941. This plant is believed to be making mortars, and has been reported as employing as many as 5,000 workers.

# Iron and Steel and Ferro-Alloys

Friedrichshütte

Herdorf (5)
(approximately 3 kilometres south west of Betzdorf)

This iron and steel works belonging to the Vereingite Stahlwerke A.G., is believed to have a capacity of some 100,000 tons per annum. It is reported to produce bomb and shell castings.

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### BEUEL (Rhineland)

50° 40' N. 7° 10' E:

320 miles:

(21,000)

Beuel is on the right bank of the Rhine opposite Bonn. It is on a main railway along the Rhine to South West Germany, and contains a few minor industries, including chemical and dye works. None of these are of importance apart from the firm mentioned below.

### Chemicals and Explosives.

L. C. Marquart A. G.

Siegburgerstr. (3)

The chemical factory of Dr. Marquart A.G. normally employs some 300 workers and has a cobalt refinery with a capacity of 400 tons per annum. Among its principal products are cobalt salts and pigments.

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# BEUTHEN (Silesia)

50° 20' N. 18° 55' E.

835 miles

(105,000)

Beuthen is the most easterly of the three adjacent mining towns in the extreme South east corner of Upper Silesia, the others being Gleiwitz and Hindenburg. The former Polish frontier runs closely round the northern, eastern and southern borders of the town. The built-up area of the town itself contains few industries of note but the highly important VOHAG steel works and six of the large Upper Silesian coal mines are grouped to the West and North West of Beuthen. Beuthen is the centre of the lead and zinc mining of Beuthen. district of Upper Silesia.

#### Transportation

Goods Yards

Beuthen

(2)

The railway goods yards are on the South Western outskirts of the town near to the village of Schomberg. These goods yards have a very large storage capacity and include a small marshalling yard.

# Public Utility Services

Power Station

Schomberg

(2)

The thermal power station belonging to the Graflich Schaffgotsche Werke is near the village of Schomberg. It is believed to have a capacity of over 50 MW.

Gas Works

Beuthen

(3)

The Verbands Gaswerk, Beuthen-Hindenburg G.m.b.H. has an output in 1936 of about 425 million cubic feet of gas.

### Solid Fuels

Heinitzgrube

Beuthen

(3).

Iron

The Heinitz and Hoffnung group of mines belong to the Bergwerkgesellschaft Georg von Giesches Erben and are on the South Eastern outskirts of Beuthen. There are five pitheads. In 1937 2,600 workers were employed and 1,400,000 tons of coal were produced.

Preussengrube

Bobrek-Karf

(3)

The coal mines of the Preussengrube A.G. are situated to the North West of the village of Bobrek, 2 miles West of Beuthen. There are three pitheads. In 1937 2,900 workers were employed and the output was 1,400,000 tons of coal.

Beuthengrube (cos. Radzionkaygrube)

Beuthen

(3)

This coal mine belongs to the Henckel von Donnersmarck Estates and is situated in the Beuthener Stadtwald 3 miles North West of the town. There is 1 pithead. 2,200 workers were employed before the war and the 1957 output of coal was 1,100,000 tons.

Karsten Zentrum-Grube

Beuthen

(3)

The Vereinigte Karsten Zentrum-coal mine of the Schlesische Bergwerks & Hütten A.G. is situated on the Western outskirts of Beuthen and has 3 pitheads. 4,000 workers were employed before the war and the coal output was 1,600,000 tons in 1937.

Hohenzollerngrube

(2)

(2)

(3)

(3)

(3)

Schomberg (Beuthe)

(3)

The Hohenzollerngrube, which together with the Grafin Johanna mine, mentioned below, belongs to the Graflich Schaffgotsch'sche Werke G.m.b.H. is immediately to the South of Beuthen goods station close to the village of Schomberg. There are 3 pitheads. In 1937 production was 2,100,000 tons of coal per annum and 3,300 workers were employed.

Grafin Johanna Grube

Bobrek-Karf

(3)

The Grafin Johanna mine has 2 pitheads. 4,000 workers were employed before the war and the output was 2,800,000 tons of coal in 1937.

Coking Plant

Bobrek

(3)

The Julienhütte coking plant forms part of the VOHAG steel works referred to below. This coking plant is associated with the Castellengo group of coal mines in Hindenburg. There are 240 coking ovens and a by-products plant.

Iron and Steel and Ferro Alloys

VOHAG Julienhutte

Bobrek

(3)

The Julienhatte steel works of the Vereinigte Oberschlesische Hüttenwerk A.G. are in the village of Bobrek, 2 miles West of Beuthen.

They are equipped with Siemens-Martin ovens, forges, rolling mills and a wagon factory.

175,000 tons of pig iron and 425,000 tons of Siemens crude steel is the estimated annual capacity of the plant. Complete light railways, railway metals and points, plating for wagons and heavy vehicles, and foundry wheels, are among the known products of this plant. The works include a coking plant which is mentioned above under Solid Fuels. For further particulars of the VOHAG concern see under GLEIWITZ.

### Non-Ferrous Metal Manufacture and Fabrication

#### Bleischarleygrube

Beuthen-Rossberg (3)

This lead and zinc mine belongs to the Bergwerkgesellschaft Georg von Giesches Erben, and is situated on the South Eastern outskirts of Beuthen close to the former Polish frontier. In 1939 the output was 400,000 tons of ore. workers were employed.

### Fiedlersglück

Beuthen (3)

The Fiedlersglück zinc mine is worked in conjunction with the neighbouring mines Jenny Otto and Wilhelmsglück-Ostfeld. This group of mines belong to the Schlesische Bergwerks & Hutten A.G. are connected by an aerial railway. In 1939 the output of ore was 210,000 tons. Some 500 workers were employed.

#### Neue Viktoria

Miechowitz

(3)

The Neue Viktoria zinc mine of the Schlesische Bergwerks & Hutten A.G. is situated to the East of the village of Miechowitz, 3 miles North West of Beuthen. In 1939 the output of this mine was 150,000 tons of ore.

### Friedrichsgrube

Dombrowa.

(3)

This lead and zinc mine belongs to the Preussische Bergwerks & Hutten A. G. and is immediately to the North of the village of Miechowitz 3 miles North West of Beuthen. The mine was not being fully operated before the war and had only a small output, according to the latest information. In 1939 a total of 15,000 tons of ore were mined.

#### Newhof

Dombrowa

(3)

The Neuhof zinc mine belongs to the Schlesische Bergwerks & Hutten A. G. and is near to the village of Dombrowa 3 miles North North West of Beuthen. This mine is associated with the Wilhelmsglück-Westfeld zinc mine 2 miles North From 1918 and until the latest of Beuthen. date for which information is available, these two mines were not being operated.

### Engineering and Armaments

### Engemann

Ostlandstr.

(3)

The Zahnraderfabrik H. Engemann & Co. are manufacturers of all types of cog wheels. They employ some 1,000 workers.

Kühl turmbau

Beuthen

(3)

sberg (5)

The firm of Kühlturmbau Heidl & Co. specialize in the construction of water refrigerating towers and industrial coaling installations.

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(3)

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(5)

### BIELEFELD (Westphalia)

52° N. 8° 30' E:

375 miles:

(125,000)

The industrial town of Bielefeld lies on the main railway line from Berlin through Hanover to Hamm. The town has been considerably developed during recent years and besides being the centre of the linen trade, it contains several engineering works which in peacetime specialised largely in the manufacture of cycles and sewing machines. Most these industries are grouped in the centre of the town in the vicinity of the main goods station. Other industries include metal working, silk weaving plants, and clothing factories.

### Transportation

Goods Station

Bielefeld

(3)

The Goods Station is situated immediately to the East of the main railway station and has large storage accomodation. There are also marshalling yards adjoining.

Railway Repair Shops

Beilefeld

(3)

These are large repair shops employing approximately 1,000 workers, and undertaking chiefly the repair and maintenance of goods wagons in 1939.

### Public Utility Services

Unter station

Beilefeld

(3)

Lying 130 miles from Brauweiler, this important Beilefeld distributing substation is on the 220 kV Brauweiler-Spandau line and is associated with the thermal station of the same name.

Kraftwerke

Beilefeld

(3)

Supplying Beilefeld and district, this thermal power station has a capacity of 41 kW. It lies directly N.E. of the main railway station.

Gaswerke

Beilefeld

(3)

The municipal gasworks sold, in 1936, 700 million cubic feet of gas and carbonized 31,000 tons of coal. It is situated to the N.E. of the main station adjoining the electricity works.

## Engineering and Armaments

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Anker Werke A.G.	Ravensbergstr,	(3)
Anker Werke A.G.	Am Stadtholz E. of Goods Station	(2)
This engineering firm formerly employed 1,800 workers on the production of mobicycles, slot machines, sewing machine various types of adding and calculatine machines. They are now reported to hincreased the total number of their works,000 and to be engaged on the product of army motor cycles, and small arms ammunition.	otor cycles, nes and ng nave	
Benteler Werke A. G.	Weidenstr.	(3)
This firm was formerly engaged on the manufacture of pylons, masts, road and railway telegraph installations and M.T. components. They are now report to be producing complete armoured vehicles and tracked guns.		
Gebr. Dickertmann	Jollenbeckerstr.	(-)
The Gebr. Dickertmann Hebezeugfabrik A. employ some 300 workers on the product of all types of cranes and industrial	ion	
Droep & Rein	Am Guterbahnhof	(3)
Situated directly N. of the main goods station, this machine factory, whose equipment also includes an iron foundry employs some 400 workers on the product of machine tools.	y, tion	
Durkopp Werke A.G.	Nic. Durkoppstr.	(2)
Durkopp Werke A.G.	Kaiserstr Hermann Str.	(3)
This important engineering undertaking two plants in Bielefeld, both of which situated in the centre of the town. I peacetime this firm produces cycles, sewing machines and various types of of machinery. They are now reported to employ some 3,800 workers on the manuf of motor cycles and small arms componen	are in Tice	

The firm of Gildemeister & Co. A.G. employ some 600 workers, and produces lathes and milling and precision grinding machinery.

Kleine Bahnhof

Str.

(3)

Gildemeister A.G.

#### BEILEFELD (contd)

#### Goricke Werke

Paulusstr.

(3)

The works of August Goricke, which formerly specialised in bicycles and in milk separating machinery, now employs some 800 workers on the manufacture of motor cycles and various other types of military transport.

Kochs Werke

Teich Str.

(2)

The Kochs Adlernahmaschinen Werke A.G. have their main factory in Beilefeld and branch works in Hamburg. In peacetime they made all type of sewing machines and employed 1,300 workers. They are probably now engaged on the manufacture of small arms components, and other war material suitable to their type of plant.

Phoenix A. G.

Kl. Bahnhof Str. (2)

The Phoenix Nahmaschinen A.G. Baer & Rempel have their main factory in Beilefeld, and branch works in Wurzburg and Budapest. In peacetime they employed 1,150 workers and manufactured sewing machines. They are probably now engaged on armament production.

Präzisionswerke

Detmolderstr. (3)

These works are 2 miles South East of the main station. The firm normally manufactures bicycle components and employed some 500 workers before the war. It is now reported to be engaged on the production of precision bearings.

### Textiles, Rayon, Pulp and Paper

Ravensberg A. G.

Schildesche

(-)

The Mechanische Weberei Ravensberg A. G. are manufacturers of linen products of all kinds. They employ 200 workers.

Mechanische Weberei

Beilefeld

(-)

The Beilefelder A.G. fur Mechanische Weberei is a weaving mill making chiefly linen products, which employed some 800 workers before the war.

Seidenweberei

Hindenburgstr. (-)

The Ravensberger Seidenweberei G.m.b.H. is a weaving mill making chiefly artificial silk products.

BEILEFELD (contd.)

### Leather

(3)

f Str. (2)

(3)

(-)

Lohmann Werke

Konigstr.

(-)

The Lohmann Werke A. G. are makers of leather goods of all kinds, including travelling cases and bicycle saddles.

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### BINGEN (Hesse)

49° 55' N. 7° 55' E: 367 miles: (22,000)

Bingen is on the left bank of the Rhine 15 miles West of Mainz. It is divided from the twin town of Bingerbruck by the River Nahe which here forms the boundary between the two Provinces, Hessen and Rhineland. Bingen is on the main railway which follows the left bank of the Rhine from Cologne to Frankfort/Main. It is a junction for the railway leading up the Nahe valley to the Saar territory. The town contains a small number of industrial firms, most of which are connected with the wine trade, but none of these are of individual importance.

### Transportation

Railway Repair Shops

Bingerbruck

(2)

These medium sized railway workshops are engaged on the maintenance and repair of goods wagons.

Marshalling Yards

Bingerbruck

(2)

These marshalling and shunting yards have a capacity of 2,400 wagons per 24 hours.

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### BITTERFELD (Province Saxony)

51° 45' N. 12° 20' E:

535 miles:

(35,000)

The main railway from Berlin to Halle and Frankfort/Main, passes through Bitterfeld where a second line diverges and leads to Leipzig. It is a junction for a branch line to Dessau. The town's chief It is a junction for a branch line to Dessau. activity is connected with the chemical and metallurgical plants, most of which are now owned by the I.G.Farbenindustrie concern, and which are grouped together in distinct areas as follows:-

- a) SOUTH, a triangular shaped area comprising the Power Station; I.G. FARBEN und METALLGESELLSCHAFT, ALUMINIUM WERK I; WERK MAINTHAL; GRIESHEIM ELECTRON WERK I (SUD), and the SAURE FABRIK.
- b) CENTRAL, comprising GRIESHEIM WERK II (NORD) and another branch of the ALUMINIUM WERK.
- c) NORTH, I.G. FARBENINDUSTRIK ANALINFABRIK or GREPPINER
- d) NORTH WEST, I.G. FARBENINDUSTRIE (ATFA) FILMFABRIK at

Other industries include engineering, paper, and stone masonry, and in the surrounding district there are a number of brown coal deposits. Between the two small villages of Golpa and Zschornewitz, which lie a few miles to the North east of Bitterfeld, is the second most important power station in the Reich.

### Transportation

Marshalling Yards

Am Hauptbahnhof

(2)

The marshalling and goods yards are near the main station, and can handle up to 2,000 wagons per 24 hours.

### Public Utility Services

Elektrowerke A.G.

Golpa-Zschornewitz

(1+)

Situated between the two villages of GOLPA and ZSCHORNEWITZ and some 6 miles North of BITTERFELD, the station is the second largest in Germany. The new station. which was still under construction in August 1943, is situated adjacent to the old plant on the West side; it is estimated that its initial capacity will be about 120 MW.

The original station has 16 turbogenerator sets having an estimated capacity of 434 MW.

There is an indoor sub-station for 80 kV and 110 kV: also a 110 kV indoor switching station near the generating plant. No important local supplies are given, but there are 8 double circuit llOkV long distance lines which run to: (1) BERLIN-RUMMELSBURG (via PLESTERITZ) BERLIN-SPANDAU (via BRANDENBURG)

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BOHLEN (via BITTERFELD and LEIPZIG)

GROSS-KAYNA (via GROBERS) ELBEKRAFT WERK (VOCKERODE)

(7) MAGDEBURG (8) MAGDEBURG (via DESSAU and FÖRDERSTEDT) There is also one 80 kV line to PIESTERITZ.

### I.G. power station

Bitterfeld (1)

The station is owned by the I.G.FARBEN-INDUSTRIE and is situated at the Southern end of the works complex, immediately West of the aluminium works. It is also known as the BITTERFELD power station. The output of the station is mainly, if not wholly, supplied to the I.G.works. The capacity of the works has been difficult to assess as there is some doubt as to the number of generator sets, however it is estimated that there are 7 generator sets with a capacity 140 MW. The station is connected to 110 kV lines from GOLPA-ZSCHORNEWITZ to BÖHLEN and GROSS-KAYNA.

#### I.G. power station

Wolfen

(1)

Also known as the WCLFEN power station, it is owned by the I.G.FARBENINDUSTRIE and situated at the Northern end of the complex, between the chemical and the dyestuff factories at WOLFEN. The output of the station is mainly, if not wholly, supplied to the I.G.works. Owing to the doubt existing as to the number of generators it is difficult to assess the capacity, however it is estimated that there are 6 generator sets having a capacity of 98 MW. The station is connected to the 110 kV lines from GOLPA-ZSCHORNEWITZ to BOHLEN and GROSS-KAYNA.

#### Muldenstein

Bitterfeld

The Kraftwerk Muldenstein lies a few miles to the North east of the town. It has a capacity of 81 MW and supplies the railway system in this district. It is owned by the Reichsbahn.

### Solid Fuels

Braunkohlen Werke

(3) Bitterfeld

The large brown coal deposits in this area are exploited by several firms, among the most important are the Bitterfeld Louisengrube, owned by Leopold A.G., the I.G. Farben, Grube Theodor and the Grube Golpa.

Production is estimated at a rate of about 3 million tons of brown coal and 600,000 tons of briquettes per annum.

### Non-Ferrous Metals Manufacture and Fabrication

#### I.G. Farbenindustrie A.G.

The I.G. Farbenindustrie concern have a large concentration of their non-ferrous metal and chemical plants in the Bitterfeld area which are estimated to employ a total of some 50,000 workers. These works are of very great importance to the German war industry. There are three large aluminium and magnesium factories in Bitterfeld itself which are described below.

Ground reports suggest that aero-engine components and aircraft components as well as airscrews are now also produced at the I.G. Farbenindustrie works at Bitterfeld. The Southern works has been mentioned in this connection.

#### Light Metal Plants.

Bitterfeld

There is an important group of metallurgical plants in Bitterfeld which are now merged in the I.G. Farben concern. These plants produce aluminium, magnesium and light alloy semi-manufactured products and are situated in the Central and Southern areas of Bitterfeld. There are two plants producing aluminium metal, one producing magnesium and several units which produce aluminium alloys, the various magnesium alloys grouped under the trade name "Elektron" and semi manufactured products in light alloys. All the metallurgical works mentioned below are included in this group.

#### Aluminiumwerk I.

Bitterfeld (1)

The first of the two plants operated by the subsidiary firm Aluminiumwerk G.m.b.H. is situated in the Southern quarter of the industrial area and has been in operation since 1916. It was considerably enlarged during the years 1934 to 1938 and its present capacity is estimated at 15,000 tons of aluminium annually.

#### Aluminiumwerk II

Bitterfeld (1)

The second plant of the Aluminiumwerk G.m.b.H. dates from 1936 and is in the Central area of Bitterfeld. The capacity is believed to be 20,000 tons of aluminium per annum.

#### Griesheim

Bitterfeld (1)

The Chemische Fabrik Griesheim Elektion which was merged into the I.G. Farben concern in 1925 operates a magnesium plant situated in the Southern quarter of the industrial area. This plant has an annual capacity which is believed to be at least 5,000 tons.

### Light Alloys

Bitterfeld (1)

Both in the Central and the Southern areas there are a number of plants, associated with the three main units mentioned above, which produce and fabricate light alloys and semi manufactured products. These various plants are believed to have been considerably extended during recent years.

#### Chemicals and Explosives

#### I. G. Farbenindustrie A. G.

The L.G. Farben concern has three large chemical works in Bitterfeld, one of which, the Griesheim Elektron II forms a part of the non-ferrous metal factory mentioned above. In the town of Wolfen which lies some 5 miles to the North west of Bitterfeld are two further large chemical plants one of which is the main factory of the Agfa photographic film company.

### Griesheim Elektron Werk I

Bitterfeld

(1)

The Chemische Fabrik Griesheim Elektron I is in the centre of the town on the Western side of the railway. The plant produced in 1943:-4% (80,000 tons) of Germany's sulphuric acid, 37.5% (150,000 tons) of her caustic soda, 37.5% (135,000 tons) of her chlorine, and 5.2% (70,000 tons) of her nitric acid (65%) output.

### Griesheim Elektron Werk II

Bitterfled

(2)

The Chemische Fabrik Griesheim Elektron Werk II, which is part of the Non-Ferrous Metals plant is in the Northern part of Bitterfeld immediately to the North of the aluminium plant. It produces small quantities of chlorine and magnesium,

#### Salzbergwerk

Bitterfeld

(2)

The Salzbergwerk Neu Stassfurt lies to the South west of the town. It is reported to be manufacturing toxic gases and electrolytic products for the chemical and metallurgical industries.

### I. G. Farbenindustrie (Agfa)

Wolfen

(1)

The plant, situated about 5 miles North west of Bitterfeld, is owned by AKTIEN GESELLSCHAFT für ANILIN FABRIKATION (AGFA) which is a member of the I.G. FARBENINDUSTRIE. In 1939 it was the largest film producing unit in Europe; it is now believed to make 90% of Germany's aero film and 60% of her cine film. Other products are reported to be colour film, filters, plates, photographic chemicals and film base. This is the most important of the Agfa plants.

Elektro-Schmelze G. m. b. H.

Zschornewitz (1)

The plant is by far the largest producer of aluminium oxide abrasives in Axis Europe, but it manufactures no wheels and no silicon carbide. It provides screened and roasted grains to the German grinding wheel plants. Its output was about 10,000 tons per annum until 1937, when a big expansion programme was put into effect. Its output today is unknown, but this plant now probably accounts for about 50% of German production (say 15,000 tons per annum).

Farbewerke

eld (1)

led (2)

(1)

Wolfen

(2)

The plant is owned by the I.G. FARBEN concern and lies immediately North of the Wolfen power station. It is estimated that it produced in 1943 20,000 tons (1% of total German output) of sulphuric acid, and 60,000 tons (4.5% of Germany's output) of nitric acid (65%).

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### BLECHHAMMER (Upper Silesia)

50° 20' N. 18° 18' E: 800 miles:

(25,000)

Blechhammer which lies on the Klodnitz Canal, some 10 miles East of Kosel has become noteworthy during the past two years owing to the erection of two highly important synthetic oil plants. These are believed to be owned by I.G. Farbenindustrie and were first reported as under construction in 1941. There is another synthetic oil plant 9 miles to the North which is described under Deschowitz.

### Public Utility Services.

Blechhammer North

Blechhammer

(1)

This thermal power station is believed to be owned by I.G. Farbenindustrie and supplies Blechhammer North hydrogenation plant. It is now fully completed and has an estimated capacity of 250 MW.

Reigersfeld (Blechhammer South)

Reigersfeld

(1)

A second and larger power station is situated in the area of hydrogenation plant. It is being rapidly completed, and is believed to have a capacity of 300 MW. (see also below).

### Liquid Fuels and Substitutes

Blechhammer North

Blechhammer

(1)

The hydrogenation plant known as Blechhammer North is situated immediately South of the village. It is already producing some 250,000 tons of synthetic fuel per annum, but is not likely to be completed until the autumn of 1944, when its output capacity will be 500,000 tons per annum. The large electricity station belonging to this plant is mentioned above under "Public Utilities".

Reigersfeld (Blechhammer South)

Reigersfeld

(1)

This plant, which is the larger and more important of the two, is situated immediately North of Reigersfeld station and East of the Oppeln-Ratibor railway, and to the South of the Kosel-Gleiwitz line. It has been known previously as Blechhammer South. I.G. Farben-industrie are believed to control the plant whose annual capacity is at present about 400,000 tons. It is estimated that, on completion in the late summer of 1944, the annual capacity will be about 750,000 tons per annum.

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### BOCHOLT (Westphalia)

51° 50' N. 6° 40' E:

290 miles:

(35,000)

Bocholt is near the Dutch Frontier on a branch line leading from Wesel to Bredevoort in Holland. The town is chiefly a textile centre, but none of the numerous spinning and weaving plants in the area are individually of importance.

### Transportation.

(1)

(1)

Railway Repair Shops

Bocholt

(3)

These are medium sized repair shops engaged on the repair and maintenance of locomotives and goods wagons.

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### BOCHUM (Westphalia)

51° 30' N. 7° 15' E:

320 miles:

(336,000)

The area covered by this report is situated in the centre of the Ruhr industrial area; it is bounded in the North by Riemke and Bovinghausen, covers Hattingen in the South, Werne and the Western half of Langendreer in the East, Bochum itself and Weitmar in the West.

Bochum with a population of 320,000 is one of the chief centres of the coal and iron industry, there are important steelworks and approximately 30 per cent of the Ruhr coal is produced here.

Like other areas of the Ruhr the Bochum district has an extensive rail transport system with major marshalling yards at Langendreer and Dahlhausen.

There is only one important electricity power station in this area, but it is of outstanding significance in the Ruhr network. This is the 126 MW station at Hattingen. There are several local subsidiary stations of 10 to 20 MW at the pits.

The principal industries are coal mining, with the usual accompaniment of coking plants and their by-products, as well as iron and steel manufacture. At Bochum are to be found the large steel and armaments works of the Bochumer Verein (Vereinigte Stahlwerke) viz:

Werk Gusstahlfabrik Werk Hontrop Werk Stahlindustrie Werk Weitmar

as well as large engineering concerns.

Oil is represented at Bochum by three tar distillation plants.

There are smaller concentrations at Hattingen which has a
population of 16,000 and contains a large steel plant, and at
Langendreer.

#### Transportation

Marshalling Yard

Riemke

(3)

The yards lie 2 m. N.N.W. of Bochum main station and have a capacity of 3,200 wagons per 24 hours.

### BOCHUM (contd.)

Marshalling Yards Langendreer

(2)

Situated 4 m. East of Bochum main station; the capacity of the yards was 5,000 wagons per 24 hours.

Marshalling Yards Dalhausen (3)

These yards are on the North bank of the River Ruhr,  $4\frac{1}{2}$  m. South West of Bochum station; 3,600 wagons could be handled per 24 hours.

### Public Utility Services

V.E.W. Power Station Hattingen (1)

The "Gemeinschaftswerk Hattingen" G.m.b.H. is on the South bank of the River Ruhr, 1½ miles South East of Hattingen. Altogether there are 8 turbogenerator sets with a total capacity of 126 MW. There are also 3 indoor substations containing transformers, and in addition a 110 kV. outdoor switching station. Underground cables supply local industries (10 kV) and Wuppertal (25 kV). Long distance power is supplied to the R.W.E. grid (50 kV), a 110 kV line is connected to Essen, Witten and other towns, and the 220 kV line from Herdecke to Leithe may be connected to Hattingen. This is one of the four main stations serving the Ruhr industrial area. The others are Karnap (see Essen), Gersteinwerk (Hamm) and Reisholz (Düsseldorf).

Municipal Gas Works Bochum (3)

Situation: North East of the main station, between Orenstein und Koppel and the "Stahlindustrie" works. The works took 550 million cubic feet of gas over the V.E.W. grid in 1936.

Gusstahlfabrik Power Station Bochum (3)

Owned by the Bochumer Verein iron and steel works, this thermal power station has capacity of 25 MW.

Henrichshätte Power Station Hattingen (3)

Situated at the Hattingen steelworks, five miles South of Bochum, it has a capacity of 25 MW.

Robert Müser Power Station Werne (3)

Situated at the colliery 34 miles East of Bochum station, the plant is believed to have a capacity of 30 MW.

BOCHUM (Contd)

(2)

(3)

(3)

Präsident Power Station N. W. Bochum (3)

Owned by Bergbau A.G. Lothringen, the works have a capacity of 21 MW. and are situated 1 m. West of Bochum main station.

Constantin der Grosse Power Station Gerthe-Heide (3)

Owned by the Deutsche Erdol A.G. Situated at Pits 6/7 at Gerthe-Heide,  $2\frac{1}{4}$  m. N.N.E. of Bochum main station, this thermal plant has a capacity of 11 MW.

Prinz Regent Power Station E. Weitmar (3)

Situated one mile East of Weitmar, and  $1\frac{1}{2}$  m. South of Bochum main station, this thermal plant is the main distribution centre for the Bochum group of companies owned by the Gelsenkirchener Bergwerks A. G.

Solid Fuels

Constantin der Grosse 1/2 coking plant N.W. Bochum (3)

Owned by Gewerkschaft "Verein Constantin der Grosse" the plant is situated 2 m. North of Bochum main station. There are 90 coke ovens with an estimated annual capacity amounting to 100,000 tons of dried coal.

Constantin der Grosse 6/7 coking plant Gerthe (3)

Situated adjoining Pit 6/7, 24 m. N.N.E. of Bochum main station, the plant is owned by Gewerkschaft "Verein Constantin der Grosse" (Fr. Krupp A.G.). There are 120 ovens having an estimated annual rated capacity of 340,000 tons of dry coal.

Constantin der Grosse 10 coking plant Gerthe-Heide (3)

This plant, adjoining Pit 10, is situated  $3\frac{3}{4}$  m. N.N.E. of Bochum main station and has 56 coke ovens with an estimated annual capacity of 450,000 tons of dry coal. Gas is supplied to the Ruhr gas grid.

Lothringen 4 coking plant Hiltrop-Wanne (3)

Owned by Bergbau A.G. Lothringen the plant is situated 3 m. North East of Bochum main station. It consists of 130 ovens with an annual dry coal capacity of 330,000 tons. Gas is supplied to the Ruhr gas grid. (See also "Liquid Fuels" and the collieries above.)

### BOCHUM (contd.)

Carolinenglück coking plant

Hamm

(2)

The coking plant is in the Bochum group of Gelsenkirchener Bergwerke A. G. and is situated 2 m. North West of Bochum station. The plant consists of 225 ovens with an annual dry coal capacity of 890,000 tons. (See also under "Liquid Fuels")

Präsident coking plant

N. W. Bochum

(3)

Owned by Bergbau A. G. Lothringen, the coking plant, situated 1 m. West of Bochum main station, consists of 70 ovens with an annual rated dry coal capacity of 148,000 tons, also produces gas and by-products. The company has its own power station (see also under "Public Utility Services".)

Bruchstrasse coking plant

Langendreer

(3)

This coking plant is another of the Bochum group of Gelsenkirchener Bergwerke A.G. and is situated 43 m. East of Bochum main station. The plant comprises 72 ovens with an annual rated dry coal capacity of 511,000 tons. The principal by-products won are ammonia, tar and benzol. Some 1,800 workers are employed. The plant has its own power station.

Mansfeld coking plant

(3)

Also known as "Kolonia", the coking plant, owned by Mansfeld A.G., is situated  $3\frac{1}{2}$  m. of Bochum station, and comprises 220 ovens with a maximum rated dry coal capacity of 400,000 tons annually. The plant has its own power plant with a capacity of 7 MW.

Dannenbaum coking plant

East of Bochum

Another of the Bochum groups of Gelsenkirchener Bergwerks A. G., it is situated 2 m. East of Bochum main station, the plant consists of 65 ovens with an annual rated dry coal capacity of 200,000 tons.

Robert Müser coking plant

Werne

(2)

Located adjoining the colliery, 34 m. E.N.E. of Bochum main station, the plant consists of 205 ovens which have an annual dry coal capacity of 1,200,000 tons. See the colliery of the same name (below).

Henrichshütte Coking Plant

Hattingen

(3)

Situated 5 miles South of Bochum at the Henrichshutte steelworks of the Ruhrstahl A.G. group of Vereinigte Stahlwerke A.G., the plant consists of 100 ovens with an annual rated dry coal capacity of 430,000 BOCHUM (Contd)

(2)

(3)

shun (3)

(3)

Constantin der Grosse Collieries

(2)

Situated North of Bochum, the Gewerkschaft "Verein Constantin der Grosse" has pits numbered 1,2,2A,3,4/5,6/7,8/9 and 10/11. The output of these mines was 2,127,000 tons of hard coal in 1937. (The coking plant is mentioned above and the power station under "Public Utilities").

Lothringen Colliery, Pits 1/2/3 and 4/5 N. of Bochum-Gerthe (2)

The Bergbau A. G. Lothringen collieries are situated roughly North of Gerthe. In 1937 their output of hard coal amounted to 1,540,000 tons. (See also under "Liquid Fuels" and "Chemicals").

Robert Müser colliery

W. Werne (2)

Owned by the Harpener Bergbau A.G., the mine is situated 3½ m. E.N.E. of Bochum main station. The colliery is an amalgamation of the following pits:—Amalia, Arnold Jakob, Caroline, Heinrich Gustav, Prinz von Preussen and Vollmond. In 1937 1,370,000 tons of hard coal were produced. (Power station, see under "Public Utilities". The coking plant is mentioned above).

### Liquid Fuels and Substitutes

Lothringen 1/2

Gerthe (3)

Owned by the Bergbau A.G. Lothringen, this distillation plant is situated  $4\frac{1}{4}$  m. North East of Bochum main station, it is capable of producing the full range of products, but is probably mainly engaged on different grades of fuel oil. (See also under "Solid Fuels" and under "Chemicals").

Lothringen 4

Hiltrop-Wanne (3)

The distillation plant is owned by Bergbau A. G. Lothringen and is located 3 m. North East of Bochum main station, adjoining the coke oven (see under "Solid Fuels").

Carolinengläck distillation plant

Hamme (-)

Owned by Gelsenkirchener Bergwerke A.G. (Bochum group) this plant is situated 2 m. North West of Bochum main station adjoining the coking ovens, the plant produces the usual by-products, the chief of these being benzol.

BOCHUM (contd.)

### Iron and Steel and Ferro-alloys

Werk Gusstahlfabrik

N. of Allee Str. (1)

Part of the Bochumer Verein group, owned by Vereinigte Stahlwerke A. G., the steel works are situated less than a mile North West of Bochum main station. The extensive works complex has a frontage of about one mile and a depth of half a mile. There are 4 blast furnaces and 15 Open hearth furnaces. The annual capacity of the works is estimated at 850,000 tons per annum of pig iron and 700,000 tons per annum of crude steel. Electric steel is also produced. It is one of the main German consumers of refined nickel. Steel castings are a special product of the works. Other products include gumbarrels, complete artillery pieces, and armoured plate. The complex includes foundries, forges, mills and shops for rails, wheels, springs, boilers, switches and axles. Products include tank wheels, bomb tail units, and welded tubes for submarine components. The works has its own power plant (see under "Public Utilities"). 12 to 13,000 hands are employed, working in three shifts.

Werk Höntrop

W. of Bochum (1)

One of the Bochumer Verein group, owned by Vereinigte Stahlwerke, the works is situated 1½ m. West of Bochum main station. It has 4 open-hearth furnaces with an annual capacity of 500,000 tons of crude steel. The works has a rolling mills capable of handling the whole of its steel output, and the finished products cover the usual range. The work's special product is tubes.

Werk Weitmar

S. E. Bochum (3)

Part of the Bochumer Verein group of Vereinigte Stahlwerke A.G., the steel works are situated 1½ m. E.S.E. of Bochum main station. There are 7 Open-hearth furnaces with a crude steel capacity estimated at 100,000 tons per annum. The rolling mills are capable of absorbing the whole of the steel output. Steel castings are the speciality of the works. The works employ about 800 workers.

### BOCHUM (contd)

(1)

(1)

Eisen und Hüttenwerke A. G.

N. E. of Bochum

(1)

Owned by the Otto Wolff Group the works situated 1½ m. North East of Bochum station. There are 3 Open-hearth furnaces having an annual estimated capacity of 150,000 tons of crude steel. The rolling mills are capable of handling the entire steel output. In addition to the normal range of finished products, the works manufactures chromium - molybdenum and chromium - nickel steel. 5,000 workers are employed.

Henrichshütte

Hattingen

(1)

Situated adjoining the railway on the South bank of the River Ruhr and 5 m. South of Bochum, the works are part of the Bochumer Verein group of Vereinigte Stahlwerke A.G. There are 2 blast furnaces with an estimated annual pig iron capacity of 250,000 tons; and 8 Open-hearth furnaces having a capacity of approximately 250,000 tons of crude steel per annum. The rolling mills and shops in addition to the usual range of products are said to be making tank bodies and submarine components. About 5,000 workers are employed. The works has its own power station (see also under "Public Utilities").

### Engineering and Armaments

Werk Stahlindustrie

S. of Allee Str.

(1)

Situated North West of the main station between the main line and Allee Strasse, the Stahlindustrie works is part of the Bochumer Verein group of Vereinigte Stahlwerke. The works comprise mills and shops making the usual range of products, and in addition chromium - molybdenum and chromium nickel steel, they also make drop forgings.

Westfalia Dinnendahl Groppel A. G.

Boohun

(2)

The works are known as the Werk Westfalia and are situated immediately adjoining Bochum station to the North East. They manufacture railway and mining equipment and also grinding and cutting machines. 2,000 workers are employed.

Westfalia Dinnendahl Gröppel (Werke Gröppel)

Reimke

(2)

These works are  $2\frac{1}{4}$  m. North of Bochum main station and are presumed to be producing the same products as Werk Westfalia. In addition to those listed above, the firm produces coal cleaning and ore dressing plant, mine ventilators and shaft winding equipment.

### BOCHUM (contd)

(3) Maschinen und Bahnbedarf A.G. Bochum Formerly Orenstein & Koppel, the works are situated to the North West and adjoining Bochum main station. The works make railway equipment, and have a capacity of 20,000 field wagons per annum. 800 workers are employed. (3) Hunscheidtsfeld Gebruder Eickhoff The Gebruder Eickhoff Maschinenfabrik und Eisengiesserei works are situated 12 m. South of Bochum main station. They are important manufacturers of mining machinery including coal cutting and ore dressing plant; compressors are also made. Roughly 1,000 workers are employed. (3) Bochum Fahrzeug-Werk Lueg Situated adjoining and North East of Bochum main station, the firm manufactures motor car bodies. (3) Langendreer Drahtwerke Langendreer Owned by the Westfälische Union A.G. für Eisen- und Drahtindustrie group of Vereinigte Stahlwerke A.G., the works are situated at Langendreer 4 m. East of Bochum main station, and they manufacture high grade steel wire and wire products and are believed to be making heavy bomb cases. Linde (3) G. Wolff Jr. G.m.b.H. Manufacturers of mining and coke oven machinery, they are located 4 m. South West of Bochum main station. (3) Balcke Maschinenbau A.G. Manufacturers of pumps and compressors, the works are situated 12 m. North West of Bochum main station. Chemicals and Explosives Lothringen 5 (3) Gerthe

Owned by Bergbau A.G. Lothringen, this timber impregnation plant is situated adjoining Lothringen Pit 5, 3½ m. North East of Bochum main station. The plant impregnates railway sleepers; there is a large timber yard.

# BÖBLINGEN (Wurttemberg)

48° 40' N. 9° E:

450 miles:

(15,000)

Boblingen is 8 miles South West of Stuttgart on the main line from Stuttgart to Schaffhausen and Zurich. There are a few engineering firms and textile factories, but the two important aircraft works mentioned below form the main industry of the town.

Flugzeugwerke

'eld (3)

Boblingen

(3)

The Hans Klemm Leichtflugzeugbau G.m.b.H. employed approxim: 500 workers before the war and were building the K.L. 35, a two-seater training and towing plane in two versions; one with a Hirth 60R engine (70-80 h.p.) and one with a Hirth 504 engine (90-100 h.p.) Their output of these in 1938 was 10 monthly. In July 1942 it was reported that the Boblingen factory was employing 1,200 workers on the production of training aircraft and gliders. Ground intelligence suggests that this factory is working in association with the Daimler-Benz A.G. branch at Sindelfingen.

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BÖHLEN (Saxony)

See under LEIPZIG.

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BOMLITZ (Hanover)

See under Hanover

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### B O N N (Rhineland)

50° 45' N. 7° 5' E:

320 miles:

(100,000)

Bonn is on the left bank of the Rhine and on one of the main lines from Cologne to Southern Germany. It is a junction for Euskirchen and Düren. Bonn is chiefly a University town, but contains a number of small industries, including metals, chemicals, engineering, and foodstuffs. The only firms of individual importance are mentioned below.

#### Transportation

Railway Traffic Centre

Bonn

(3)

This traffic centre includes goods yards, shunting and large storage accomodation.

## Non-Ferrous Metal Manufacture and Fabrication

Leichtmetallwerke

Am Nordbahnhof

(2)

The Bonn factory, which is situated on the West side of the railway near the Nordbahnhof, was formerly the main works of the Vereinigte Leichtmetallwerke G.m.b.H. These have now been part-ly transferred to Hannover, but the Bonn plant continues as a branch works and is engaged on the fabrication of light metal alloys for the aircraft industry. It is also reported to be making bomb components, bodies for incendiary bombs, and fuzes. The works were damaged in an early raid, but have since been repaired and enlarged.

#### Engineering and Armaments

Rhewema

Bonn

(-)

The Rheinische Werkzeug und Maschinenfabrik G. m. b. H. (Rhewema), whose parent works are in Krefeld, normally employ about 150 workers on the manufacture of various types of precision tools, including twist drills, pumps, reamers and milling machinery.

BORNA (Saxony)

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See under Leipzig.

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### BOTTROP (Westphalia)

51° 30' N. 6° 55' E:

310 miles:

(86,000)

The area covered is roughly the administrative district of Bottrop. The Northern boundary is approximately parallel to and one mile North of the autobahn; the Southern boundary being the Emscher Canal. In the East, Kolonie Rheinbaben and Kolonie Welheim are included; the Westphalian-Rhineland provincial boundary forms the Western boundary.

There is a large electrical power station which is connected to the principal industrial target - the Ruhröl synthetic oil plant at Bottrop-Welheim. Southeast of Bottrop are the two "Prosper" collieries and the coking plant.

The Emscher canal is not navigable and is used only for

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### Public Utility Services

Ruhröl Power Station

Bottrop-Welheim

(1)

This thermal power station is situated adjoining and just North of the synthetic oil plant, 24 miles North East of Bottrop station. It has an estimated capacity of 100 MW. There is an indoor substation adjacent to the generating plant. Power is supplied to the oil plant by low and medium voltage cables; steam is also supplied to it from the generating plant. The electrical demands of the oil plant are estimated at 75 MW. and the annual consumption at 550 million kWh. One high voltage overhead line probably connects with the Essen-Karnap station. while another is connected to the Hamborn substation. (See also under "Liquid Fuels".)

Municipal Gas Works

Bottrop (3)

Situated North West of Bottrop main station, the municipal gas works handles 101 million cubic feet of gas per annum.

#### Solid Fuels

Prosper coking ovens

East of Bottrop (2)

Owned by Rheinische Stahlwerke A. G. the plant is situated at Prosper Pit 4 12 miles East North East of Bottrop station. There are 315 ovens with a rated dry coal capacity of 1,860,000 tons per annum.

Prosper Colliery, Pits 1 and 2 South East of Bottrop(2)

These pits are situated East of Bottrop station; in 1937 output was 1,827,000 tons of hard coal. The mine also has its own power station (30MW).

Prosper Colliery, Pit 3

South of Bottrop

This pit is situated South of Bottrop station and produced 1,582,000 tons of hard coal in 1937.

### Liquid Fuels

Ruhröl A. G.

Bottrop-Welheim

(2)

The synthetic oil plant is situated 24 miles North East of Bottrop station, and 1 mile West of Horst Nord. It is owned by Rührol' A.G. and covers an area of 150 acres. The raw materials are Pott-Brocke extract and pitch. Bergius capacity is 100,000 tons. The company is controlled by Matthias Stinnes G. m. b. H. and the Mülheimer Bergwerke A. G. Products are petrol, gas-oil, and lubricants. The plant has its own power station (see under "Public Utilities").

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### BOUS (Saar)

### Engineering and Armaments

Mannesmann

Bous

(2)

The Mannesmann Röhrenwerke A. G. at Bous specialize in the manufacture of compressed cylinders, various types of pipings, sections and fittings. Since the war one or more departments are engaged on the productions of bomb casings. 2,000 to 3,000 workers are employed.

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### BRACKWEDE (Westphalia)

52° N. 8° 30' E:

370 miles

(15,000)

Brackwede is on a branch railway some 5 miles South of Bielefeld. The town's activities include engineering firms and chemical works, but apart from those mentioned below, none are of individual importance.

### Engineering and Armaments

Metalltüren

Brackwede (3)

The Deutsche Metallturen August Schwarz A. G. are normally manufacturers of steel doors, safes, and all types of presses. The parent works of the company are in Brackwede, and there is a branch factory in Berlin. In 1938 the two plants employed a total of some 700 workers, and they are now reported to be producing components for tanks and A.F.V's. Kammerich-Werke

Brackwede

(3)

The Kammerich-Werke A.G. normally employ 1,000 workers on the manufacture of steel tubes and components for pressing and stamping machinery.

Presswerke

(2)

wede (3)

Brackwede

(3)

The Ruhrstahl Presswerke A.G., whose parent works are in Witten, are a subsidiary of the Ver.Stahlwerke A.G. of Düsseldorf. The Brackwede plant manufactures automobile components, and apparatus for the food and chemicals industries.

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### BRANDENBURG (Brandenburg)

12° 30' E: 52° 25' N.

545 miles:

(76,900)

Brandenburg an der Havel is 30 miles West of Berlin on the railway from Berlin to Magdeburg. The town is divided by the river Havel into two sections. The Altstadt on the right bank has largely preserved its mediaeval character and is a closely built area. Neustadt on the left bank of the Havel is the chief shopping and commercial quarter. Brandenburg has had a considerable industrial development in recent years, notably through the expansion of the Arado aircraft works and the Opel factory. In addition to these firms, and to the iron and steel and engineering works described below, the industries also include chemicals, textiles and leather.

### Transportation.

Railway Repair Shops

Brandenburg- (1)

These large railway workshops are situated in the Western quarter of the town adjacent to, and South of the Altstadt station. They are believed to employ several thousand workers on the repair and maintenance of rolling stock and locomotives.

#### Iron and Steel

F. Flick K.G.

(2) Brandenburg

The Mitteldeutsche Stahl & Walzwerk F. Flick K.G., whose parent works are in Dusseldorf, have at Brandenburg a large steelworks and rolling mill, where 3,000 workers are employed on the manufacture of armour plate for ships, submarine hulls, and A.F.V. 's. The open hearth furnaces of this plant have a capacity of 300,000 tons of steel per annum.

#### Public Utility Services

Stadtisches Gaswerk

(3) Brandenburg

In 1937 this gas works carbonised 11,000 tons of coal and sold 197 million cubic feet of gas.

Switching Station

(3) Brandenburg

This is a substation on the 220 kV Brauweiler-Spandau line. It is situated in open country beyond the outskirts of Brandenburg. It is not certain that there is a tapping from the line at Brandenburg. If there is it would be used to reinforce the supply to this town and the adjacent area.

(76,900)

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#### Aircraft and Aero Engines

Arado

Arado

Brandenburg

Neuendorf

The Arado Flugzeugwerke G.m.b.H. have their main factory at Brandenburg. The works are divided into two sections by an aerodrome some  $2\frac{1}{2}$  kms. in length, which lies on the right side of the road leading from Brandenburg to Plaue. These sections are known respectively as Arado Brandenburg and Arado Neuendorf. The two plants are reported to employ a total of some 6,500 workers on the production of aircraft, particularly HE-177, and various types of training and reconnaissance planes. These works undertake the entire production and assembly of HE-177 and have their own research and designing department.

### Engineering and Armaments

Opel

Brandenburg (2)

manufacturers of Adam Opel A.G. whose parent works are at Russelsheim, have their chief branch factory at Brandenburg, where some 3,000 to 4,000 workers are reported to be employed on the production of heavy

lorries, A.F.V's and other types of military transport.

The well known German motor

Brennabor

Brandenburg (2)

The Brennabor Werke A.G. formerly made a small type of motor car but in 1933 their factory was largely converted to the manufacture of components for the motor and other industries. It is believed that they now produce bicycles and light military transport and are reported to employ some 5,000 workers.

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### BRAUBACH (Rhineland)

(3,400)

Braubach lies 3 miles S.E. of Koblenz on the opposite side of the Rhine. The only nameworthy industrial establishment in this town is the zinc works mentioned below:-

### Non-ferrous metals

Blei-u. Silberhutte Braubach Braubach (3)

Controlled by Metallgesellschaft
A.G. Frankfort through Berzelius
Metallhutten G.m.b.H. This works
produces precious metals, crude
and refined lead and zinc. Its
annual capacity is estimated to be
45,000 tons of crude lead and
45,000 tons of refined lead.

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### BRAUNSBERG (East Prussia)

54° 20' N. 19° 50' E: 855 miles: (18,000)

Braunsberg lies on the main railway from Danzig to Konigsberg, and is a junction for Mehlsack and the Baltic town of Frauenberg. The town's only industries are a few small leather works, none of which are worthy of note.

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#### BRAUNSCHWEIG (Brunswick)

Braunschweig, or Brunswick, on the river Oker, is the chief town of the State of the same name. It is situated on the fertile plain North of the Hartz Mountains and lies in the rich agricultural district of the Aller basin. The town is the principal marketing centre for the corn, sugar, vegetables and cattle of the area. The inner town is a well preserved survival of mediaeval days with many half-timbered houses.

In early years Brunswick was a road junction on the trade route from Hamburg to Southern Germany and the town still retains its importance as a communications centre. It is on the railway midway between Magdeburg and Hannover with through connections to the Baltic and North Sea coast. Brunswick is linked by its harbour with the Mittelland Canal and thus has direct access to Germany's extensive inland waterways system.

Formerly Brunswick's chief speciality was the preservation of foodstuffs and it is still an important supplier of the armed forces.

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The town has, however, now become of outstanding importance owing to the development of the aircraft and engineering industries. There are two large aircraft works in the town and two equally important works in the outlying districts of Querum and Waggum which lie within the administrative area. The industrial plants in Brunswick are mainly grouped in the southern quarter of the town in the neighbourhood of the railway yards and in the northern outskirts where there are several factories chiefly engaged in engineering.

Shortly before the war the Hermann Goring concern erected a huge steel plant in the village of Hallendorf some 8 miles South West of Brunswick. This plant is one of the largest of its kind in the Reich and the industrial importance of Brunswick increased still further after its construction. For this reason these works are included in the targets listed below, although they are situated well beyond the boundaries of the town. The plant is extensively provided with road and rail communications linking it through Brunswick with other parts of Germany.

### Transportation

Inland Port

Veltenhof (3)

Some two miles North of Brunswick and included in the town administrative area is the village of Veltenhof near which is situated a small inland port. This port is linked by the river Oker with Brunswick in the south and the Mittelland Canal in the north.

Marshalling Yards

Brunswick-Sud (2)

In the southern part of the town is a large marshalling yard which has recently been considerably extended. It is of particular importance as a transport centre for the Hermann Goring works at Hallendorf and for this purpose a new bridge over the river Oker has been constructed to carry the lines further West. The marshalling yards in the eastern quarter of the town Brunswick-Ost (3) deal mainly with normal freight traffic.

### Public Utility Services

Kraftwerk Hallendorf

Hallendorf

(1)

This thermal power station is owned by the Hermann Goering steel works and is their principal source of power. It has a capacity of 260 MW. and is the eighth largest power station in the Reich.

in armed fire

Municipal Power Station

Brunswick

(3)

This is a thermal power plant belonging to the A.E.G. concern and has a capacity of 38 MW.

Municipal Gas Works

Brunswick

(3)

The municipal gasworks of Brunswick had in 1937 a turnover of about 600 million cubic feet of gas.

#### Solid Fuels

Salzgitter Coking Plant

Hallendorf

(2)

This coking plant is included in the site of the Hermann Goring steel works and had 220 ovens working in 1943 when its maximum rated dry coal capacity was said to be 1,550,000 tons. A further 220 ovens are planned.

### Iron and Steel

Hermann Göring

Hallendorf

(1+)

The Reichswerke A.G. fur Erzbergbau und Eisenhütten Hermann Göring have at Hallendorf one of the largest steel plants in Germany. Although construction started before the war the works are still incomplete but are being rapidly extended. site is built in two units and the Huttenabteilung includes a coking plant, a large by-products plant, gasholders, blast furnaces, steel plants and rolling mills. The works are reported to produce two million tons of pig iron and two million tons of Thomas and Siemens steel per annum. A branch canal is under construction to connect with the Mittelland Canal and the works have their own power station (see above). Additional roads and railway lines are being built to link the plant with Brunswick and other parts of Germany. Some 20,000 workers were reported to be employed here in 1942 and that number has probably now been considerably increased.

### Aircraft and Aero-Engines

Büssing-N. A. G. (NIEMO)

Querum (2)

Formerly known as the Niedersächische Motorenwerke G.m.b.H., this plant is situated in the Querumer Wald in the Northern outskirts of Brunswick. It is engaged on the production of the Daimler Benz D.B. 601 aero-engine, and is reported to employ some 4,000 workers. The factory is located in the southern part of the wood. The site is heavily camouflaged and considerable extensions to the testing sheds and other plants have been made.

Hermann Göring

orf

orf (1+

Lamme

(2)

Some two miles to the West of Brumswick and included in the town's administrative area, is the small village of Lamme near which is situated the aircraft works and testing laboratory of the Luftfahrtforschungs—Anstalt Hermann Göring. This is chiefly an aircraft research and testing plant but recent reports suggest that planes are now being manufactured there.

Flugzeugreparaturfabrik G.m. b. H.

Zimmerstr.

(3)

These works are reported to employ several hundred workers on the manufacture of aircraft components and the repair of aircraft, particularly wings.

M. I. A. G.

Waggum

(1)

(1)

This is the main assembly plant of the Mühlenbau und Industrie A.G. aircraft works of Brunswick. It is situated near the Waggum aerodrome and chiefly assembles planes of the Me.110. A total of 2,000 workers is reported to be employed in this and in the other two M.I.A.G. Brunswick works, with both of which this plant is connected by rail. A quota of 130 F.W.190 per month is believed to have been allotted to the M.I.A.G. factory in the 1944 programme.

M. I. A. G.

Ross Str.

Known as the Wilhelmitor works, this is the main components factory of the M. I.A.G. concern and manufactures airframe parts which are then transported to the assembly plant at Waggum.

M. I. A. G.

#### Frankfurterstrasse (2)

The Neupetritor works is a second subsidiary company of the M. I. A. G. concern engaged on the manufacture of air-frame components for the assembly plant at Waggum. A large section of this works is still engaged on the production of a variety of general engineering products not connected with the aircraft industry.

### Engineering and Armaments

Büssing-N. A. G.

Heinrich Büssing Strasse (2)

This factory is situated in the southern quarter of the town and formerly produced cars and motor buses. They are now engaged on the manufacture of components for all types of military transport, artillery, tractors and A.F.V's. They are reported to employ some 6,000 workers.

Pantherwerke A. G.

(3) Ludwigstrasse

Situated in the northern part of the town, the works of the Pantherwerke A.G. lie approximately a quarter of a mile North west of the Nordbahnhof. They formerly produced cycles and perambulators, but now manufacture all types of bicycles and motor cycles for military use.

Schmalbach

Frankfurterstrasse (3)

The J. A. Schmalbach Blechwarenwerke A. G. are producers of metal plate and of all varieties of containers for use in the canning industry. In 1936 this firm absorbed the Karger Hammer Maschinenfabrik A. G. of Brunswick, makers of machinery, a firm which also specialised in the requirements of the canning industry. The combined plants of these firms in Brunswick employed some 3,000 workers before the war.

Brunsviga Maschinenwerke A. G.

Kastanien Allee

(3)

The works of the Brunsviga Maschinenwerke Grimme Natalis & Co. A. G. are situated in the eastern quarter of the town and lie just West of the Prinz Albrecht Park. They are the leading German producers of all kinds of calculating machines and are probably engaged on the manufacture of small arms components suitable to this type of plant. They normally employ several hundred workers.

rasse (2)

Strasse (2)

rasse ()

NIVERSITÄTS BIBLIOTHEK

or

Wilke Werke A. G. Bahmhofstrasse

(2)

This firm is chiefly engaged on the production of installations for the oil and gas industries including refining installations, gasholders, benzine tanks and various types of boilers. They now employ about 1,000 workers.

Voigtlander & Sohn A. G. Gliesmarode (3)

Voigtlander & Sohn A. G. Campestrasse (3)

The firm of Voigtlander & Sohn A. G. is a subsidiary company of the Schering-Kahlbaum concern of Berlin. Their main factory is at Gliesmarode in the North East area of the town. In peace time these works were engaged on the manufacture of cameras and various types of photographic apparatus and appliances. They are now partly engaged on the production of optical instruments, bomb sights and other precision equipment. The premises at Campestrasse in the southern quarter of the town include the administrative offices, storage depot and a subsidiary factory which also produces photographic apparatus. A total of 1,000 workers was employed in 1939 in the two works.

Signalwerke G. m. b. H. Ackerstrasse (2)

This is a branch factory of the Vereinigte Eisenbahm Signal Werke G. m. b. H. whose parent works are at Bruchsal. The company is owned partly by the Siemens & Halske concern and partly by A.E.G. The Brunswick plant manufactures all types of railway signals, and other transport installations. It is believed that at least 1,000 workers were employed at this factory in 1942.

Franke u. Heidecke Salzdahlumerstrasse (3)

These works employed some 500 workers in 1939 on the manufacture of photographic apparatus.

### Textiles, Rayon, Pulp and Paper

Braunschweiger A. G. Spinnerstrasse (3)

The main factory of the Braunschweiger A.G. ftr Jute u. Flachs-Industrie, is situated in the Northern outskirts of the town and lies on the western bank of the river Oker. It is a jute and flax spinning plant now owned by the Weidaer Jute-Spinnerei u. Weberei A.G. which also has branch works in Bremen and Hamburg.

#### BREBACH, Saar

See under Saarbrucken.

----000----

#### BREMEN

53° 5' N. 8° 50' E:

390 miles:

(383,000)

Bremen, the second largest port in Germany, lies on both banks of the Weser, some 30 miles from the mouth of the river. It is one of the main terminals of the transatlantic shipping route. It has direct rail communication with Berlin, Hamburg, Hanover, the Ruhr and other parts of Germany.

The town is divided into four districts. On the right bank is the Altstadt and the Vorstadt. The Neustadt and the Südvorstadt are on the left bank of the river. The town area embraces the Suburbs of Hastedt and Hemelingen, and the Administrative area of Bremen also extends 12 miles down the Weser to include the outlying districts of Vegesack and Blumenthal. Delmenhorst, which is in the State of Oldenburg, is dealt with separately.

There are three main industrial sections of Bremen, the most important of which covers the whole of the dock area on the North East bank of the river below the old town, starting immediately below the bridge across the Weser and extending to include the important industrial plants on the North West side of the Handels and Industrie Hafen. In this district are included the important ship yards of Deschimag, engineering and shipping equipment manufacturers, aircraft works, steel works and an oil refinery. To the North East of Bremen there are aircraft factories and engineering plants while South of the city are the aerodrome, an engineering factory and the gas works.

#### Transportation.

Port Area

Bremen (3)

The main port area comprises four harbours known as the Werft, Industrie, Handels, and Holz u. Fabrikenhafen. These lie to the North West of the city on the right bank of the river. Just North of the Eisenbahm Brücke on the left bank, is the Kleine Weser, a small tributary of the main river which gives access to Hohentorshafen immediately West of the Neustadter Bahnhof. There are many small industrial undertakings and storage depots in this area.

Marshalling Yards

Kirchweyhe (3)

The chief marshalling yards in the Bremen area are on the main line to Osnabrück 8 miles from the city centre and near to the outlying suburb of Kirchweyhe. These yards serve the traffic between the Ruhr and North West Germany and the ports of Bremen and Hamburg. They are capable of handling up to 2,000 wagons per 24 hours.

#### BREMEN (contd.)

Goods Station

Bremen (3)

The chief goods station in the Bremen district is situated West of the Hauptbahnhof and includes marshalling yards which handle traffic for the numerous branch lines serving the dock area.

Goods Station

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Bremen (3)

A goods station and marshalling yards are situated immediately to the South of the Neustadter Bahnhof on the line leading from Delmenhorst to Oldenburg and Wilhelmshaven.

Railway Repair Shops

Sebaldsbrück (1)

These highly important railway repair shops are in the South East suburb of Sebaldsbrück. It is believed that some 5,000 workers are now employed. In addition to the maintenance of locomotives and railway rolling stock, the repair of heavy lorries is also undertaken on a large scale.

### Public Utility Services

Elektrizitäts Werk

Hastedt (2)

This municipal power station (thermal) has a capacity of 79 MW.

Nordwestdeutsche Kraftwerke A. G. Werk Untermeser

Blumenthal (1)

Situated at Farge in the outlying district of Blumenthal, this thermal power station is the largest of its kind in the area. It has a capacity of 200 MW and supplies a considerable portion of North West Germany.

Kraftwerk

Oslebshausen (3)

This thermal power plant is owned by the Nord-deutsche Hütte A. G. and has a capacity of 15 MW.

Gas Werk

Neustadt (3)

(1)

This is the municipal gas works supplying a large area of Bremen. Its annual turnover in 1938 was about 1,000 million cubic feet of gas.

### Liquid Fuels

Oil Refinery

Oslebshausen

The oil refinery of the Deutsche Vacuum Oel Co. is situated in the North suburb of Oslebshausen. It has a capacity of 100,000 tons per annum and is specially equipped to produce high-grade

UNIVERSITÄTS BIBLIOTHEK

JG U

### BREMEN (contd.)

lubricating oils from German crude oils and is believed to be working at full capacity.

#### Oil Refinery

Honentorshafen (3)

The refinery of the Mineralöl - Raffinerie Vorm. August Korff A.G. is adjacent to the Atlas Werke. In 1940 some 580 workers were employed on the production of grease and similar heavy lubricants.

#### Iron and Steel

#### Norddeutsche Hütte A. G.

Oslebshausen

(3)

These steel works which are owned by the Krupp concern, are located in the northern district of Oslebshausen. The Hüttenabteilung includes a plant of 180 coke ovens and three blast furnaces. They were reported in 1943 to produce some 400,000 tons of pig iron and 350,000 of coke per annum. The company has its own power plant mentioned above under Public Utility Services.

### Aircraft and Aero Engines

Focke Wulf G. m. b. H. 10

Airport Hastedt Hemelingen

(2)

The Focke Wulf Company are believed to have transferred about two thirds of their Bremen plants to Eastern Germany, East Prussia and Poland. The remaining section on the aerodrome is believed to have been transferred into a depot where 3,000 workers are said to have been employed in 1943 on the modification, repair and maintenance of aircraft. It is believed that the Hastedt and Hemelingen works are now engaged on the production and modification of components for the airport works.

Weser Flugzeugbau G.m.b.H.

a) Industrie Hafen) (2) b) Lemwerder

This company, which is a subsidiary undertaking of the Deschimag concern, has its main plant in the Industrie Hafen. It is engaged on the assembly of Junkers 87 and production of major components for Junkers 87 aircraft. The firm has a subsidiary factory in Delmenhorst which is engaged on the manufacture of components. (See under Delmenhorst.) and both the Industriehafen and Delmenhorst supply the final assembly plant at Lemwerder.

### Ship Building

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Deschimag

Bremen

(1+)

The Deutsche Schiff u. Maschinenbau A. G. is one of the largest ship building concerns in Germany. It undertakes the construction of all types of naval craft (excluding battleships) and also owns one of the most extensive submarine yards in the Reich. Prior to the outbreak of war large numbers of merchant vessels were also built by Deschimag, but naval construction now has first priority and building of merchant vessels has practically ceased. The main yards are situated in the area of the Werft and Industrie Hafen, where in 1943 destroyers and "U" boats of the 750 ton type were the main items on the shipbuilding programme. Up to 19 "U" boats have been reported as on the slips, with six fitting out in the basin. Up to 5 destroyers have been reported as under construction and a further 5 as afloat and fitting out. Reports based on aerial reconnaissance indicate that the 10,000 ton cruiser 'Seydlitz' is either being converted to an aircraft carrier or broken up, while a second 10,000 ton cruiser is being scrapped. The Deschimag concern has branch yards at Wesermunde and Bremerhaven and Bremerhaven and also owns the aircraft works of the Weser Flugzeugbau G. m. b. H. mentioned above.

Bremer Vulkan A. G.

Vegesack

(1)

These are among the most important of the "U" boat ship building yards. The 500 ton class of submarine is chiefly built at Vegesack. Reports received during 1942-43 show that at all times at least 14 "U" boats were in various stages of construction in the Vegesack yards. A large cargo ship was laid down in May 1943. The yards have their own foundries and machine shops. More than 4,000 workers were employed here in 1943.

Atlas Werke A. G.

Hohentorshafen

(2)

These ship building yards construct small naval vessels, minesweepers, auxiliary freighters and pontoon ships but they are chiefly important as makers of ships propellers of which they are the leading German manufacturers. Other products made here include under-water signalling apparatus and auxiliary machinery. Some 2,000 workers were employed at the Atlas yards in 1940.

/Engineering

### Engineering and Armaments

C. F. Borgward A. G.

Hastedt Sebaldsbrück

The main factory of this well-known firm of German motor manufacturers, is situated in the S.E. suburb of Hastedt. Formerly engaged on the production of three-ton lorries, this plant, where some 8,000 workers were employed in 1942 was then possibly connected to undertake other types of work including the assembly of torpedoes. In the adjacent district of Sebaldsbrück is a branch factory where in 1942 some 6,000 workers were employed on the production of lorries, A.F.V's and other types of military transport.

Francke-Werke A. G.

Neustadt

(3)

Situated in the Neustadt district, this company in 1942 employed some 1,200 workers on the production of machinery and installations for the oil, water and gas industries. One or more of the departments of this plant are reported to be engaged on the machining of shell-bodies and containers for gas.

Kleinschanzlin

Grünenstr.

(2)

The Kleinschanzlin - Bestenbostel G. m. b. H. specialises in the production of high-pressure and other pumps for naval and merchant ships.

### Textiles, Rayon, Pulp and Paper

Woll-Kammerei

Blumenthal

(2)

The Bremer Woll-Kämmerei A. G. is believed to be the largest wool-combing plant in Europe. It is situated in the industrial district of Blumenthal on the Weser two miles below Vegesack. The works have their own quays, loading facilities and large storage sheds alongside the river. Several thousand workers were employed here before the war.

Jute Spinnerei

a) Nordstr

(3)

The Bremer Jute Spinnerei A. G. has branch works which also include the firm's Head Offices situated in the Nordstr. The main factory is in Delmenhorst. A total of some 2,400 workers were employed in both plants in 1939.

#### Food Stuffs

Oelfabriken A. G.

Holzhafen

(3)

The Bremer-Besigheimer Oelfabriken A.G., has a large oil crushing plant in the Holzhafen which lies in the N.W. area of Bremen. They were engaged in the crushing of vegetable oils and the plant has an annual capacity of 35,000 tons. Some 400 workers were employed in 1939.

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Holzhafen

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Kaffee Handels A.G. are well-known manufacturers of caffein-free coffee products, and in peace time had a considerable export trade. They employed about 2,500 workers in 1939.

Roland Mühle

Holzhafen

(-)

The plant of the Bremer Roland Mthle Erling & Co. K.G. consists of a flour mill with a capacity of 300 tons per day; and storage facilities capable of holding 100,000 tons of grain but even pre-war these were only utilised to the extent of about 10 per cent.

Gereke & Deppen

Holzhafen

(-)

The Gereke & Deppen Hansa Mühle A.G. is a subsidiary of the Roland Mühle Erling Company. The flour mill has a capacity of 200 tons per day and the grain silo storage capacity of 80,000 tons.

Gebrüder Nielsen G. m. b. H.

Hohentorhafen

(-)

These rice and starch mills are adjacent to the Atlas Werke. They are reported to have a storage capacity of 2,500 tons.

Bremer Lagerhausgesellschaft

Hafen III

(-)

This company owns a number of large general warehouses and storage depots in various parts of the port area and employed a total of some 1,500 workers before the war. Their grain silos in the Hafen III area have a capacity of 80,000 tons.

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### BREMERHAVEN (Hanover)

395 miles 53° 33' N. 8° 35' E:

(79,000)

Bremerhaven lies on the right bank of the Weser some 30 miles North of Bremen. In 1924 the former suburbs of Lehe, Geestemunde and Wülsdorf were united to form the district of Wesermunde, now incorporated in the town of Bremerhaven. port has direct railway communication with Cuxhaven and Hamburg. In peace-time Bremerhaven is primarily concerned with the Transatlantic passenger service, and the passengers of the Nord Deutsche Lloyd and other Bremen shipping lines, embarked and disembarked at this port. There is an extensive dock system capable of accomodating the largest liners, and shipbuilding yards which have greatly increased in importance during the war. Bremerhaven is also a centre for the fishing industry, and has separate docks specially devoted to the handling of fish, for which it is the largest despatching station in Germany.

#### Transportation

Bremerhaven

(3)

Port Area

The main docks are situated in the Northern quarter of the town in Bremerhaven proper. They include the Kaiserhafen I, II and III, which are at that end of the town nearest to the mouth of the Weser. They can accomodate the largest ocean-going liners. The Alter Hafen and the Neuer Hafen are two smaller docks situated parallel with the banks of the river. Further upstream and beyond the mouth of the river Geeste, a tributary of the Weser, is the Hohentorshafen. The two fishing harbours in Wesermunde include Germany's largest fish despatch station.

#### Marshalling Yards

Lederheide

(3)

These railway marshalling yards are situated in the Northern suburb of Lederheide. They serve the town and port areas and the branch lines to Cuxhaven and Hamburg.

#### Shipbuilding

Deschimag

Bremerhaven

(1)

The Deutsche Schiff und Maschinebau A. G., whose main works are at Bremen, have two important yards at Bremerhaven. The first, known as the Hauptwerk Geestemunde, includes two fitting out docks, machine factory, assembly shops, foundries and welding plants. The Werk Bremerhaven has three dock basins, repair workshops, and slipways capable of accommodating 6 U-boats of the 750 ton class. During 1942 these yards were working to capacity with 2 U-boats fitting out in the basin and 6 under construction on the slips, craft and pontoons are also built at these yards.

/Unterweser

Unterweser A.G.

(79,000)

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Bremerhaven (2)

The Schiffsbau Gesellschaft Unterweser A.G. constructs escort vessels and minesweepers. Their yards include dry docks, machine shops, and eight slips each able to accommodate vessels up to 300' in length. They are believed to be turning out 200' escort vessels at the rate of one every two months. Several thousand workers are employed.

Norddeutsche Werft

Bremerhaven (3)

Some 800 yards from 1ts mouth, the River Geeste forms a sharp "S" bend, on the right side of which are shipyards believed to belong to the Norddeutsche Werft. They are reported to undertake the construction of escort vessels and minesweepers.

Tecklenborg

Bremerhaven (-

The former shipyards of Tecklenborg & Co. were taken over by the German Government at the beginning of the war, and are now being used as a base for training naval personnel in the handling of warship machinery.

Food Stuffs

Nordsee A.G.

Wesermunde (-)

The extensive fish depots of the Nordsee A.G. are built round the Wesermunde fishing harbours. This company owns a large fleet of trawlers and is Germany's largest fishing concern. The preparation and despatch of fish is undertaken in the Wesermunde depots and in peace time the Company had a considerable export trade. There are similar depots belonging to this concern in Hamburg and Cuxhaven and a total of 6,500 workers were employed in 1939.

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### BRESLAU (Silesia)

51° 5' N. 17° E:

740 miles:

(625,000)

Breslau is the chief city of Silesia. It lies on the river Oder and is on one of the main routes to Poland and the eastern front. The city is in two unequal halves divided by the Oder which flows through Breslau in several channels over which are numerous bridges. The larger portion, on the left bank, includes the old part of the town.

Breslau is the chief industrial centre of eastern Germany and is important owing to its position near the Silesian coal and ore fields. Among its industries are engineering works including the largest railway wagon manufacturers in the Reich, non-ferrous metal plants dealing chiefly with aluminium, aircraft works textile factories, and iron foundries. There are also in this district numerous small chemical factories, grain silos and flour mills.

In order to facilitate transportation of coal from Silesia to Stettin and other parts of Germany, a canal known as the Breitenbachfahrt canal has been built which, in conjunction with the Alte Oder, by-passes the northern outskirts of the city and joins the Oder some two miles to the N.W.

#### Transportation

Marshalling Yards

Breslau-Bockau (1)

The chief marshalling yards and goods station lie to the S.E. of the main railway station. They can handle up to 5,000 wagons per 24 hours. Included in this area are railway workshops employing some 1,200 workers on the repair and maintenance of goods wagons and locomotives.

Railway Repair Shops

Breslau

(2)

Further important workshops are situated near the gas works which lie just south of the Alte Oder. They employ some 2,000 workers on the repair and maintenance of goods wagons and locomotives.

### Public Utility Services

Städtisches Elektrizitätswerk

Scheibenweg (2)

This thermal power plant supplies the city area and has a capacity of 48 MW.

Tschechnitz

Kraftborn (2)

Also known as the Kraftwerk Kraftborn, this thermal power plant has a capacity of 89 MW and belongs to the ESAG network.

Gas-Werke

These works, owned by the A.G. für Gas und Elektrizität, are of local importance only.

/Non-Ferrous

# Non-Ferrous Metal Manufacture and Fabrication

E.F. Ohle's Erben A.G.

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ibennes (2)

Anderssenstr. (3)

This firm is reported to employ some 380 workers on the production of aluminium, tin foil, and similar goods.

UNIVERSITÄTS BIBLIOTHEK Mainz

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Markischestrasse (3)

H. Bertrams A.G. have their main works in Siegen with branch factories in Berlin and Breslau. The Breslau plant employs some 400 workers and specialises in the manufacture of tube furnaces.

### Metallhüttenwerke Schaeffer

Hennigstrasse

(3)

The Metallhüttenwerke Schaeffer & Schael A.G. are manufacturers of bronze bearings for locomotives and other copper and bronze products. They employ some 800 workers and also own the Hydrometer A.G. of Breslau.

### Metallhüttenwerke Hoffmann

Striegauerstrasse (3)

The Metallhittenwerk Dr. Hoffmann and Co. employ some 400 workers on the manufacture of metals for printing types, lead tin alloys and similar kinds of non-ferrous metal products.

#### Metallhüttenwerk Kirchhof

Ofenstrasse

(3)

The Metallhittenwerk Kirchhof and Köhnel employed some 450 workers in 1939. They are engaged on the production of aluminium alloys and silicium copper.

### Metallhüttenwerk Pinhoff

Ofenstrasse

(3)

The M.G.Pinhoff Metal plant is adjacent to the Kirchhof and Köhnel works. It has been reported that several hundred workers were employed here in 1939 on the production of phosphor, and silicium copper. Reports suggest that in 1943 the works laboratories were experimenting.

### Aircraft and Aero Engines

Schlesische Reparaturwerft

Breslau

(3)

These workshops are engaged on the repair and maintenance of aero-engines and aircraft wings.

#### Junkers

Gandau

(2)

The Jungers Flugzeug und Motorenbau A.G. have an important factory on the Gandau aerodrome in the North West outskirts of Breslau. These works are believed to undertake the complete assembly of aircraft and at least 5,000 workers are employed.

BRESLAU (contd.)

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Linke Hoffmann

Breslau

(3)

This works includes at least one department devoting its entire capacity to the manufacture of a/c components and probably also to the production and/or repair of a/c fuselages.

Ship Building

Breslauer Schiffsbau

An der Viehweide

(3)

The Breslauer Schiffsbaugesellschaft G.m.b.H. normally specialises in the building and repair of barges and tug boats but may now be con-structing T.L.C. and other military craft suitable to this type of yard.

C. Wolheim'sche Werft u. Hafenanlage

Cosel

(3)

These small yards normally build barges, tug boats, and small river craft.

Engineering and Armaments

Max Jansch F. & W. Schubert Lange Gasse

Frankfurterstrasse) (3)

These two companies employed some 400 workers each in 1939 on the manufacture of lorry trailers.

"Famo"

(1)

The "Famo" Fahrzeug und Motorenwerke G.m.b.H. formerly known as the Maschinenwerke Linke Hoffmann is situated in the southern part of the town between the main Linke-Hoffmann plant and the Freiburger Bahnhof. These works are reported to employ some 5,000 workers and manufacture all the M.A.N. type submarine Diesel and tank engines. They may also be producing artill-ery, tractors, lorries and other types of military transport. It is believed that at least one department of this works is now engaged on the building of aero-engines.

Archimedes A.G.

Markischestrasse (3)

The Archimedes Schlesische-Sächsische Schrauben Fabriken A.G. is owned by the Linke Hoffmann concern and is situated between their main factory and the "Famo" plant. It employs some 1,300 workers and is engaged on the manufacture of machine tools, screws, nuts, bolts and machine components.

BRESLAU (contd.)

Linke Hoffmann A.G.

Grundstrasse Nikolaitorstrasse

The Linke Hoffmann concern are the largest producers of railway wagons in Germany and have two plants at Breslau. The main works are situated south of the Markischestrasse and adjacent to the Archimedes plant. They employ some 15,000 workers on the manufacture of 20-ton railway trucks of which they are reported to produce up to 10,000 per annum. The works and foundries have recently been considerably extended.

To the North of the main works and West of the Nikolaitorstrasse is a subsidiary company of Linke-Hoffmann undertaking which probably manufactures tank engines, motor vehicles, components for mobile repair shops, tractors, and dredgers. They are reported to employ some 2,500 workers.

Rheinmetall Borsig A.G.

Hundsfeld

(3)

The parent works of this company are in Düssel-The Breslau plant is situated at Hundsfeld in the northern outskirts of the town and reports suggest that some 1,500 workers are employed on the manufacture of light metal products for armaments, including bomb components and fuses.

Orenstein & Koppel A.G.

Schmiedefeld

(3)

In the western suburb of Schmiedefeld are the former storage depots and repair workshops of Orenstein and Koppel A.G. These are now reported to employ some 1,000 workers on the manufacture of A.F.V's and other types of military transport.

Deubag G.M.B.H.

Tauentzienstrasse (-)

This company employs some 300 workers on the production of lorry trailers, cranes, bombs and lifts.

Schmoschever & Co.

Kaiser Wilhelm Strasse (3)

The Gesellschaft für Feldbahnindustrie Schmoschever & Co. is situated south west of the Hauptbahnhof. It mamufactures steam and diesel small-gauge locomotives, trucks and road building machines.

Hydrometer A.G.

Siebenhufenstrasse (3)

This company is owned by the Metallhüttenwerk Schaefer & Schael A.G. and employs some 550 workers on the manufacture of speedometers, water and oil meters and special measuring instruments for the chemical industry.

#### BRESLAU (contd.)

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enstrasse (j)

J.Kemma Gräbschenerstrasse (3) The works of the J. Kemma Eisengiesserei und Maschinenfabrik, employ some 1,400 workers on the manufacture of road building and agricultural machines. H. Meinecke A.G. (-) Situated in the northern suburb of Karlowitz this firm employs some 400 workers on the manufacture of water and electric meters of all types. Chemicals and Explosives H. Bergius & Co. Goldschmieden (3) The Chemische Fabrik Bergius & Co. is situated in the western suburb of Goldschmieden and prior to the war manufactured aluminium oxide and sulphuric acid. Superphospha twerk a.d.Guntherbrucke (-) The Georg von Giesche's Erben plant specialises in the manufacture of superphosphate. Vereinigte Holzindustrie A.G. Kaiser Wilhelm Strasse (-) This firm has its parent works in Gleiwitz. The Breslau branch is a wood distillation plant. (-) Strahl & Walter K.G. Karlowitz Situated in the northern outskirts of Breslau this factory manufactures nitro-cellulose varnishes, paints and glue. (3) F.Reichelt A.G. Gartenstrasse Some 700 workers are employed on the manufacture of drugs, and parmaceutical products. Textiles, Rayon, Pulp and Paper

Glanzstoff A.G. Friedewalde (3)

Situated in the North East suburb of Friedewalde is a branch factory of the Vereinigte Glanzstoffabriken A.G. of Elberfeld. Known as the Werk Cavallen it manufactures viscose rayon and is reported to have a daily capacity of 10 tons. The plant employed some 1,250 workers in 1939.

The wool spinning plant of the Stabelwitzer

West of Breslau. Some 1,500 workers were

employed on the manufacture of worsted goods

Kammgarnspinnerei is situated in the outlying

suburb of Stabelwitz three miles to the North

The main works of the Grosse Mihle Oels A.G. are situated in Oels in Silesia. The Breslau branch

#### BRESLAU (contd.)

Food Stuffs

#### Kammgarnspinnerei

Grosse Mihle A.G.

Rosenthaler Mühlenwerke A.G.

Schlesische Mihlenwerke A.G.

Stabelwitz

Nikolaistadtgraben

(3)

Brud The town home of other in paper Wol

Transpo

(-)

consists of a grain storage depot and flour mill.

Rosenthal

(-)

This company owns a large flour mill and storage plant in Breslau. The storage plant has a capacity of 240,000 tons and the mill had a daily output of 200 tons in 1939.

Burgweide

(-)

Situated in the northern suburb of Burgweide is a flour mill which is reported to have a daily output of 100 tons in 1939.

Schottwitz A.G.

Burgweide

(-)

The Zuckerfabrik Schottwitz A.G. at Burgweide is the principal sugar refinery in the Breslau area.

Stadt. Hafen & Lagerhaus

Mihlstrasse

(-)

This is a grain sile and food storage plant. The storage plant is reported to have a capacity of some 60,000 tons.

Ernst Barke

Mühlstrasse

(-)

This grain silo has a storage capacity of 30,000

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BRIESTE (Brandenburg)

See under Senftenberg.

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### BRUCHSAL (Baden)

49° 5' N. 8° 35' E:

420 miles:

(17,000)

Bruchsal is on the railway line from Karlsruhe to Heidelberg. The town is an important junction, but is chiefly noteworthy as the home of one of the largest German signal manufacturers. Its only other industries are a number of small engineering firms and paper works.

#### Transportation

Railway Junction

Bruchsal

(3)

Bruchsal is a junction for the important lateral route through the Black Forest to Stuttgart and Heilbronn. A few miles north of the town a branch railway connects with the main Karlsruhe-Mannheim line.

### Engineering and Armaments

Signalwerke

Bruchsal

(2)

The Vereinigte Eisenbahn Signalwerke G.m.b.H. one of Germany's largest producers of railway signals, have their main factory at Bruchsal and a branch works in Brunswick. The company is owned partly by the Siemens & Halske concern, and partly by A.E.G. It manufactures all types of railway signals, electrical railway equipment and numerous other transport installations.

#### ------

# BRÜHL (Rhineland)

50° 50' N. 6° 55' E:

310 miles:

(24,000)

The small town of Brühl lies on a branch railway some 10 miles North west of Bonn. The town's chief activities are connected with the exploitation of the brown coal deposits in this neighbourhood. Apart from these there is a metal works, which is mentioned below, and a few minor engineering concerns.

# Public Utility Services

Kraftwerk

Bruhl

(2)

Adjacent to the Roddergrube brown coal mine is a large thermal power station which has a capacity of 92 MW.

(-)

(-)

(-)

BRUHL (Contd)

#### Solid Fuels

Briquette Works

(3) Brühl

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There are a number of these works excavating and briquetting the brown coal in the neighbourhood of Brühl. The principal pits are owned by the Braunkohlen & Brikett Rodegrube A.G. and the company has its own power plant, mentioned above under Public Utilities.

### Iron and Steel

Pohlig A.G.

(3)Brühl

This is a branch factory of the Pohlig works at Cologne. They are constructors of cables, railways and transport installations.

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### BRUNSWICK

See under Braunschweig.

### BUER/RUHR

See under Gelsenkirchen.

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# BUNZLAU (Silesia)

51° 15' N. 15° 35' E:

680 miles

(21,000)

Bunzlau is in Lower Silesia on the main line from Dresden to Breslau, 30 miles west of Liegnitz. There are a few industries, including engineering and bookbinding and pressing works, but none is important.

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#### BURBACH, Saar

See under Saarbrucken.

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### B U R G (Province Saxony)

52° 15' N. 11° 50' E:

515 miles:

(25,000)

Burg is situated approximately 15 miles North East of Magdeburg on the main railway to Berlin. The town's activities include glass manufacturers, furniture makers, and machine factories. These are all on a small scale.

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### BURGHAUSEN (Bavaria)

48° 10' N. 12° 50' E:

620 miles:

(6,300)

Burghausen is a small town in Upper Bavaria, 60 miles East of Munich and close to the former Austrian border. It is on a branch line from Mihldorf, 15 miles to the West of Burghausen. The town's importance is due to the branch factory of the large chemical firm of Wacker, mentioned below. There are no other industries.

### Chemicals and Explosives

Wacker G.m.b.H.

Burghausen

(1)

The important chemical firm of Dr.Alexander Wacker G.m.b.H., of Munich, have their main works in Burghausen. This firm produces calcium carbide, chlorinated hydro-carbons. Other chemicals manufactured here include butyl alcohol, phosgene, synthetic shellac, ethyl alcohol, chlorine, chloroform, ethyl and methyl acetate, acetone, acitic-anhydride, acetylene, and acetate of cellulose. Prior to the war Wacker was believed to be the sole producer of some of these products.

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### BURGSTADT (Saxony)

50° 55' N. 12° 50' E:

560 miles:

(18,000)

Burgstadt lies on the railway from Chemnitz to Leipzig, some 10 miles North of Chemnitz. The town's principal factories are chiefly connected with the clothing industry, particularly the manufacture of gloves and stockings. None of these firms are individually of importance.

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### BURSCHEID (Rhineland)

### Engineering and Armaments

Goetzwerke

Burscheid

(3)

The firm of Goetzwerke, Friedrich Goetze A.G. at Burscheid employ 1,000 workers on the manufacture of components for internal combustion engines, particularly piston rings.

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(21,000)

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(25,000)

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### CASSEL (see under KASSEL)

### CASTROP-RAUXEL (Westphalia)

51° 35'N. 7° 20'E:

320 miles:

(58,000)

The area here covered is the administrative district of Castrop-Rauxel, and forms an inverted triangle the base of which is the Emscher Canal from Victor Hafen to the aqueduct of Henrichenburg, and whose apex is roughly at Merklinde.

Rauxel contains an important synthetic oil and synthetic ammonia plant and also two important tar distillation plants; photographic interpretation shows that one of these is only "possibly active".

### Transportation

Rhein-Herne Canal

N. of Castrop-Rauxel

A stretch of 31 miles of the Rhein-Herne Canal is included in the North of Castrop-Rauxel area extending from Friedrich der Grosse harbour to Henrichenburg. Previously called the "Zweig Canal", this stretch is now known as part of the Rhein-Herne canal. The Victor concern has a private harbour just North of the industrial complex.

### Aqueduct

(3) Henrichenburg

This aqueduct is situated 3 m. North of Castrop station, and is about 3 m. South West of the autobahn bridge over the canal, it carries the Rhein-Herne canal over the Emscher Canal.

#### Public Utility Services

Gew. Victor power station

Rauxel

(3)

The power station is situated to the North East of the Victor complex,  $1\frac{1}{2}$  m. North East of Rauxel station. It is of the thermal type, hard coal fired, and is believed to have a capacity of 40 MW.

#### Solid Fuels

Victor Colliery

Rauxel

(3)

The colliery is situated 14 m. North East of Rauxel station and lies to the North of the Victor complex, it is owned by Klöckner Werke A.G., and includes the Ickern Colliery. The output of hard coal in 1937 amounted to 2,186,000 tons.

Victor 3/4 Coking plant

Rauxel

(3)

The coking plant lies immediately south of the colliery sidings. Conveyors lead from the colliery to the ovens. There are 250 ovens in 5 batteries having an estimated annual dry coal capacity of 1,269,000 tons. A by-products plant adjoins the coke ovens to the South. (See under "Public

Utilities" for details of the power station , under "Liquid Fuels" for synthetic oil, and under "Chemicals" for the synthetic ammonia plant.)

Erin coking plant

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(3)

Castrop (3)

Situated at the Erin colliery, 4 m. South of Castrop station, the plant is owned by the Gelsenkirchener Bergwerks A.G. There are 120 ovens with an estimated annual dry coal capacity of 885,000 tons. Gas is supplied to the Ruhr gas grid.

Erin 1/5 colliery

Castrop

Located 4 m. South of Castrop station and owned by Gelsenkirchener Bergwerks A.G. the output of the colliery in 1937 was 1,058,000 tons of hard coal per annum. The colliery and coking plant is reported to employ about 1,600 workers.

Graf Schwerin coking plant

Castrop

The plant is owned by Bergbau A.G. Lothringen and is situated 12 m. South West of Castrop station at Westhofen. There are 150 coke ovens with an estimated annual dry coal capacity of 350,000 tons.

Liquid Fuels

Gew. Victor synthetic oil plant

Rauxel

(2)

Owned by Klöckner Wintershall A.G. the Fischer-Tropsch plant occupies the South East quadrant of the Victor complex, 12 m. North East of Rauxel station. The plant covers an area of 18 acres. Capacity is estimated at 100,000 tons of oil per annum. Storage capacity if reported to be just over 22,000 tons.

Teerverwertung

Rauxel

(2)

This tar distillation plant is located 1/2 m. North of Rauxel station, North of the railway line to Victor Hafen on the Zweig Canal. It is owned by Gesellschaft für Teervertwertung m.b.H. and produces the complete range of tar products. The capacity is estimated at 500,000 tons per annum.

Rütgerswerke A.G.

Rauxel

(3)

The tar distillation plant is situated adjoining Rauxel station to the North but South of the railway line to Victor Hafen. All tar products are made. Capacity is estimated at 200,000 tons per annum. According to photographic interpretation the plant was only "possibly active" in 1943.

### Chemicals and Explosives

Gew. Victor

Rauxel

(3)

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Tran

The synthetic ammonia plant is owned by Gewerkschaft Victor Stickstoff und Benzinwerk and is located 14 m. North East of Rauxel station in the South East section of the Victor complex. The adjacent coke ovens (see under "Solid Fuels") supply hydrogen for the Claude ammonia synthesis. Capacity is reported to exceed 25,000 metric tons of nitrogen per annum. The plant also makes nitric acid and is probably the world's largest producer of potassium nitrate. (Victor synthetic oil plant is under "Liquid Fuels", and the power station under "Public Utilities")

### CELLE (Hanover)

52 35'N. 10 5'E.

440 miles.

(28,000)

Several of the firms exploiting the oil deposits in the Province of Hanover have their offices in Celle. A biscuit factory and several small hardware manufacturers are the only industrial plants. The town is a centre for the marketing of agricultural produce.

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### CHEMNITZ (Saxony)

50° 50' N. 12° 55' E:

570 miles: (370,000)

Chemnits ranks third amongst the cities of Saxony and is the centre of Germany's hosiery and underwear manufacture. There are a large number of light engineering works which in peace time specialised in the manufacture of textile machinery. There are some important makers of machine tools and Chemnitz has also a large output of motor sidecars and bicycles. The town is not on one of the main German through routes but is an important centre for the railway system of the highly industrialised Province of Saxony. The railway repair shops among the largest in Germany. To the West of Chemnits is the adjoining town Siegmar - Schönau which, although a separate municipality, has been included in Chemnits for the purposes of the list below.

### Transportation

Goods Station Kappel (3) Altendorf Sonnenberg Chemnitz - Std

These four goods yards, of which Kappel and Sonnenberg (next to the main railway station) are the largest, have extensive storage facilities.

Railway Repair Shops

Hilbersdorf

(2)

These highly important repair shops are believed to employ approximately 6,000 workers. They include a marshalling yard with a pre-war capacity of 3,500 wagons per 24 hours.

#### Public Utility Services

Electric Power Station

Nordstr.

(2)

This is a steam power station with a capacity of 74 MW. It is situated in the northern quarter of the town close to the Schloss Teich, a large ornamental lake in the middle of the town.

Gas Works

Chemnitz-Nord

(2)

In 1938 these gas works sold 1,200 million cubic feet of gas.

#### Engineering and Armaments

Auto Union

Siegmar

(2)

These premises are the important car manufacturing plant of the Wanderer Werke and are leased to the Auto Union.

ry and

CHEMNITZ (contd).

The works have a large capacity and have been reported to be making six-seater Kubelwagen, searchlight chassis and other types of military transport. One portion of this factory complex is still retained by the Wanderer Werke and is engaged on the production of machine tools including milling and cutting machinery.

Auto Union

Rösslerstr.

(3)

CHRANTT

This factory produces electrical equipment for motor transport including batteries and Rosemeyerstr. searchlights.

Auto Union

These premises, which were formerly known as the Prestowerke, were converted into central administration, spare parts stores and repair shops in 1938. According to ground reports they are still used for this purpose.

Auto Union

Neukirchenerstr. (3)

This is a further subsidiary factory of the Auto Union concern.

Wanderer Werke

Schönau

(2)

These works were among the leading German makers of typewriters, adding and calculating machines, and other office machinery. They are now believed to be engaged on the manufacture of small arms, armaments components and a variety of other engineering products of military importance.

Reinecker

Bernhardstr.

(1)

The firm of J. E. Reinecker A. G. is one of the most important of all German machine tool makers. The factory is situated in the suburb of Gablenz in the eastern part of the built-up area and in 1938 there were already over 3,000 workers. The products are milling and gear cutting machines, lathes of all kinds, and a wide variety of precision machine tools and measuring instruments.

Deutsche Niles A. G.

Siegnar

(3)

These works formerly belonged to the firm of Hermann Alfred Escher A. G. They manufacture lathes and horizontal borers and a variety of other machine tools.

Union

Zwickauerstr.

(3)

The Werkzeugmaschinenfabrik Union (vormals Diehl) is owned by Karl Wetzel's Maschinenfabrik of Gera and specialises in horizontal and other types of boring machinery.

# CHEMNITZ (contd).

(3)

erstr. (3)

(2)

(1)

Bernhard Escher	Wettinerstr.	(3
The Sächsische Werkzen maschinen Fah Bernhard Escher A.G. are specialists lathes.	orik s in	
Neudel	Nordstr.	(3
C. Hermann Neudel is a firm making land motor car springs.	orry	
Pfauter	Einsiedlerstr.	(3
Hermann Pfauter is a maker of gear- outting machines.		
Sächsische Maschinenfabrik	Chemnitz	(3)
This firm is one of Germany's princip manufacturers of conveyors and mechan grate stokers.	pal	
C. Herm. Findeisen	Chemnitz	(3)
Manufacturing goods and passenger lift overhead travelling and locomotive cranes, this firm is one of Germany's principal lift and hoist builders.		
Nostitz u. Koch Chemnitz	Zwickauerstr.	(3)
Manufactures transformers and switchg	ear.	
Gesellschaft fur Junkers Dieselkraft Maschinen m.b.H.	Altchemnitzerstn	(3)
This is one of the principal German manufacturers of special type of opposed piston engines.		
Hartmann-Lufthamnerbau, Anton Halse.	Dresdner Str.	(3)
Manufacturers of hydraulic forging presses and ancillary equipment. In particular this firm also makes small pneumatic drop hammers.		
H.F. Schnicke	Johannisstr.	(3)
This firm are important small-tool manufacturers, specialising in milling cutters, reamers, and threshing tools.		
Bachmann & Ladewig A. G.	Strassburgerstr.	(3)
This company are important manufacture of wood-working machines.	rs	

Maschinenfabrik Germania (vorm. J.S. Schwalbe u Sohn)	Fabrikstr.	(3)
This company is among the leading Germakers of hydraulic turbines. It also makes steam engines, mechanical stoke refrigerators, and a range of other mechanical engineering products.		
Carl Hamel A.G.	Schönau	(3)
These works employed approximately 1,000 hands in 1938 and were important makers of textile machinery. No information is available as to the firms' present range of products.	nt	
C. G. Haubold A. G.	Uhlichstr.	(3)
Before the war this firm were makers of textile machinery including dyein and printing machines.	g	
Schubert & Salzer	Lothringerstr.	(2)
These important makers of textile machinery employed some 3,000 worker in 1939. They are now reported to be fully engaged on the manufacture of small arms and several light engineer products.	08	
Viscosa G. m. b. H.	Kauffahrtei ) Dorfstr.	(-)
C.H. Weisbach	Dorfstr. )	
Before the war these two firms were makers of all types of textile finishing machinery.		
Richard Hartmann	Altchemnitzer- str	
The Sächsische Textilmaschinenfabri Richard Hartmann A.G. increased in during the years preceding the war in 1939 employed some 2,000 workers company has a second factory in Che (Hartmannstr.). Pre-war products we all kinds of spinning machinery. Resuggest that the firm has been componnerted and now makes machine to	size and The munitz re sports letely	
Elitewerke	Siegmar	(3)
The Elite Diamanten Werke A.G. are by Opel's and are makers of bicycle textile, particularly knitting, man They expanded considerably during years 1936 to 1939. The firm's war products are not known.	es and chinery. the	

Kappel A. G.		Zwickauerstr.	(3
the works have chiefly to bicy gun parts, and employ 1200 wor	abrik Kappel A.G. norm ers but it is reported now been turned over cles for army use, aut A.A. shells. They now exers, mostly women, we puble the number emplo	that omatic	
Rother & Kunze A. G		Schlossstr.	(3
and has a secon It is now repor precision instr	this company makes furnited to be producing uments, cartridges, as employ some 900 worker	da.	
Schönherr		Fischweg	(3)
Schönherr) spec machinery and a	Webstuhlfabrik (Louis ialise in weaving ssociated appliances. time products are not		
G. Krautheim' A. G.		Wörthstr.	(3)
reported to be a thousand workers making incendian	uminium casters is now employing several s.in three shifts, ry bomb casings on a affirmation of this ng.		
Alex Drechsler		Rosenstr. )	, ,
Th. Prippenow		Bernhardstr.)	(-)
These two firms and makers of al	are aluminium casters		
Astrawerke		Altchemnitzer- str.	(3)
workers from 650 1939. It is pre	normally makes adding machines increased it o in 1936 to 1,750 in esumably engaged on uitable for this type	5	
David Richter A. G.		Annabergerstr.	(-)
This firm is bel machinery and ma	lieved to make textile achine tools.	*	
Emil Dieterle		Clausstr.	(-)

This firm specialises in band saws and band steel.

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CHEMNITZ (contd.)

Zschopauerstr. (3) Biernatzki & Co. This firm manufactures milling and outting machines. Prior to the war about 400 workers were employed. (-) Turnstr. Bernhard Gläss Makers of lathes and machine tools. Linbacherstr. (3) Gebr. Langer These works specialise in screws, springs, and precision tools and are reported to employ 1,000 workers. (-) Bernsdorferstr. Faradit The Faradit Rohr & Walzwerk A. G. makes tubes and parts for electrical installations. (3) Rottluff Schmirgel (Weideweg) The Schmirgel and Corundewerke Chemnitz A.G. makes aluminium oxide and silicon carbide for grinding wheels. Chemicals and Explosives (3) Neefestr. H. Th. Böhme A. G. The factory belonging to this company is known as the Böhme Fett Chemie G. m. b. H. and manufactures pharmaceutical and other chemical products. Textiles, Rayon Pulp and Paper Schlossstr. William Janssen A. G. (-) Lothringerstr. Mafrasa A. G. Alfredstr. Mafrasa A. G. The above are three of the large number of hosiery manufacturers in Chemnitz. Limbacherstr. Rudolf Kinder Anton Kurt Gabelsbergerstr. (-) Fuchss & Co. Theaterstr. Hermann Hoffmann Dresnerstr. The above are spinners and cotton doublers and are a selection from the large number of similar firms in Chemnitz. C.F. Solbirg A.G. Dorfstr. (-) Schulstr. Josef Witt

The above firms are worsted spinners.

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### CLAUSTHAL ZEILERFEID (Hanover)

51° 48' N. 10° 20' E.

450 m.

11,000

Clausthal is a small town in the Harz district of the Province of Hanover, 30 m. South of Brunswick. It has a number of small firms engaged in the mining and fabricating of lead, the most important of which is given below.

### Non-Ferrous Metals

hopauerstr.

nstr.

bacherstr.

nsdorferstr.

tluff

ideweg

festr.

Lossstr.

hringerstr

redstr.

bacherstr.

elsbergerst

aterstr.

rstr. ulstr. Oberhauzer Berg- u. Hutterwerke (Preussag)

Clausthal

(3)

Owned by the Preussische Bergwerks- u. Hutten A.G., this firm has an annual capacity of 15,000 metric tons of crude lead and 15,000 metric tons of refined lead.

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### COBLENZ (see KORLENZ)

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### COBURG (Bavaria)

50° 15° N. 11° E:

490 miles: (29,500)

Formerly the capital of a minor principality Coburg's industries are on a small scale comprising textiles, biscuit making and porcelain. Only the railway repair shops are worth noting.

### Transportation

Railway Repair Shops

Coburg

(3)

These medium-sized repair shops are mainly engaged on the repair of goods wagons.

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COLOGNE (see KOLN)

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COSEL (see KOSEL)

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#### COSWIG (Anhalt)

51° 55° N. 12° 30° E:

540 miles: (1

Coswig is a small industrial town on the northern bank of the Elbe halfway between Dessau and Wittemberg. (This is not to be confused with Coswig in Saxony). There is a small inland harbour, some manufacture of matches and of paper and, in addition to the firm mentioned below, two chemical factories of lesser importance.

### Chemicals and Explosives

Sprengstoff A.G.

Coswig

(3)

The Westfalisch Anhaltische Sprengstoff A.G. are makers of mitro-cellulose powder and mining explosives. The works has been reported to have a small sulphuric acid plant.

### COSWIG (Saxony)

51° 10° N. 13° 30° E:

595 miles: (9,500)

This small industrial town lies on the N. bank of the Elbe halfway between Dresden and Meissen (it is not to be confused with Coswig in Anhalt). In addition to the important engineering works mentioned below there are a number of similar engineering firms.

### Engineering and Armaments

Kirchbach sche

Coswig

(2)

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The Kirchbach'sche Werke A.G. specialise in the making of brake limings, clutches and propellor shafts, and are reported to supply a large proportion of Germany's requirements of these products.

### Leather

Kotitzer Ledertuch A.G.

Coswig

(-)

This firm specialises in oil cloth, leather cloth and leather for uppers. It is a factory of some importance in this branch.

#### ----000

### COTTBUS (Brandenburg)

51° 45° N. 14° 20° E:

620 miles: (55,600)

This is a very important railway junction and, next to Berlin, the most important junction on the routes from W. and Central Germany to the Eastern frontiers. Six main lines come together near the centre of the town. There are large marshalling yards and an important railway repair shop. There are a number of cloth factories, not one of which is of outstanding size but which together made this town a valuable part of the German textile industry prior to the war. There are also a number of manufacturers of carpet and sail cloth. A more recent development is the erection here of a large aircraft works of Focke-Wulf.

### Transportation

Railway Centres

Cottbus

(2)

In the S.W. quarter of the town and immediately to the W. of the main railway station, there is a junction of four main lines approaching Cottbus from the N.W. and S., large marshalling yards and goods yards and adjacent as also are the extensive railway repair ships. To the E. of the town is another railway junction where the lines diverge to Frankfort/Oder, Posen, and Breslau.

Gustav Knackstebt

Cottbus

(3)

This firm makes railway switch gear, signals and other railway accessories.

# COTTBUS (Brandenburg) (Contd)

### Aircraft and Aero-Engines

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Cottbus

(1)

This large aircraft works was constructed after the bombing of the firm's parent works at Bremen. The Cottbus factory has been engaged on erection and assembly of FW-200 and possibly also components for the FW-190 which would be supplied to the Marienburg works.

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# CRIMMITSCHAU (Saxony)

50° 50° N. 12° 25° E:

545 miles: (28,000)

This town, which is on the River Pleisse 25 miles E. of Chemnitz, has a number of textile works and makers of machinery, none of which is of great individual importance.

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# CUXHAVEN (Hanover)

53° 50° N. 8° 40° E:

410 miles: (30,000)

Situated at the mouth of the Elbe, this port owes its development mainly to the Hamburg lines which disembark their passengers here before proceeding up-stream to Hamburg. There are excellent port facilities and two small shipbuilding yards. The port is now used as a base for mine sweepers and escort vessels and there are numerous naval establishments including an artillery depot.

### Shipbuilding

The Port Area

Cuxhaven (2)

The port area contains quays, railway sidings, large storage sheds, now used as mine stores, two shipbuilding yards engaged on repair work, a naval artillery depot and other naval establishments.

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### DANZIG

54° 20' N. 18° 40' E: 800 miles: (260,000)

The city of Danzig is on the river Vistula four miles from its mouth. From Danzig the Vistula flows northwards into the Baltic. Neufahrwasser the outer port of Danzig, is on the left bank close to the mouth of the river.

In the northern quarter of Danzig proper, along the banks of the Vistula, are the important Schichau and Danziger Werft ship building yards. A cut-off in the river Vistula, known as the Kaiserhafen and about 1½ miles long, stretches from the Eastern end of the ship building area across a bend in the Vistula, which it rejoins halfway between Danzig and the river mouth. The port of Danzig with its ship building and ship repairing activities, extends alongside these two waterways. The principal docks are in the Holm, the island formed by the Kaiserhafen and the bend of the Vistula.

The town itself is divided by the stream of the Mottlau, a tributary of the Vistula. The north-west quarter constitutes the old city, with the main railway station on its western border. Two branches of the railway run from the main station west of the river Vistula to Neufahrwasser. A separate branch leaves the main line south of Danzig, encircles the city to the east, and serves the ports on the Kaiserhafen and the Holm Island as well as the railway repair shops on the right bank of the river.

There are a number of large flour mills and various industries in the central city area and in the Niederstadt (the south-east quarter of the town), but it is as a ship and submarine building centre and as a naval and submarine base and arsenal that Danzig occupies a position of major importance.

### Transportation.

Marshalling Yards

Kaiserhafen (3)

Railway Repair Shops

Kaiserhafen (2)

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These extensive yards and installations are on the right bank of the Vistula near to the Southern end of the Kaiserhafen. The railway sidings serving the quays and docks of the port area radiate from here. It is estimated that 2,000 workers are employed in the repair shops which before the war were the chief locomotive and rolling stock works supplying the Polish railways. Ground intelligence suggests that in 1942 about 1,800 workers were employed, and that this plant was principally engaged on repair and maintenance of main line locorotives.

Goods Station

Olivaer Tor (3)

Immediately north of the main railway station are large marshalling and goods yards from which the branch lines radiate to the Schichau and the Danziger Werft ship building yards.

Repair Shops

Werftgasse (3)

The railway repair works of the Danziger Werft and Eisenbahnwerkstatten A.G. are between the

Olivaer Tor goods yards and Danziger Werft ship building yards.

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Broschkischerweg (3)

The railway continues from the Olivaer Tor along the left bank of the Vistula to Neufahrwasser. The railway repair shops of the Waggonfabrik Danziger A.G. are on this line immediately beyond the Schichau ship building yards.

### Marshalling Yards

Lauenthal (3)

There are also large marshalling and goods yards along the second line connecting Danzig and Neufahrwasser which runs parallel to and about one mile to the West of the Vistula.

#### Goods Station

Leegetor (3)

A smaller goods yard in the southern part of the town.

# Public Utility Services.

Gas works

Danzig (3)

There are two municipal gas works, one in the northern quarter of the town on the left bank of the Mottlau, close to its junction with the Vistula, and the second in the southern end of the town near to the Leegetor goods station. Their combined output in 1938 was about 850 million cubic feet.

### Electricity Works

Bleihof (3)

The municipal power station is inside the town area on the right bank of the Mottlau.

### Liquid Fuels and Substitutes

### Petroleum Storage

Schellmühl (3)

The storage tanks of the former Baltisch Amerikanische Öl Co. are on the left bank of the Vistula north of the city. They have capacity for 100,000 tons.

### Oil Storage

Danzig

(3)

There are a number of oil tank installations in the southern part of the town along either bank of the Mottlau. These have an estimated total capacity of 70,000 tons.

### Oil Storage

Neufahrwasser (3)

Along the left bank of the Vistula immediately south of Neufahrwasser and distributed over the open ground to the west of the river there are a number of oil storage tanks.

#### Ship Building

Schichauwerke

Danzig (1)

These large ship building yards are built along the left bank of the Vistula immediately north of the city. There are six main slipways, three of them 700 feet long. The yards are equipped for the construction of large merchant ships and tankers and all kinds of ship repair. They build submarines, and in 1943 were reported to be completing three monthly. They have also undertaken construction of floating docks and three of these, each with lifting capacity of 20,000 tons, were turned out during the early months of 1943.

Danziger Werft

Danzig (1)

The second large Danzig ship building conern is also in the northern part of the city further upstream from and almost adjacent to the Schichau works. The yards of the Danziger Werft A.G. are on both banks of the Vistula, the area on the southern bank being the larger of the two. Their capacity is similar to that of Schichau and they are also constructing submarines. Assault craft have been reported to be a speciality of these yards.

Wojan Schiffswerft

Troyl

Strohdeich

(3)

Foods

Klawitter Schiffswerft

These are two minor ship yards probably engaged on building and repair of small coastal vessels. Klawitter is on the tongue of land on the right bank of the Mottlau where it joins the Vistula, and Wojan is on the opposite bank of the Vistula near the suburb of Troyl.

Naval Base

Der Holm (1)

The chief naval establishment and arsenal are on the Holm Island, where there are two large and several smaller docks. The submarines using this harbour are moored along the bank of the Kaiserhafen where two or three large ships are permanently moored to serve as living quarters. There are a large number of buildings on the Holm serving as naval supply sheds and oil storage. Close to the south end of the Kaiserhafen several buildings of cement have been constructed on the Holm which are thought to be submarine pens or repair installations.

# Chemicals and Explosives

Milch A.G.

Schellmühl (-)

The Chemische Fabrik Milch A.G. is a subsidiary of the A.G. für Chemische Produktion in Stettin. Their products are fertilisers.

#### Foodstuffs

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Holm (1)

Otto Wilde

a.d. Gr. Muhle (-)

The Grosse Muhle Danzig Otto Wilde A.G. has grain silos with a capacity of 150,000 tons and a large flour mill situated in the central city area.

Speiser & Co.

a.d. Schneidemühle (-)

A flour mill situated in the city area.

H. Bartels

Baumbachallee (-)

A flour mill in the suburb of Langfuhr.

### DARMSTADT (Hesse)

49° 50' N. 8° 40' E:

400 miles: (110,000)

DARASTA

Darmstadt is the chief administrative town of Hesse. There are two important chemical works and a number of manufacturers of machinery. Most of the industries are grouped to the West of the town near to the main railway station but the larger of the two chemical works lies to the North of the city. The municipality also includes the outlying suburb of Eberstadt, one mile to the south. Darmstadt is on the main railway line from North and Central Germany to Basle and Switzerland. It is the junction for several lines leading to the Upper Rhine Valley and Württemberg.

#### Transportation

Marshalling yards (WERK II) Darmstadt (2)

On the west of the town and immediately north of the railway station are important marshalling and goods yards and railway repair shop.

Repair Shops (WERK I) Darmstadt (2)

Large railway repair shops are situated in the northern quarter of the town.

Railway Junctions Darmstadt (3)

North West of the town and between the Nord- and Haupt-Bahnhöfe are the junctions of the various lines which meet in Darmstadt.

### Aircraft and Aerc Engines

Botsch & Co. Landwehrstr. (3)

This firm specialises in the manufacture of glider aircraft.

#### Engineering and Armaments

Venuleth & Ellenberger A. G. Landwehrstr. (3)

The Maschinenbauanstalt Venuleth & Ellenberger A.G. is a factory of some importance making agricultural machinery and machinery for the chemical industry.

DARMSTADT (contd.)

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Motorenfabrik

Kirschenallee

(3)

The Motorenfabrik Darmstadt A.G. are now reported to be making diesel engines. This firm belongs to the Demag of Duisburg and is said to have employed some 800 workers in 1942.

Carl Schenck

Landwehrstr.

(3)

This firm makes industrial weighing machines, weighbridges, screens and vibro-conveyors. They are leading specialists in the testing of metals for vibrational and torsional stresses, and in constructing machinery for carrying out such tests.

Eisenwerk Eberstadt

Eberstadt

(3)

The Eisenwerk Eberstadt Adolf Riesterer makes grinding machines and stone saws.

Goebel A. G.

Mornewegstr.

(-)

This firm made printing and paper cutting and folding machines before the

Chemicals and Explosives

E. Merck

Frankfurterstr. (1)

It is believed that this works is now concentrating on products of direct war interest at the expense of its production of pharmaceuticals and fine chemicals, the most important of these products being hydrizine (used in explosives) and compounds of hydrogen peroxide.

Merck's pre-war products can be divided into three sections:-

- 1. Pharmaceuticals and fine chemicals produced by Merck from basic raw materials. This includes:-
  - (a) ascorbic acid, dextrose, lactic acid - from starch.
  - (b) alkaloids from natural plants, mainly from the Dutch East Indies, some exceptions being opium from Turkey, ephedra from Spain, and cocaine from Peru.
  - (c) tannic acid from galls, from N. E. I.

/ (d)

#### DARMSTADT (contd.)

(d) hormones from glandular products obtained from Darmstadt and Frankfurt slaughter houses. DIRECTAD

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- (e) metallic salts, including mercury and bismuth from Spain.
- (f) vitamin D from ergosterol, made from yeast purchased locally.
- 2. Pharmaceuticals and fine chemicals produced by Merck from purchased intermediary products:-
  - (g) barbiturates, i.e. Luminal, Veronal, Veramon, Phenodorm, produced from intermediates purchased from the I.G.
  - (h) salicylic acid.
- 3. Chemical products bought, purified, and re-sold by Merck:-

This section includes a large variety of products including some which Merck also manufacture themselves from basic raw materials, i.e. lactose metallic salts.

Solvents were purchased mainly from Alexander Walker, Munich.

The following are approximate pre-war production figures of some of the more important Merck specialities:-

Luminal	2,000	kilos	per	month
Veronal	1,100	99	M	19
Phenodorm	1,200	11	99	H
Hydrogen peroxide	2,000	19	99	19
Vigantol (Vitamin D)	2,000	99		16
Cebion (ascorbic acid-	800	- 11	19	**
Vitamin C)				
Betabion (Vitamin B)	400		99	- 99
Dextrose	4,000	11	19	99
Lactic acid and salts	10,000		11	11
Agricultural insecticides	10,000	**	11	19
Salicylates	10,000		11	
Iodides and Bromides	4,000		11	10
Glycerophosphates	800	. 11	11	

Merck also shared with C.A.F. Kahlbaum G.m.b.H., Berlin a virtual monopoly of the production of analytical reagents supplied to institutes and laboratories for research and testing purposes.

In August 1938 the staff of Merck consisted of about 4,000 people as follows:- 150 chemists, 150 qualified engineers, 1,500 girls for packing, etc., 600 clerks, 2,600 workmen.

#### DARMSTADT (contd.)

Röhm & Haas A. G.

Weiterstädterstr. (2)

This chemical factory specialised formerly in chemicals for use in washing preparations and for the oil and varnish industries. The firm is also an important producer of toughened glass and has a second factory in Oberramstadt five miles South East of Darmstadt. Approximately 1,000 workers were employed in the Darmstadt factory before the war.

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# DATTELN (Westphalia)

51° 40' N. 7° 20' E.

320 miles: (21,000)

Datteln is an important junction on the German inland waterways system where the Lippe-Seiten canal joins the main Dortmund-Ems canal. Immediately South of Datteln is the Emscher-Lippe mine and coking plant.

#### Transportation

Canal Junction

Datteln

(2)

This is one of the most vital junctions of the Ruhr waterways. The Lippe canal, leading from Lippstadt through Hamm and Länen, here joins the main Dortmund-Ems canal. The small inland port of Datteln has many silos and storage sheds built round the canal junction.

#### Solid Fuels

Emscher-Lippe

Datteln

(2)

To the South of the town is the large coal mine known as the Gewerkschaft des Steinkohlenbergwerks, Emscher-Lippe which belongs to the Krupp concern. There are five shafts. Output of coal in 1937 was 1,766,000 tons. The two coking plants containing 190 coke ovens have an annual dry-coal capacity of 885,000 tons and form one of the sources of supply for the long-distance gas system.

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# DEGGENDORF (Bavaria)

"48° 50" N. 13° E: (12,000) 650 miles:

Deggendorf is on the left bank of the Damube between Regensburg and Passau. It is a tourist resort for visitors to the Bayerischer Wald, and has normally little industrial significance, but the ship building yards on the Damube are now reported to be very active

## Ship Building

Schiffswerft

Deggendorf

(3)

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The Deggendorfer Werft & Eisenbau G.m.b.H. is now reported to be constructing 2,000 h.p. steam paddle tugs and small screw tugs run on producer gas. Submarine parts are also said to be produced. The yards have a river frontage of 1,200 metres and some 700 workers were employed here in 1943.

DELIN (Pomerania)

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53° 55° N. 13° E: 580 miles: (16,000)

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This town is on the river Peene which is navigable up to this point. There is a sugar factory and some small shipping activity but the Demmin is chiefly a market town.

DESCHOWITZ/

# DESCHOWITZ (Upper Silesia)

50° 25' N. 18° 10' E:

820 miles: (15,000)

Deschowitz, the German name of which is Odertal, lies on east bank of the river Oder, about 18 miles south-east of Oppeln and about 25 miles west of Gleiwitz. Industry here is dominated by the Schaffgotsch'sche works consisting of the important Fischer-Tropsch synthetic oil plant, and the adjoining coking plant and power station. A sizeable workers colony has been built, and the population is now believed to be about 15,000.

#### Public Utilities

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Schaffgotsch'sche power station.

Deschowitz

(1)

The power station lies in the Northern section of the industrial complex, and is owned by Graflich Schaffgotsch'sche Werke G.m.b.H. of Gleiwitz. The station was originally built to supply steam and electricity to the adjoining coke ovens. When the synthetic oil plant was coke ovens. When the synthetic oil plant was constructed, the capacity was greatly increased, and is now estimated at 75 MW. South-west of the generating station there is a large open air substation containing three transformers and 12 switches. Supplies to the associated works are believed to be by low and medium voltage underground cables. high voltage long distance overhead transmission line connects to Blechhammer North. Two other similar. lines leave the sub-station and one is believed to connect to Kosel and the other to Oppeln.

#### Solid Fuels

Schaffgotsch'sche Werke

East of Deschowitz (2)

Situated just to the east of Deschowitz, the coking plant is owned by Graflich Schaffgotsch'sche Werke, G.m. b. H. There are 120 ovens having an annual estimated dry coal capacity of 840,000 tons.

# Liquid Fuels and Substitutes

Schaffgotsch'sche synthetic oil plant.

Deschowitz

(2)

The Schaffgotsch'sche industrial complex is situated just to the east of Deschowitz and adjoining the Oppeln-Ratibor railway line, and covers about 1 square mile. The power station occupies the northern section, and the coking plant the central section of the complex (for both of these, see above).

This Fischer-Tropsch synthetic oil plant is owned by Schaffgotsch'sche Benzin G.m.b.H., and has an estimated capacity of 110,000 tons of oil products per annum. It is believed that oil is conveyed by pipe line from Deschowitz to the port of Kosel on the river Oder, and thence to the Mittelland Kanal. 2/3,000 workers are said to be employed in two shifts at the synthetic oil plant alone.

# DESSAU (Anhalt)

51° 50' N. 12° 10' E: 530 Miles: (200,000)

Dessau is the chief town of the State of Anhalt and is now mainly important as a headquarters of the Junkers concern, which has four separate works and an airfield close to the town.

Dessau is situated on the railway line between Magdeburg and Leipzig, one of the main railway connections between N.W. Germany and Saxony. The Administrative area includes Wallwitz, one mile north of the town centre and on the river Elbe, and Rosslau, an outlying suburb on the northern bank of the Elbe.

#### Transportation

Railway Junction

Dessau (3) Ship Buil

Indineer:

From Rosslau a branch leads to Wittenberg (on the main line from Berlin to south-west Germany) and from Dessau a branch leads to the main Magdeburg-Halle line and through Bernburg to Western Germany. There are goods yards and a small marshalling yard immediately north of the main railway station.

Railway Repair Shops

Dessau (3)

On the southern outskirts of the town is a railway repair shop which is noted on pre-war maps as a repair shop for electric locomotives.

### Liquid Fuels and Substitutes

Hydrierwerke

Rodleben (3)

This works was formerly known as the Tetralinwerke. It is believed still to be producing tetralene and similar solvents, and also ethyl alcohol: both products are obtained by synthetic process . from brown coal via water gas.

#### Aircraft and Aero Engines

Junkers

Airfield (1)

The parent works of the Junkers Flugzeug and Motorenwerk A.G. are adjacent to the large Junkers airfield which is immediately to the west of the town, and extend northward from the railway line Dessau-Köthen to the road from Dessau to Klein Kühnau. The villages of Klein Kühnau and Alten are respectively at the northwest and the south-west corners of the airfield. The engine works, making both Diesel and petrol engines, are immediately east of Alten and separated from the airfield only by the railway line. The airframe works adjoin the eastern portion of the airfield. These works are used mainly for the construction of aircraft and aero-engine prototypes which are tested on the adjoining airfield. One of the chief activities

of the Dessau works is to construct a number of each approved design, sufficient to enable the process of serial production to be worked out in detail. The actual serial production is then undertaken by other aircraft works. Another major activity here is the large scale manufacture of airscrews and particularly hubs. It is believed that approximately 35% of the · total German output of the latter are turned out here. In 1942 Junkers Dessau were believed to employ nearly 10,000 workers.

#### Ship Building

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#### Sachsenberg

Rosslau (2)

The ship building yards of the Gebruder Sachsenberg A.G. are on the north bank of the Elbe in the outlying suburb of Rosslau. They specialise in light high-speed craft such as "E" boats, small torpedo launches, speed boats and river craft and they are also builders of dredgers.

### Engineering and Armaments

### . G. Polysius A.G.

Brauereistr.

(3)

These works now belong to the Junkers concern. They are situated on the railway between the town and the Junkers aero engine works. are now in use as an arms factory and are believed to be making machine guns for aircraft, also A.A. guns.

#### Government Factory.

Gr. Kuhnau (-)

A government factory is reported to have been constructed at Gr. Kühnau, 1,300 yards northwest of the Junkers airfield, and is said to produce electron metal for aircraft and armaments. Confirmatory evidence is not available, but it is thought that this factory is more likely to be engaged on magnesium fabrication.

#### Hugo Junkers

Junkerstr.

The Kaloriferwerk Hugo Junkers G.m.b.H. specialise in heating, air conditioning and ventilating plants, also in heating and cooling apparatus for the chemical industry. It is believed that at least one department of this relatively small factory has been converted to the manufacture of fuel injection pumps.

# Junkers & Co.

(3) Junkersstr.

Junkers and Co. G.m.b.H. which was formerly a joint undertaking with the Kaloriferwerk Hugo Junkers, now belongs to Robert Bosch of Stuttgart. The factory's pre-war products were gas waterheating apparatus.

Bamag

Dessau

(2)

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The Berlin-Anhaltische Maschinenbau A.G., the Dessau works of the Bamag -Meguin A.G., construct heavy engineering plant and before the war were mainly engaged on machinery and equipment for the gas industry. They are now reported to have taken up the manufacture of naval and A.A. guns in at least one of the departments.

Waggonfabrik

Albrechtstr.

(3)

The Dessauer Waggonfabrik, which belongs to Orenstein and Koppel, makes railway waggons and coaches and, before the war, employed approximately 1,000 workers.

#### Chemicals and Explosives

Dessauer Werke für Zucker und Chemische Industrie A.G. Rosslau

(3)

This works is one of the largest German sugar refineries. They also:

(a) Make their own refining agents, e.g. strontium salts.

(b) Recover by-products from sugar refining residues, e.g. potassium salts.
 (c) Make cyanide from the Schlempe (residues).

(d) Make small quantities of chemicals derived from sugar, e.g. Erythritol.

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# DETMOLD (Lippe)

51° 55' N. 8° 55' E:

390 miles:

(20,000)

Detmold is the administrative centre of the small state of Lippe. There are some furniture factories, lithographic establishments and a small biscuit factory but no industries of importance.

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# DILLINGEN (Saar)

49°20' N. 6° 45' E: 340 miles:

(14,200)

Dillingen is on the main line from Trier to Saarbrücken and is five miles north-west of Saarlouis. It is the junction for a branch line leading from the valley of the river Prims to Neunkirchen. There are a few small foundries and makers of machinery, but the town is mainly important for the large steelworks described below:

#### Solid Fuels

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of stablishtance. A.G. der Dillinger Hüttenwerke

Dillingen

(3)

The coke ovens attached to the firm's steel plant number 148, and have a maximum rated dry coal capacity of 667,000 tons per annum.

# Iron, Steel and Ferro-Alloys

Huttenwerke

Dillingen

(2)

The A.G. der Dillenger Huttenwerke have important steel works and rolling mills. There are four blast furnaces, six Martin furnaces, two cupolas, and a large rolling mill. Before the war 6,000 workers were employed and the capacity was 400,000 tons of pig iron and 600,000 tons of steel per annum.

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# DINSLAKEN (Rhineland)

See under DUISBURG

# DITTERSBACH (Silesia)

See under Waldenburg.

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# DÖBELN (Saxony)

51° 15' N. 13° 5' E:

570 miles:

(25,000)

Dobeln is a small manufacturing town in the valley of the river Mulde 30 miles West of Dessau. It contains a number of minor factories making machinery, metal foundries and also a small tobacco and cigar making industry. None of these are of individual importance.

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# DONAUWORTH (Bavaria)

48° 45' N. 10° 50' E:

520 miles:

(5,500)

Donauworth is on the left bank of the Danube 20 miles North of Augsburg. The main line from Frankfort/Main to Munich crosses the Danube here and branch lines lead West to Ulm and East to Ingolstadt. The town has little industry in peacetime but the plant mentioned below has increased in importance during the war.

## Engineering and Armaments

Maschinenfabrik Donauworth

Donauworth.

(3)

A factory was reported in 1942 to be employing a large number of workers on the manufacture of trench mortars. This is probably the Maschinenfabrik Donauworth G.m.b.H., in peace time the only engineering works in the town and said to have been converted to armaments production.

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# DORMAGEN (Rhineland)

51° 5' N. 6° 35' E:

295 miles:

(4,000)

Dormagen is on the main line West of the Rhine halfway between Koln and Neuss. It has no important industries other than that mentioned below.

#### Textiles, Rayon, Pulp and Paper

I.G. Farbenindustrie

Dormagen

(3)

The I.G. have a factory at Dormagen making cuprammonium rayon and staple fibres. capacity in 1939 was 24 tons per day.

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# DORTMUND (Westphalia)

51° 30' N. 7° 30' E: 325 miles:

(640,000)

The area covered here extends in the North from Henrichenburg to Bergkamen including Waltrop, Lippholthausen and Lthnen, covers Kamenand Holzwickeds in the East; Hords to the South; and Westrich, Bodelschwingh and Ostrich in the West. The map showing these boundaries is inserted at the end of this book.

Dortmund with 550,000 inhabitants is the largest and most easterly town in the Ruhr. It is one of the chief centres of heavy industry in Germany and besides the large steel works is full of smaller concerns engaged in engineering of all kinds. The town's geographical position at the eastern extremity of the Ruhr, at the terminus of the Dortmund-Ems Canal, and in the centre of the Westphalian coal fields make it one of the busiest commercial centres in Germany.

Although most of the marshalling yards in the Dortmund district are relatively small it is, next to Duisburg, the principal transport centre of the Ruhr particularly for through traffic to Central, North and Eastern Germany. The harbour situated at the terminus of the Dortmund-Ems Canal is of particular importance.

Dortmund proper has only one power station which though large is of local importance only. Though there are several electric power plants in the vicinity of the city they are all privately owned concerns of comparatively small capacity and concerned only with the pits or works to which they belong. Gas is obtained from the Ruhr Gas Grid. There is an important V.E.W. station at Lünen with a capacity of 135 MW.

There are two important industrial area in Dortmund. The first lies on the western side of the town and contains the very important harbour and two marshalling yards and south of the harbour, the large steel works of the Dortmund Hörder Hüttenverein A.G.

The second area lies to the north east of the city and consists of the huge Hoesch steelworks, the Hoesch-Benzin G.m.b.H. Fischer-Tropsch plant and a marshalling yard which envelopes the north western side of the steelworks; also within this area is the Minister Stein concern with coke ovens, a by-products plant, and the power plant.

Scattered throughout the town are numerous plants of secondary importance, the majority of which are engaged on engineering.

At Hörde, to the south-east of Dortmund lies the Dortmund Hörder Hüttenverein, a subsidiary of the Vereinigte Stahlwerke A.G. and in its western portion the coking plant. In the north there are two important concerns; at Kamen a Fischer Tropsch plant, and west of Lünen on the Seiten Canal the Lippewerk of the Vereinigte Aluminium Werke A.G.

Outside Dortmund there are numerous coke oven plants including "Hansa", the second largest in Germany, and several colliery concerns. To the extreme North West of the area is the ship-lift and the shaft-lock at the junction of the Dortmund-Ems and Rhein-Herne canals.

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V.E.W.

The harbour is the terminus of the Dortmund-Ems canal which is the link between the Westphalian industrial area and the North Sea. The canal has been rebuilt to be navigable to vessels of 1,500 tons deadweight but as the Henrichburg locks is restricted to vessels of 1,000 tons, no vessels of greater tonnage can penetrate to Dortmund. There are the usual quays and harbour facilities which extended to within 1 m. North East of the main station. The volume of goods handled in 1938 amounted to 4,000,000 (inwards) and 1,400,000 (outwards). Adjoining the harbour to the west lies the Verschiebebahmhof (see below).

Henrichenburg Locks

Henrichenburg (2)

The shaft lock and the ship-lift are situated at the junction of the Dortmund-Ems and the Rhein-Herme canals, and are 9 m. North West of Dortmund main station. The lift is capable of raising vessels of 1,000 tons dead-weight.

Canal Embankment

Waltrop

(2)

The embanked stretch of the Dortmund-Ems canal is situated  $7\frac{1}{4}$  miles N.N.W. of Dortmund main station and  $2\frac{1}{4}$  East of the Henrichburg locks. The embankment extends just over  $\frac{1}{2}$  mile. in length.

Marshalling Yard

Dortmunderfeld (3)

Situated 1 mile South West of the main station, the yards have an estimated capacity of 3,000 wagons per 24 hours.

Marshalling Yard

Dorstfeld (3

(3)

Situated 2 miles West of Dortmund main station, the yards have an estimated capacity of 2,500 wagons per 24 hours.

Marshalling Yard

Dortmund

(2)

Known as the "Verschiebebahnhof" the yards, nearly 2 miles in length, adjoin the canal terminus (see "Dortmunder Hafen" above), and have an estimated capacity of 4,800 wagons per 24 hours. There is a large workshop at the South end of the yards.

Marshalling Yard

Dortmund-Std

These yards lie 1 mile South East of the main station and adjoin Dortmund-Stid station. They have an estimated capacity of 2,400 per 24 hours.

Marshalling Yard

Dortmund-Eving (3)

Situated 14 miles North East of Dortmund main station, adjoining the Hoesch steelworks, the yards have an estimated capacity of 2,000 wagons per 24 hours.

/Marshalling yard.

Marshalling yard

Holzwickede (3)

The yards lie 7 miles E.S.E. of Dortmund main station and have an estimated capacity of 2,400 wagons per 24 hours.

# Public Utility Services

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Lunen Power Station

Lunen (1)

Situated 63 miles N.N.E. of Dortmund the station is owned by Steinkohlen-Elektrizitätes A.C. main purpose of the station, which consists of 3 turbo-generator sets and has a capacity of 135 MW., is to supply the Lippewerk plant of Vereinigte Aluminium Werke A.G. which is  $\frac{1}{2}$  mile North West., and consumes 1,000 million kWh. per annum. It is also connected to the grid. The open-air substation, which is owned by V.E.W., is to the North of the station and contains three transformers and nine high-voltage switches. double-circuit lines, probably operating at 110 kV., lead respectively West towards Castrop-Rauxel, and East towards Kamen: a third line connects to Huls, and a fourth to Stockum.

V.E.W. power station

Dortmind

(1)

Owned by Vereinigte Elektrizitatswerke Westfalen, the station is situated in the east of the city. There are 6 turbo-generator sets with an estimated capacity of 116 MW. The station is connected by several 10 kV lines with Kruckel and thus linked up with the 110 kV grid. There are no longdistance supplies.

Dortminder Union Power Station.

Dortmund (3)

Owned by Dortmunder Union Bruckenbau, the power station is situated about 1 mile South-West of Dortmund main station. It supplies power to the Dortmunder Union and Rothe Erde iron and steel The capacity is believed to be 47 MW.

Horde Power Station

plant.

Horde

(3)

Attached to the Horde steel works, the capacity is believed to be 47 MW.

Minister Stein Power Station

Eving

Situated adjoining the colliery, 2 miles North of Dortmund, the power station is owned by Gelsenkirchener Bergwerks A.G. It has an estimated capacity of 11 MW. and supplies the adjacent colliery and coking plant (see under "Solid Fuels"), and also the steelworks of the Dortmund group of Vereinigte Stahlwerke A.G. (see under "Iron and Steel").

Gneisenau Power Station

Derne

(-)

Situated  $4\frac{1}{2}$  miles North-East of Dortmund, the power station is owned by Harpener Bergbau A.G. There are two generating sets having an estimated /capacity capacity of 15 MW. The station also supplies steam to the Gneisenau coking ovens (see under "Solid Fuels")

Dorstfeld 2/3 Power Station

West of Dortmund (-)

The power station is owned by Essener Steinkohlenbergwerke A.G. and is situated South East of Dorstfeld Pit 2/3, 2 miles South West of Dortmund main station. Power is supplied to the coke oven plants adjoining, at Oespel, and to the Dorstfeld colliery (see under "Solid fuels"). The capacity of the station is estimated at 11 MW.

Monopol Power Station

Kamen

(3)

Dorsti

Tremon

Hansa

Waltro

Veapel

Owned by Essener Steinkohlenbergwerke A.G. the plant is situated adjoining the colliery, 92 miles northeast of Dortmund main station. There are 5 steam turbines with an estimated capacity of 40 MW. The plant serves the Monopol colliery (see under "Solid Fuels"), and the synthetic oil plant at Bergkamen (see under "Liquid Fuels").

Municipal Gasworks.

Lindenhorst

(3)

Owned by Dortmunder Gaswerk A.G. The gasworks are situated  $1\frac{3}{4}$  miles east north-east of Dortmund main station. The station sold 1,000 million cubic feet of gas in 1936. Gas is supplied mainly by the Dorstfeld coking plant.

Kaiserstuhl Power Station

Dortmund.

(3)

Situated within the Hoesch A.G. steelworks complex, the power station works in conjunction with the colliery, coking plant, and the steelworks. There are 5 generator sets having an estimated capacity of 33 MW. (See also under "Solid Fuels" and under "Iron and Steel").

Hoesch Benzin Power Station

Wambelerholz

(3)

This power station is owned by and supplies power to the Hoesch Benzin synthetic oil plant, (see under "Liquid Fuels"). It lies about 21 miles north-east of Dortmund main station, and just east of the steelworks. The capacity is estimated at 18 MW.

### Solid Fuels

Grimberg coking plant

Bergkamen

(2)

Owned by Essener Steinkohlenbergwerke A.G., the plant is situated 10 miles N.N.E. of Dortmund station. There are 128 ovens having an estimated annual dry coal capacity of 970,000 tons. The plant operates in conjunction with the company's Fischer-Tropsch synthetic oil plant nearby (see under "Liquid fuels").

Minister Stein coking plant

Eving

(2)

Situated adjoining the colliery, 2 miles North of Dortmund main station, the plant is owned by Gelsenkirchener Bergwerks A.G. There are 130

ovens having an estimated annual dry coal capacity of 1,000,000 tons. Gas is supplied to the Ruhr gas grid. The plant has its own power station (see under grid. The plant has "Public Utilities").

Dorstfeld coking plant

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oity

W. of Dortmund (3)

Owned by Essener Steinkohlen-bergwerke A.G., the plant is situated at the Dorstfeld colliery, pit 2/3, and lies 2 miles West of Dortmund station. There are 120 ovens working which have an estimated annual dry coal capacity of 408,000 tons. The plant has its own power station (see under "Public Utilities") and gas is supplied by long distance pipe line to Dortmund town. It is believed that 40 additional ovens were under construction in 1943.

Tremonia coking plant

S.W. of Dortmund (3)

Owned by Gelsenkirchener Bergwerks A.G., the plant is located 1 mile South West of Dortmund. There are 95 ovens which have an estimated annual dry coal capacity of 300,000 tons.

Hansa coking plant

Huckarde

(1)

This is the 2nd largest coking plant in Germany, it is owned by Gelsenkirchener Bergwerks A.G. and is located 2 miles North West of Dortmund main There are 290 coke ovens having an estimated annual dry coal capacity of 2,005,000 tons. Gas is supplied to the Ruhr gas grid.

Waltrop coking plant

Waltrop

(3)

Owned by Bergwerksgesellschaft Hibernia, the plant is located 7 miles N.N.W. of Dortmund main station. There are 125 ovens having an estimated annual dry coal capacity of 285,000 tons. Gas is supplied to the Ruhr gas grid.

Oespel coking plant

Oespel

(3)

The plant is situated 4 miles South West of Dortmund main station and is owned by the Essener Steinkohlenbergwerke A.G. There are 45 ovens having an estimated annual dry coal capacity of 200,000 tons of dry coal per annum. Power is supplied from the Dorstfeld power station(see under "Public Utilities"), and gas to Dortmund town by the long distance pipe line, augmenting the supply from Dorstfeld coking plant.

Westhausen Coking Plant

Westhausen

(3)

Owned by Gelsenkirchener Bergwerks A.G. the plant is situated 4 miles North West of Dortmund main station. There are 80 ovens having an estimated annual dry coal capacity of 370,000 tons.

/Victoria coking plant

Victoria coking plant

(3) Lünen

The plant is located adjoining the Victoria colliery, 8 miles North East of Dortmund and 1 mile East of Ltnen. It is owned by Harpener Bergbau A. G. There are 170 ovens with an estimated annual dry coal capacity of 450,000 tons. (Colliery, see below).

Gneisenau coking plant

Derne

(2)

Owned by Harpener Bergbau A. G. the plant is situated at Gneisenau colliery, 42 miles There are North East of Dortmund station. 130 ovens having an estimated annual dry coal capacity of 1,046,000. Power is supplied by the Gneisenau power station (see under "Public Utilities").

Kaiserstuhl coking plant

(2) Dortmund

The plant lies in the centre of the Hoesch A. G. steelworks, about 2 miles North East of Dortmund main station. There are 383 ovens having an estimated annual dry coal capacity of 1,500,000 tons. (See also under "Iron and Steel" and "Public Utilities").

Hörder Hüttenverein coking plant

(3)

Ickern

Victoria

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Reisen

Owned by Dortmund Hörder Hüttenverein the plant is adjacent to the blast-furnace works, 21 miles S. S. E. of Dortmund main station. There are 195 ovens having an estimated annual dry coal capacity of 620,000 tons. Gas supplied to the Ruhr gas grid.

Minister Achenbach coking plant

Brambauer (3)

Owned by Gebruder Stumm G. m. b. H. The plant is situated adjoining the colliery, 52 miles North There are 102 ovens of Dortmund main station. having an annual estimated dry coal capacity of 420,000 tons (Colliery, see below, and see also under "Liquid fuels").

Dorstfeld collieries

W. & S. W. Of Dortmund (3)

Pit 1/4 is located 2 miles West and pit 2/3 2 miles South West of Dortmund main station.
The colliery is owned by Essener Steinkohlenbergwerke A.G. The output of hard coal in 1937 was
1,259,000 tons. The compnay has its own power station adjoining Pit 2/3 (see under "Public Utilities").

Monopol colliery

Kamen

Situated 92 miles North East of Dortmund main station near Kamen, it is owned by Essener Steinkohlenbergwerke A.G.; in 1937 the mine produced 2,162,000 tons of hard coal. It has its own power station (see under "Public Utilities").

/Minister

Minister Stein colliery Eving (3)Owned by Gelsenkirchener Bergwerks A. G., the colliery is situated 2 miles North of Dortmund. The output of hard coal in 1937 amounted to 2,000,000 tons. The company's coking plant lies adjacent and has its own power station. (see under "Public Utilities"). Fürst Herdenburg colliery N. of Dortmund (3) Situated 24 miles M. of Dortmund near the Ems canal, the colliery is owned by Gelsenkirchener Bergwerks A. G., and in 1937 produced 1,362,000 tons of hard coal. The colliery has its own harbour on the East bank of the canal. Gneisenau colliery N. E. of Dortmund (3) The colliery, which includes the Scharnhorst colliery, is owned by Harpener Bergbau A.G. and is located West of Dortmund-Derac station. In 1937 the combined output amounted to 1,580,000 tons of hard coal. The colliery has its own power station at the Gneisenau Pit (see under "Public Utilities"). Ickern colliery N. W. of Dortmund (See under "Castrop-Rauxel"). Victoria colliery Lünen (3) Owned by Harpener Bergbau A. G. The colliery is situated 8 miles North East of Dortmund main station and North of the R. Lippe, 1 mile East of Lines.
The output of hard coal in 1937 amounted to 1,156,000 Kaiserstuhl 1/2 colliery Dortmund (3)Owned by Hoesch A. G. the colliery is situated in the centre of the steelworks complex about 2 miles North East of Dortmund main station. 1,560,000 tons of hard coal were produced in 1937. Brambauer (3)

Minister Achenbach colliery

Owned by Gebruder Stumm G. m. b. H. the colliery is located 51 miles North of Dortmund station. 1937 the output of hard coal amounted to 1,692,000 tons. The colliery has its own harbour, 1 mile South West on the Dortmund Ems canal.

Zollern 1/2 colliery Kirchlinde (3)

> Owned by Gelsenkirchener Bergwerks A. G. the colliery is located at Kirchlinde, 34 miles West of Dortmund. In 1937 the output of hard coal amounted to 1,170,000 tons.

> > /Liquid Fuels

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## Liquid Fuels

Hoesch Benzin G.m.b.H.

Wambelerholz (2)

The synthetic oil plant is situated  $2\frac{1}{4}$  miles North east of Dortmund main station, and adjoining the Eastern boundary of the Hoesch iron and steelworks. The Fischer-Tropsch process is used, the works having an estimated capacity of 90,000 tons of oil per annum. Storage capacity is estimated at 20,000 tons. The plant produces petrol, gas-oil and lubricants, and is believed to employ some 450 workers. The works has its own power station (see under "Public Utilities").

Chemische Werke Essener Stein Kohle A.G.

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This Fischer Tropsch synthetic oil plant is situated 10 miles N.N.E. of Dortmund main station, adjoining the Grimberg coking plant (see under "Solid fuels"). The plant covers 90 acres and has an estimated capacity of 100,000 tons of oil per annum, and storage for 16,000 tons. The plant produces petrol, gas-oil and lubricants.

Schmitz oil plant

N.W. of

(3)

Dortmund.

Schmitz Westfälische Mineralöl und Asphalt Werke is situated 12 miles North West of Dortmund main station. The plant produces low grade lubricating oils from petroleum residues. Through out capacity is believed to be 20,000 tons per annum.

Oil Storage Tanks

Tankweg

The whole of the street called Tankweg is concerned with oil storage and is owned by various firms. The total storage capacity is estimated at about 5,000 tons, of which 1,000 tons capacity is owned by Rhenania Ossag A.G.

# Iron and Steel and Ferro-Alloys

Hoesch Steelworks

(1) North East Dortmund

The "Eisen und Stahlwerke" of Hoesch A.G. occupy nearly 1 square mile and are situated 1 mile North east of Dortmund main station. There are 7 blast furnaces having an estimated annual capacity of 1,000,000 tons of pig iron; 4 Thomas converters and 8 open-hearth furnaces having a crude-steel capacity estimated at 1,250,000 tons per annum. Electric steel is also made. There are rolling mills etc. which turn out the normal extensive range of products. There is also a continuous strip rolling mill, which is one of the only two in Germany - the other being at Dinslaken. The works are

/believed

believed to employ 20,000-22,000 workers. The company has its own power station (see under "Public Utilities").

Werk Dortmund

rholz (2)

West Dortmund (1)

Owned by the Dortmund-Hörder Hüttenverein A.G. group of Vereinigte Stahlwerke A.G. The works are situated just West of the main station and extend North to the canal harbour. There are 5 blast furnaces with an estimated annual capacity of 850,000 tons of pig iron; 6 25-ton Thomas converters and 5 open-hearth furnaces having an estimated annual capacity of 1,000,000 tons of crude steel. The rolling mills, capable of handling the whole of the steel output, produce bars, sections, girders, rails, sheet piling, universal plates and sheets. There are forges and a steel foundry which produce all types of steel castings. Large quantities of steel are supplied to Dortmunder Union Brückenbau-A.G. works (see under "Engineering"). The works were originally known for their bridge building, but this has been transferred to the Brückenbau works. The formerly associated foundries are now separate subsidiary (see "Rothe Erde" below). Between 12,000 and 15,000 workers are reported to be employed. The plant has its own power station (see under "Public Utilities").

Werk Hörde

Hörde (1)

Owned by the Dortmund Hörder Hüttenverein A.G. group of Vereinigte Stahlwerke A.G., the works are in two quite distinct parts about ½ mile apart, the first comprising the blast furnaces and coke ovens lies 3 miles South of Dortmund railway station, and South of the Dortmund-Unna railway line; the second area containing the rolling mills etc., is  $\frac{1}{2}$  mile further East, and North of the same railway. There are 5 blast furnaces having an estimated annual capacity of 750,000 tons of pig iron; 5 25-ton Thomas converters and 10 openhearth furnaces with an estimated capacity of 1,000,000 tons of crude steel per annum. The nearby rolling mills, capable of absorbing the whole of the steel output, produce bars, sections, rails and plates, and are also reported to produce frames and pressed parts for motor vehicles. plate mill is of recent construction. are belived to employ about 18,000 workers.

Rothe Erde

Dortmund Tremoniastr. (3)

Eisenwerk Rothe Erde G.m.b.H. is situated 1 mile South west of the main station. The company was formerly associated with Dortmund-Hörder Hüttenverein but is now a separate subsidiary of Vereinigte Stahlwerke A.G. The plants have large foundries and a railway equipment shop.

/Non-Ferrous Metals

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# Non-Ferrous Metals

C. W. Kayser

S. W. of Lunen (2)

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Concordia

Huttenwerke C.W. Kayser A.G. is situated 62 miles North north east of Dortmund main The works are engaged on electrolytic station. copper refining and have an estimated capacity of 15,000 tons per annum. There is also extensive equipment for dealing with scrap.

Lippewerk

Lippholthausen (1)

Owned by Vereinigte Aluminium Werke A.G., this is the second largest aluminium producer in Germany and accounts for 17 per cent of her total The works produces aluminium from bauxite and output. has an estimated annual capacity of 45,000 tons There is also a full-scale plant of aluminium. for the manufacture of alumina from local clay, but this plant is not now operating.

# Engineering and Armaments

Brückenbau - A. G.

(3) Dortmund

Dortmunder Union Brückenbau - A.G. works are situated immediately West of Werk Dortmund steel works, and about 1 mile West of the main station. The works specialises in bridges of all types but also makes a variety of structural steel products. Steel in Steel is supplied by the adjacent steelworks (Werk Dortmund).

Edelstahl

N. Dortmund

Deutsche Edelstahlwerke A.G. have a small works in Sunderweg about 3 mile North of the main station, which makes special steel magnets.

Maschinenfabrik Deutschland

N. E. Dortmund (3)

Situated immediately South of the Eving marshalling yard, Maschinenfabrik Deutschland A.G. is owned by the Hoesch concern. It is believed to be producing mining machinery and some machine tools.

C. H. Jucho

(3)

Dortminder Brückenbrau C.H. Jucho have one works adjoining and south of the railway  $2\frac{1}{4}$  miles East of Dortmund main station, another works is situated about 1 mile East of the station. The firm are makers of bridges and similar construction.

Maschinenbau & Bahnbedarf

Dortmund

(2)

Maschinenbau & Bahnbedarf A.G., formerly owned by and known as Orenstein & Koppel, are reported to have 3 works in Dortmund: (1) 2 miles W.S.W., (2)  $1\frac{1}{2}$  miles N.N.W., and (3)  $1\frac{1}{2}$  miles N.E. of the main station. The firm is a well-known maker of railway rolling stock including narrow-gauge stock. They had a pre-war capacity of 1,700 standard 20-ton wagons per annum.

Wagner & Co.

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(3)

Situated adjoining the railway marshalling yards, Wagner & Co. Werzeug-Maschinenfabrik G.m.b.H. make tyre and wheel mill equipment, planing machines, presses, punches, and shearing machines. There are reported to be about 700 workers.

Concordia Elektrizitäts A.G.

Dortmund

(-)

Owned by Accumulatorenfabrik, of Berlin, these works make machines for accumulator manufacture and also underground portable lamps.

Brown Boveri & Co.

N. Dortmund

(-)

This branch of the famous firm is situated 1 mile North of Dortmund main station, and specialises in heavy electrical equipment of all kinds.

"Westfalia"

Lünen

(-)

Situated at Lünen, 7½ miles North East of Dortmund, "Westfalia" Gewerkschaft Eisenhütte make chain and rope haulage equipment.

Fr. Delzer

Dortmund

(-)

Maschinenfabrik Friedrich Delzer K.G. are producers of ventilation vans and similar equipment for mines.

Schluchtermann & Kremer-Baum A.G.

Dortmund

(3)

The firm are manufacturers of coal-cleaing and ore-dressing plant and other mining machinery, and are reported to employ some 1,600 workers.

Holstein & Kappert

(3)

Wambel Juchostr.

Situated 2 miles East of Dortmund main station, the Holstein & Kappert Maschinenfabrik Phoenix G.m.b.H. were engaged before the war on agricultural machinery and implements. There were 550 workers. They are now probably engaged on repairing A.F.Vs. Immediately adjoining to the North is a repair workshop, reported to be staffed by Fr. Krupp of Essen, and to be engaged on A.F.V. repairs.

Maschinenwerk Hermann Meier

Dortmund (-

Saarlandstr.

This small works is situated about 1 mile South of the main station and is reported to be making galvanised sheets, including corrugated sheets, and similar products.

Hammerwerk

Hammerwerk Hoesch

E. Dortmund (-)

Owned by the Hoesch steelworks concern, these hammer and press shops are situated a few hundred yards south of the main Hoesch works complex adjoining the railway.

# Chemicals and Explosives

Russwerk Dortmund G.m.b.H.

Lutgeheidestr. (3)

The firm produces carbon black from raw materials obtained from coking plants and its capacity is estimated at 3,500 tons per annum.

Vereinigte Sauerstoffwerke

N. Dortmund

of Name

Chemi

of the r

The plant is situated about 12 miles North of Dortmund at the Northern end of the harbour. The works are owned by I.G. Farbenindustrie and produce acids, oxygen etc.

Danco Wetzell & Co. A.G.

N. Dortmund

Vereinigte Asbestwerke Danco Wetzell & Co. A.G. are situated about  $1\frac{1}{2}$  miles North of Dortmund main station and East of the harbour. The works produces asbestos millboard and asbestos textiles.

#### Foodstuffs

Mühlen Werke

N. Dortmund

(-)

The Dortmunder Mühlen-Werke A.G. are located in Kanalstr. about  $1\frac{1}{2}$  miles North of Dortmund main station. There are grain stores having an estimated capacity of 35,000 tons.

DREETZ (Brandenburg)

52° 50' N. 12° 25' E: 560 miles: (1,250)

Dreetz is a small village approximately 25 miles North West of Nauen on the main line from Berlin to Hamburg.

# Chemicals and Explosives

Explosive Works.

of the main

estr. (3)

Dreetz (3)

The ownership of this factory is unknown, but its layout so exactly corresponds to the factory at Klietz that it is probably also a Dynamit plant. The factory has been constructed since the war, and was first detected by photograph reconnaissance. A single ground report has confirmed that it was virtually complete in November, 1943. The factory is about two-thirds the size of that at Klietz, and is plainly engaged on the same activities. It is situated in the Forst-Grunau, north west of Berlin.

# DRESDEN (Saxony)

51° 3' N. 13° 45' E: 600 miles: (640,000)

Dresden, the capital of Saxony, is situated on both banks of the rive Elbe, and stands at approximately 360 feet above sea level. The left bank, with the Altstadt, or old town, as nucleus is the larger of the two parts; in it are found the commercial centre, the residential area and public buildings, and some industries, mainly in its S-Suburbs. Neustadt, on the right bank, and its suburbs contain industrial centres and administration.

/In peace time

### DRESDEN (Continued)

In peace time tobacco, chocolate and confectionery manufacture played a large part in Dresden's industrial activity; there are also a large number of light engineering works and makers of machinery which are now engaged on all kinds of war production, many of which are too small to be listed individually. Several important factories are making electric motors, precision and optical instruments and chemicals.

The munitions workshops in the old arsenal occupy an extensive area to the North of Neustadt, along the railway to Klotsche, in the industrial region which extends past the aerodrome to the Dresdner Heide. In the Heide, a large heath, munitions are reported to be stored in quantities.

Dresden is an important railway centre. The main connections between South and East Germany and the direct line from Berlin to Prague and Vienna pass through Dresden whence several branch lines lead to Leipzig and other parts of industrial Saxony. The river harbour is of considerable importance to the freight traffic of the Elbe.

To the SW. of the town in the valley of the Weisseritz is the industrial town of Freital (dealt with under its own heading) and a small coal field which supplies the light industries that have been developed in Dresden.

Along the northern bank of the Elbe between Dresden and Meissen are a number of industrial settlements which are outside the municipal area of Dresden. These have been dealt with separately under the town headings Radebeul, Coswig near Dresden, and Meissen.

#### Transportation

Marshalling Yards

Friedrichstadt (2)

Rai

The western quarter of the town, South of the Elbe, is known as the Friedrichstadt. There are large railway marshalling and goods yards with considerable storage facilities. Immediately to the South of these yards and separated from them only by a few streets of houses are two subsidiary goods stations, one of which is used especially for coal traffic.

Railway Repair Shops

Friedrichstadt (2)

These repair shops, which also include a section concerned with the maintenance of locomotives, are extensive and of great importance. They are adjacent to the marshalling yards and are built along the bank of the small canalised river Weisseritz.

/Railway

Railway Repair shops

Pieschen (3)

On the northern bank of the Elbe in the suburb of Pieschen there are locomotive maintenance and repair shops and also smaller mershalling yards and a goods station between Pieschen and the railway station Dresden-Neustadt.

Inland Harbour

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Dresden (3)

The inland harbour consists mainly of one dock, the König Albert Hafen approximately 1,200 yards long and 100 yards wide, situated in a tongue of land formed by a bend in the river Elbe in the North West quarter of the city.

#### Public Utility Services

Power Station Dresden-West

Dresden (1) Wettiner Platz

Dresden-West (Dresdner Gas - Wasser-u. Elektrizitätswerke A.G.- DREWAG) is the principal power station of the Dresden Corporation and is situated in the Altstadt, South of the Wettinerstrasse Railway station.

It has an installed capacity of 64 MW.

It operates on base load, and is supplemented by the A.G. Sächsische Werke (ASW) grid through the substation Dresden-Süd, and by the Niederwartha pumpedstorage station, 6 miles distant, which can be controlled from this station. A 100 kV circuit connects with the ASW grid at Dresden-Süd substation, and cables of 20 kV with the Niederwartha station.

The station feeds a district-heating system and a converter station for supply of power to the city tramways. There are 6 turbo-generator sets, two boiler houses, and 4 indoor substations, 3 of which contain transformers, the fourth, the converter station. Local supplies are given at 10 kV 2 kV and lower voltage.

Sub-Station Dresden-Sud

Niedersedlitz (2)

Switching station (DREWAG) connects Dresden-West with the ASW grid and the Niederwartha pumped-storage station by 100 kV cables to those stations.

Power Station

Johannstadt

(3)

This subsidiary municipal power station is in the Tatzbergstrasse in the eastern quarter of the town.

Gas Works

Reick

(2)

The chief municipal gas works (DREWAG) are close to the Bahnhof Reick, a southeast suburb of the town. In 1936, 2,500 million cubic feet of gas were sold and 142,000 tons of coal were carbonized.

/Iron

### Iron, Steel & Ferro-Alloys

Metall Giesserei

Doelzschen (3) Gebrüder B

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This iron foundry, which employed some 400 workers in 1943, belongs to the König Friedrich August- Hütte A.G. whose principal activity is the manufacture of machine tools at their Karl Lieberknecht factory in Oberlungwitz.

### Aircraft and Aero Engines

M. I. A. G.

Sporbitz (3)

The Seektwerke, belonging to the M. I. A. G. Mühlenbau und Industrie A.G., are situated in Sporbitz, a district in the outlying eastern suburb of Zschachwitz. They were reported in 1943 to be engaged on the repair of aircraft and aero-engines. They have a metal foundry at Schmiedeberg, a small town 15 miles South of Dresden.

Flugzeugindustrie

Industriegelände

The Sächsische Flugzeugindustrie G.m.b.H. is believed to be making and repairing aircraft components for the Miag works at Sporbitz.

# Engineering and Armaments

Seidel & Naumann

Hamburgerstr. (2)

The Aktiengesellschaft vormals Seidel & Naumann is an important company which formerly made sewing machines. They have turned over to armament production (as was also the case with this firm in 1914) and had more than doubled the number of their workers during the four years preceding the war. Even in 1938 they were employing 6,000 workers. They make rifles and machine-guns, pistols, and various small arms components.

Universelle

Zwickauerstr. (3)

The Universelle Cigarettenmaschinen Fabrik J. & C. Müller and Co. which formerly made machines for the tobacco industry, is now engaged on armaments and is reported to employ several thousand workers. The plant is said to have been greatly enlarged, and shells up to 12 cm. calibre, components for machine guns, automatic rifles, etc. to be among the products.

Clemens Müller A. G.

Grossenhainerstr.

This firm previously made sewing machines and employed 900 workers in 1938. They are now reported to be engaged on the making of arms and arms components.

Ariston-Elka

Chemnitzerstr. (3)

Ariston-Elka Maschinenfabrik A.G. are makers of machine

/Gebrüder Bässler

Gebrüder Bässler

Zwickauerstr. (3)

This firm specialises in the manufacture of electric measuring instruments and gauges.

H. Mende

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Industriegelände (2)

The firm Radio H. Mende & Co. G.m.b.H. are important makers of radio transmitters and receivers for aircraft and ships.

Sachsenwerk Licht u. Kraft A. G.

Niedersedlitz. (2)

Apart from the manufacture of motors and generators, this company produces electro-units for locomotives, rotary convertors, transformers, high and low tension switch-gear, are-welding plant and is reported also to make electric motors for U. boats.

Scamag

Blasewitzerstr. (-)

The Scamag Sächsische Cartonnagen Maschinenfabrik A.G. are makers of all kinds of pressing and forming machines, principally for the manufacture of leather and paper packing and boxes.

Saxoniawerk

Trinitatisstr. (3)

The Saxoniawerk Paul Heuer K.G. specialise in the manufacture of gear wheels and differentials.

Curt Schoene

Rähnitz- (3) Hellerau

Makers of fire fighting equipment and vehicles. Rähnitz-Hellerau is a small garden city 5 miles

Schleifscheiben A.G.

North of Dresden.

Lohrmannstr. (1)

The Schleifscheibenfabrik Dresden-Reick A.G. are makers of abrasives of all kinds and of grinding machines. In 1939 they employed 800 workers but this factory is believed to have enlarged since 1939 and is now possibly the principal German maker of grinding wheels.

Brückner Kanis

Industrie- (2) gelände

The Turbinenfabrik B.K. & Co. are specialists in small steam turbines up to 2,00 hp. for use in "S" boats and minesweepers. They were reported in 1942 to be making Ianz steam engines and overhauling "S" boat motors. They have an important research plant for developing high-pressure and high-temperature steam installations, mainly for naval use. Some 700-800 workers are believed to be employed.

Zeiss Ikon A. G. Zeiss Ikon A. G. Zeiss Ikon A. G. Altenbergerplatz )
Schandauerstr. ) (1)
Mügelnerstr.(Reick))

The Zeiss Ikon concern has three and probably four important factories in Dresden. The Icawerk at /Schandauerstr

Schandauerstr. 72-80 (Altenbergerplatz) specialises in cameras and the Ernemannwerk at Schandauerstr. 48-50 in projection apparatus. The factory at Mügelnerstr. 40 in the suburb Dresden-Reick has a foundry for nonferrous castings and a wood- and metal-working plant. It is believed to supply tools and components required for the other works. It is reported that the factories are now so arranged that the Ernemannwerk assembles all finished articles and that the Icawerk and the Reick plant are equipped for the mass production of components. The optical glass is obtained from Jena but the Ernemannwerk cuts and polishes and is able to turn out the finest quality lenses. "U" boat periscopes and searchlight lenses are among the products of these factories. Machinery and workmen from the main Jena works have been transferred to the Dresden works which expanded their output rapidly in the years preceding the war and now employ several thousand workers. further new factory for torpedo mechanisms is reported to have been constructed during the war in the Grossenhainerstr to the North West of the city.

Elbe Werke A.G.

Mügelnerstr. (3)

Anton

J.M.

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This firm, which was formerly known as Hermann Haelbig, makes machine tools, particularly grinding machines. They are associated with the Gebler Werke of Radebeul.

Hille Werke A.G.

Otto Mohr Str. (2)

Makers of lathes, boring and grinding machines, and other machine tools. This firm expanded rapidly in the years preceding the war and were employing some 1,600 workers in 1939. They are now reported to be also making A.A. and infantry guns.

Arthur Hecker

Ludwig Hartmann Str. (3)

The Arthur Hecker Asbest und Gummiwerke are reported to be making 20.0 of Germany's requirements of brake and clutch linings, webbing and friction and fibre jointing material, and special lining for propellor shafts. These important producers and the firm of Kirchbach in Coswig bei Dresden, are reported between them to account for more than half the total output of these products.

Postlerit Werke

Zschachwitz (-)

The Chemische Werke A.G. (Postlerit Werke) are specialists in asbestos and rubber washers and associated products. Their works, which employed some 200 workers before the war, are in the South East suburb of Zschachwitz.

Gebrüder Bühler G.m.b.H.

Industriegelände (3)

This firm has a large works producing machinery for flour mills and grain silos, and for the sugar, chocolate, chemical and soap industries.

Koch & Sterzel A.G.

Zwickauerstr. (2)

This firmincreased its activity shortly before the

war and in 1939 was employing some 2,000 workers. The products are electrical instruments for industrial, technical and medical apparatus. They are also makers of X-ray apparatus.

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Bambergerstr. (3)

The previous products of this firm are moulds and metal packings for the chocolate industry. In peace time they employed approximately 1,000 workers.

J.M. Lehmann

Freibergerstr. (3)

This firm previously made machinery and apparatus for the chocolate, soap, and dyeing industries. They are now reported to be producing A.A. and field guns.

Klauber & Simon

Industriegelände(3)

Klauber & Simon (H. Rasemann and P.G.H. Gaedeke) also known as the Infestowerk, are important makers of piston rings and gudgeon pins. They were reported in 1942 to be carrying out large orders for reconditioned motor cars.

Ship Building

Uebigau Werft G. m. b. H.

inland harbour.

Uebigau (3)

The Uebigau Werft G.m.b.H. builds river oraft, dredgers, tank landing and assault craft and tug-boats. Their yards are on the North bank of the Elbe opposite the Dresden

Chemicals and Explosives

Gehe & Co. A. G.

Leipzigerstr. (3)

This firm, which manufactures pharmaceuticals and drugs, employed some 700 workers before the war. It has been reported to be producing poison gas.

Serumwerk

Zirkus Str. (3)

The Sächsisches Serumwerk A.G. has laboratories for the production of all kinds of serums and vaccines. They also make insulin.

Lingner Werke A. G.

Nossenerstr. (-)

This is the parent factory of this concern and makes a wide range of disinfectants and chemical products including the well-known Odol mouthwash. F.H. Pötzsch

Ziegelstr.

Max Elb A.G.

Tharandterstr.)

August Leonhardi A.G.

Bahnhofstr.

The above are three of the many smaller chemical factories in Dresden making various pharmaceuticals, varnishes, inks, and cleansing materials.

#### Food Stuffs

Flour Mills

Doelzschen

The König Friedrich August Mühlenwerke A.G. has two large flour mills situated in the two adjoining southern suburbs of Dresden, Doelzschen and Koschütz.

Hartwig & Vogel A.G.

Rosenstr.

(-)

(-)

A large firm making chocolate, cocoa, and coffeesubstitute.

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### DUDWEILER (Saar)

49° 15' N. 7° E:

350 miles:

(26,000)

Dudweiler is five miles North East of Saarbrucken. Its main activities are connected with the important coal mines mentioned below.

#### Solid Fuels.

Coal Mine

Dudweiler

(3)

The Steinkohlen Bergwerk Dudweiler in 1936 produced 1,600,000 tons of coal. are 5 pit-heads.

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JNIVERSITÄTS BIBLIOTHEK

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### DUISBURG

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300 miles:

(437,600)

The area covered lies in the Western extremity of the industrial district of the Ruhr.

It is traversed from South to North by the Rhine, on the West of which is flat lightly-wooded country with scattered villages and small towns, lying at the general level of 75 to 100 feet above sea level. On the East of the Rhine the country is much more thickly populated and rises eastwards to about 200 feet, except in the gap through which run the River Ruhr and the Rhine-Herne canal. To the North and South are extensive forests.

Duisburg is by far the largest town in this district with a population of nearly 440,000 (including Hamborn). It lies on both sides of the mouth of the river Ruhr and includes the townships of Ruhrort, Hamborn, Wanheimerort, Huckingen, Rheinhausen, Wedau, Grossenbaum and Dinslaken.

Duisburg owes its industrial importance and prosperity to the presence, in its immediate vicinity, of hard coal in very considerable quantities. This has accounted for the development of iron and steel, heavy engineering, and other industries and brought about the necessity for construction and repeated expansion of the Duisburg-Ruhrort Harbour situated at the mouth of the river Ruhr.

Duisburg's situation at the confluences of the rivers Rhine and Ruhr and in the centre of the western concentration of the Ruhr industrial area gives it great importance from the point of view of transportation. Its main claim to fame is that it is here more than anywhere else in the Ruhr or Rhineland that the transfer of goods from rail to water or water to rail takes place, and it is this factor that has made Duisburg the greatest inland waterway harbour in Europe.

The railway network at Duisburg has been constructed primarily to provide ample facilities to deal with the rail traffic originating from, or destined for the waterways; this function is fulfilled by the extensive marshalling yards at Ruhrort Hafen Neu Schultenhof, which handled about 14 million tons of traffic annually before the war. A second - and scarcely less important - function of the system is to accommodate the North-South and the West-East flow of land traffic; this is achieved by the marshalling yards at Duisburg main station, and, amongst others, those at Oberhausen West in the North-East (see under "Oberhausen"), at Wedau to the South-East, and at Hohenbudberg on the left bank of the river Rhine (see under "Uerdingen").

In addition, Duisburg lies on the Rhine-Herne Canal, which leaves the Rhine at this point and joins the Dortmund-Ems Canal near Datteln and thus links Duisburg by waterway with the North Sea at Emden and the Mittelland Canal at Bevergern. There are two harbours to deal with the waterborne traffic, which consists in the main of coal, coke, and finished iron and steel goods (outwards): iron-ore, grain and timber (inwards); the harbours are also important for storage reasons.

There are no particularly important electrical power plants in this area. The Town Power Station has a capacity not exceeding 50 MW and is connected to the main R.W.E. grid system through Brauweiler.

The Town Gasworks are adjacent to the Power Station.

The principal industries are mining, the conversion of coal into coke, gas and the usual by-products, iron and steel manufacture, and heavy engineering. The coal and iron and steel industry is almost entirely in the hands of Vereinigte Stahlwerke A.G. and its subsidiary companies, the Gelsenkirchener Bergwerke A.G. which operates some of the largest pits and coke ovens, the August Thyssen Hutte A.G. which operates four great blast furnace plants, the Deutsche Eisenwerk A.G. which is responsible for blast furnaces at Hamborn, the Deutsche Röhrenwerk A.G. and Bandeisenwalzwerke A.G. (which controls the rolling mills at Dinslaken) and the Eisenwerk Wanheim G.m.b.H.

These mimerous and highly important industrial plants are spread over an extensive area stretching from the South West mainly along the East bank of the Rhine to Dinslaken in the North and extending East to the boundaries with Oberhausen and Mulheim.

#### Transportation

Inland Port

Duisburg-Ruhrort (1)

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The inland port is the largest in Europe and The harbour covers an area of 632 hectares. forms the intermediary between railways and waterways, its primary activity being the dispatch of a large portion of the output of the Westphalian coal fields. There are numerous ore depots, and the harbour also handles grain. By its position Duisburg-Ruhrort has become a natural junction for the Lower Rhine and Westphalian railways. The port lies at the mouth of the River Ruhr, which is navigable for large craft to approximately 1 mile above Mulheim, and by smaller The Duisburg-Ruhrort barges as far as Witten. harbour is also the terminus of the Rhine-Herne The volume of goods handled in 1938 amounted to approximately 14,700,000 tons (inwards) and 16,500,000 tons (outwards).

Marshalling Yard

Wedau (2)

The Northern end is about  $2\frac{1}{2}$  miles South South East of Duisburg station, then the yards extend South South East for a distance of approximately  $1\frac{1}{2}$  miles, its capacity is estimated at 7,200 wagons per 24 hours.

Twin locks, lst set

Ruhrort

(3)

The first set of twin locks on the Rhine-Herne canal are situated South of Ruhrort harbour 11/4 miles North North East of Duisburg station.

Railway Workshops

Wedau

(3)

The Reichsbahnausbesserungswerke are situated 2 miles South South East of Duisburg main station and are engaged on the repair of goods wagons. There were 1,400 workers employed in 1937 but this number is now believed to be considerably higher, possibly 3,000s

Railway Junctions Duisburg (3) f coal into These junctions are located about 2 miles North oture, and East of the main station, and include the group is almost of five railway bridges over the Schiffahrtskanal s subsidiary a further 1 mile to the North East. es some of A. G. which Marshalling yard Duisburg-Hafen enwerk A.G. Neu Schultenhof (2) utsche s the rolling These yards extend 3 miles in length East to West and are situated 2 miles North of Duisburg main station, their capacity is are spread estimated at 5,000 wagons per 24 hours. ly along xtending Marshalling yard Duisburg main station (3) The yards have an estimated capacity of 3,600 wagons per 24 hours, and lie to the East of the passenger station and are about rort (1) 1½ miles in length. Railway Workshops Hamborn (3) Owned by Vereinigte Stahlwerke A. G. the shops are situated 33 miles North North West of Duisburg main station. Public Utility Services Pumping station Beeckerwerth (3) Situated 5 miles North West of Duisburg main station, about 4 mile from the bank of the These works drain 3,214 hectares on which stand many large and important industrial concerns. Pumping station Schmidthorst (-) (2) Situated 5 miles North of Duisburg main station, the pumping station drains 469 hectares of the surrounding district. Pumping station (-) Schwelzern Situated 53 miles North of Duisburg main railway station and 11 East North East of (3) Schmidshorst pumping station. These works drain 348 hectares of the surrounding district. Town Power Station (3) Duisburg Situated 1 mile West of Duisburg main

station. The Municipal power station has a capacity of 35 MW. The town gasworks adjoin to the South East. Power is also drawn from the R.W.E. 220 kV system via a sub-station on the West bank of the Rhine.

(3)

Town Gasworks

Duisburg

(3)

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1 mile West of Duisburg main station and immediately South East of the town power station, the Municipal gasworks produced 850 million cubic feet in 1936 and bought a further 6 million cubic feet from the Thyssensache Gas-und Wasserwerke system.

A. Thyssen Hutte Power Station

Hamborn-Alsum

(2)

This power station is part of, and located in the centre of the August Thyssen Hutte steelworks,  $4\frac{1}{2}$  miles North West of Duisburg main station. It is of the thermal type and its capacity is believed to be 80 MW., derived from 20 gas-driven generators and 4 steam-turbine driven generators.

Thyssensche Gas-und Wasserwerke G. m. b. H.

Hamborn

(2)

The works are situated  $3\frac{3}{4}$  miles North of Duisburg main station. Long distance gas is made for supply to 29 localities and 2 companies, and in addition surplus gas is treated from 4 important coking plants. The works has an annual gas capacity estimated at 239,232,000 cubic metres.

Niederrheinische Gas- und Wasserwerke G. m. b. H.

Duisburg-Hamborn

(3)

These gasworks are reported to have sold 167 million feet of gas in 1936, drawn from the Ruhr Gas grid.

Fr. Alfred Hutte power station

Rheinhausen

(3)

The power station is situated within the steelworks complex and is owned by Fr.

Krupp A.G. Generating sets include a 35 MW set, and the total capacity is now believed to be 47 MW. (See also under "Iron and Steel".)

Hutte Ruhrort-Meiderich

power station

Ruhrort-Meiderich (3)

The station is situated  $2\frac{1}{2}$  miles North West of Duisburg main station at the steel-works (see under "Iron and Steel"). There are really two separate stations for A.C. and D.C., and the capacity is believed to be 32 MW.

Hüttenbetrieb Meiderich power station

Meiderich

(3)

Situated at the steelworks of the same name,  $3\frac{1}{2}$  miles North of Duisburg main station. The capacity was 21 MW in 1926 and is now believed to be 28 MW. (See also under "Iron and Steel".)

Heinrich Bierwes power station

Huckingen

(3)

The station is owned by Mannesmannröhren-Werke A.G. and supplies the adjoining steelworks. There are three generators (10, 5 and 1 MW) having a capacity of 16 MW. Surplus power is delivered to the grid.

Kupferhütte power station

Hochfeld

(3)

The power station is situated within the Duisburger Kupferhutte comples (see under "Non-ferrous metals" and also under "Chemicals"). Installed capacity was 5 MW but this was increased by a 12 MW generator set in 1938; the present capacity is therefore 17 MW.

Thyssen power station

Dinslaken

(3)

This reserve power station is situated at Bandeisenwalzwerke at Dinslaken (see under "Iron and Steel") for which power is normally obtained from the main Thyssen works at Hamborn. Its capacity is believed to be 19 MW.

#### Solid Fuels

mborn (j)

erich (j)

(3)

Friederich Alfred Hutte Coking Plant

Rheinhausen

(3)

Situated at the steelworks on the Western bank of the Rhine, the coking plant now consists of two batteries with a total of 115 ovens with an annual estimated dry-coal capacity of 540,000 tons. The third battery has been dismantled. The works includes a by-product plant recovering the usual full range of products. Surplus gas is supplied to the Municipality. (See also under "Iron and Steel".)

Neumihl Coking Plant

Hamborn

(3)

The Gewerkschaft Neumihl coking plant is located at the Deutsche Kaiser colliery  $4\frac{1}{2}$  miles North East of Duisburg station. There are 97 ovens with an estimated annual dry coal capacity of 460,000 tons. Gas is supplied to the Ruhrgas grid.

Bruckhausen Coking Plant

Hamborn

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Owned by Gelsenkirchener Bergwerks A.G. the coke-oven plant is situated at Fr. Thyssen colliery, Pit 3/7 (see Beecker-werth Colliery), 42 miles North West of Duisburg. There are 345 ovens with an annual estimated dry-coal capacity of 1,870,000 tons. The plant takes power and waste gas from August Thyssen Hutte, and supplies gas to the Ruhrgas grid.
There is a by-products plant. The plant is reported to employ 400 workers and is the third largest in Germany.

Meiderich Coking Plant

Hamborn

(2)

Owned by Gelsenkirchener Bergwerks A. G., the coke-oven plant is situated at Fr.
Thyssen colliery, Pit 4/8, 3½ miles North of Duisburg main station. There are 386 ovens in 6 batteries with an estimated drycoal capacity of 1,720,000 tons. supplied to the Ruhr gas grid.

Hutte Vulkan Coking Plant

Duisburg

(3)

These coke ovens are part of the Vulkan steelworks complex, and are situated on the East bank of the river Rhine about 2 miles West of Duisburg main station. The plant comprises 52 ovens having an annual capacity of 140,000 tons of coal. (See also under "Iron and Steel".)

Phoenix-Westende/

Phoenix-Westende coking plant

Ruhrort-Meiderich

This coking plant is owned by Gelsenkirchener Bergwerks A.G. It is situated to the North of and immediately adjoining the Hütte Ruhrort-Meiderich steel works and lies 3 m North West of Duiburg main station.

There are two parts of the plant, 3 mile apart; the modern plant (Phoenix) originally comprised 58 Collin ovens built in 1925 and 70 ovens built The 58 ovens were rebuilt by Koppers in 1939. 3 mile East of the modern plant lies the old (Rheinstahl) plant originally comprising 130 waste heat ovens, which were converted to regenerative ovens in the '20s. These two plants now operate together and the combined annual capacity of dry coal is now estimated at 720,000 tons.

Neumuhl Colliery

(3)

Owned by Gerwerkschaft Neumähl the colliery is located 42 miles North East of Duisburg main The output of hard coal in 1937 amounted to 1,390,000 tons.

Beeckerwerth Colliery

Duisburg-Ruhrort

Owned by Gelsenkirchener Bergwerks A.G. the colliery is situated 5 miles North West of Duisburg main station. Combined with Fr. Thyssen Colliery, pits 3/7, the output in 1937 was 1,262,000 tons of hard coal, and 2,000 workers were then employed,

Lohberg Colliery

Dinslaken

(3)

Owned by Gelsenkirchener Bergwerks A.G., the mine is located North East of Dinslaken station. In 1937 the output of hard coal was 1,290,000 tons and there were then 1,800 workers.

Fr. Thyssen Colliery, Pit 2/5

N.W. Hamborn

(3)

Owned by Gelsenkirchener Bergwerks A.G., the colliery is situated North West of Hamborn near the Emscher canal. In 1937 the colliery produced 1,920,000 tons of hard coal.

Liquid Fuels and Substitutes/

#### Liquid Fuels and Substitutes

#### Teerverwertung

Meiderich

(1)

The Gesellschaft fur Teerverwertung m.b.h. plant is situated 3 miles North North West of Duisburg main station, and is reported to process a quarter of tar distilled in Germany. Semi-finished products are collected here and refined, and its pre-war throughput was 500,000 tons of crude tar per annum. It is also believed that several kinds of carbon electrodes are produced.

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The plant is situated 21 miles South West of Duisburg main station on the corner of Forst Strasse near the Sud-Hafen. Before the war this plant was known to have an annual throughput of about 100,000 tons of

### Iron and Steel

### Friedrich Alfred Hütte

Rheinhausen

(1+)

(3)

Owned by Fr. Krupp A.G., the works are situated on the western bank of the Rhine, 3 miles South South West of Duisburg main station, between the river and main Krefeld-Duisburg line. The works includes 10 blast furnaces having an estimated annual capacity of 1,700,000 tons of pig iron and 6 basic Bessemer Converters and 9 open-hearth furnaces having an estimated annual capacity of 1,300,000 tons of crude The 14 rolling mills are capable of absorbing the whole of the steel output. Finished products cover the usual wide range. The company's private harbour is nearly 3/4 mile in length and their private power station has a capacity of 47 MW. (See under "Public Utilities"). About 12,000 workers are The works were being extended in 1943. employed.

### August Thyssen Hutte

Hamborn-Alsum (1+)

Owned by the August Thyssen Hutte A.G. group of Vereinigte Stahlwerke A.G., the Steelworks are situated  $4\frac{1}{2}$  miles north west of Duisburg main station. There are 8 blast furnaces with an estimated capacity of 1,700,000 tons of pig-iron per annum; and 7 basic Bessemer and 4 open-hearth furnaces, with an estimated annual capacity of 2,000,000 tons of crude steel. Electric steel is also made. The plant has rolling mills capable of absorbing the whole of its steel output; the finished products cover the normal extensive range. Waste blast-furnace gas is supplied to the adjoining Bruckhausen coking plant (see under "Solid. The company's private power station Fuels").

# August Thyssen Hitte (Contd)

(see under "Public Utilities) is situated in the centre of the works complex, and the Thyssen pumping station (also under "Public Utilities") is situated 1 mile east of the works. 26,500 workers are ebelieved to be employed.

#### Hitte Ruhrort-Meiderich

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Ruhrort-Meiderich (3

Owned by the August Thyssen Hitte A.G. group of Vereinigte Stahlwerke A.G., these works are situated  $2\frac{1}{2}$  miles north-west of Duisburg main station. There are 8 blast furnaces having an estimated annual capacity of 1,000,000 tons of pig-iron; and 10 basic Bessemer converters and 11 open-hearth furnaces with an estimated capacity of 1,600,000 tons of crude steel. The rolling mills can absorb the whole of the steel output and the normal range of finished products are manufactured.

For details of the coking plant see "Phoenix-Westende" (under "Solid Fuels"). The works has its own power station (see under "Public Utilities"). Some 10,000 workers are reported to be employed.

# Huttenbetrieb-Meiderich

Meiderich

(3)

Owned by the August Thyssen group of Vereinigte Stahlwerke A.G. The steel works are situated 3½ miles north of Duisburg main station. There are blast furnaces, with an estimated annual capacity of 500,000 tons of pig-iron. Special products are ferro-alloys and rollers. The works has its own power station (see under "Public Utilities") 2,300 workers are reported to be employed.

#### Heinrich Bierwes Hutte

Huckingen

(1)

Located on the Eastern bank of the Rhine 4½ miles south-west of Duisburg main station, these works are owned by Mannesmannröhren Werke A.G. There are 4 blast furnaces with an estimated annual capacity of 750,000 tons of pig-iron; and 4 basic Bessemer converters and 6 open-hearth furnaces having a capacity of approximately 900,000 tons of crude steel per annum. Electric steel is also produced. The works specialises in tubes for aircraft construction, gun barrels and mine bodies, but the normal range of products is also covered. There are approximately 11,000 workers. The works has its own power station. (see under "Public Utilities").

Hutte Vulkan

Hochfeld

(3)

MISBURG

Hon-Pe

These iron works are situated on the eastern bank of the Rhine, 2 miles west south-west of Duisburg main station, and are owned by the August Thyssen Hütte A.G. group of Vereinigte Stahlwerke A.G. There are 3 blast furnaces with an estimated annual capacity of 200,000 tons of pig-iron. Ferro-alloys are 5,500 hands are the firm's special product. reported to be employed.

Niederrheinische Hätte

Hochfeld-Std

(2)

Owned by the August Thyssen Hütte A.G. group of Vereinigte Stahlwerke A.G., the iron and steelworks are situated on the eastern bank of the Rhine 2 miles south west of Duisburg main station. There are 4 blast furnaces with an estimated annual capacity of 300,000 tons of pig-iron , and 7 open hearth furnaces with an estimated annual capacity of 300,000 tons of crude steel. The rolling mills are capable of handling the whole of the steel The finished products cover the output. The firm is believed to employ normal range. 8,500 workers.

Bandeisenwalzwerke A.G.

Dinslaken

(1)

Formerly known as "Werke Thyssen". rolling mill plant is now owned by the title firm, a subsidiary of Vereinigte Stahlwerke A.G. The works are situated 9 miles North of Duisburg main station and adjoin the railway immediately south east of Dinslaken station. There is a large continuous strip-rolling mill, one of the only two known to exist in Germany, the other being in the Hoesch steelworks at Dortmund.

In addition to the products of the above mill (strips, tubes, etc.) the works produce steel cylinders, sections, pipe fittings, hoop iron,

The capacity of the cold mills is estimated at 100,000 tons per annum, and that of the hot mills at 200,000 per annum. There are reported to be 2,500 workers. The works has its own power station (see under "Public Utilities").

# DUISBURG (Contd)

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Stahl- und Walzwerke Grossenbaum A.G.

Huckingen (3)

Formerly the Hahnsche Werke A.G., the works are now owned by Mannesmannrohren- Werke A.G. They are situated 4 miles south of Duisburg main station on the main railway line to Dusseldorf. There are 5 open-hearth furnaces having an estimated annual capacity of 160,000 tons of crude steel per annum. The firm produces equipment for iron and steelworks etc., and also tubes, in addition to the usual range of products.

## Non-ferrous Metals

Duisburger Kupferhütte

Hochfeld

(2)

Situated 12 miles South West of Duisburg main station, the works are owned by I.G. Farbenindustrie and sometimes referred to by that name. The works are engaged on copper smelting (but there is no refinery) and leaching of pyrites cinders; it is estimated to produce 10,000 tons of copper anodes per annum. High-grade zinc alloys are also produced. The company also does mickel smelting and formerly treated the Bou Azzer mickel-cobalt ores. The productive capacity is estimated to be in the region of 1,000 tons of nickel metal per annum. The works has its own power station (see under "Public Utilities").

Berzelius

Wanheim

(2)

"Berzelius" Metallhätten G.m.b.H. works are situated on the East bank of the Rhine, 4 miles South South West of Duisburg main station, and the firm is a subsidiary of Metallgesellschaft A.G. (Frankfurt a.M.). The zinc distillation plant has 11 furnaces of 216 retorts each; 10 of these furnaces are usually working. Zinc capacity is estimated at 33,000 tons per anmm. There is also a redistillation plant which had 5 furnaces in 1939 and which then produced 13,000 tons of high-grade zinc. The re-distillation plant was enlarged, possibly to double its size, in 1939. Residues are despatched to the "Berzelius" plant at Branbach - the Blei und Silberhütte Braubach G.m.b.H. The plant also produces lead and the current capacity of 3,600 tons per annum is estimated from the 2,500 tons output in 1929. The works also produces silver, tin, and carries out wobalt-refiming and zino die-casting. 1,700 workers are reported to be engaged in all the various activities of the works. (see also under "Chemicals"). V.D.M. (Heckmann)

Hochfeld

(3)

This, the C. Heckmann branch of Vereinigte Deutsche Metallwerke A.G., is situated 12 miles South West of Duisburg main station. The works, consisting of brass and copper rolling mills, were the third largest producers of rolled copper and copper alloy. There are blast furnaces for treating scrap, slag and residues, and fire refiming furnaces for copper with an estimated annual capacity of 30,000 tons.

A.G. für Zinkindustrie

Hamborn

(3)

Formerly W. Grillo, this firm are smelters and fabricators of zinc and are situated 3 miles North of Duisburg main station; current metal output is believed to be in the neighbour-hood of its capacity, namely 6,000 tons. The plant also produces zinc alloys, semis, wire, seamless tubes, zinc white, zinc wire, etc. (See also under "Chemicals and Explosives").

#### Engineering and Armaments

Demag (Works I)

Hochfeld

(1)

Beald

G, Ro

Bach

Kabel

Biser

These works lie on the South bank of the Aussen Hafen, 1 mile West of Duisburg main station. Demag are one of the leading manufacturers of rolling mill equipment, hydraulic forges and presses and hammers, blast- and open-hearth furnaces, converters, electric furnaces; also of mining equipment, excavators, coal cutters, pneumatic tools, conveyors, shaft winding equipment, compressed air locomotives, pumps, compressors, steam turbines; also gas engines, heavy industrial elevators, cableways and cranes. Armaments such as gun barrels, heavy mountings, and hydraulic equipment for guns are also produced.

Demag (Works II)

(2)

The works are situated on the eastern bank of the Rhine, about  $\frac{1}{2}$  mile South West of Works I,  $1\frac{3}{4}$  miles South West of Duisburg main station. The works are producing mainly structural steel, but probably now also many of the items enumerated under Work I (above).

Esch Werke

(3)

(1)

Wanheimorort (3)

The Esch-Werke Maschinenfabrik und Eisengiesserei K.G. works is situated  $1\frac{1}{2}$  miles South South West of Duisburg main station. The products of the works include rolling-mill equipment, roller beds, manipulators and other steel works equipment; also coal-cleaning and ore dressing plant and other mining equipment.

Kabelwerk Duisburg

Wanheimerort (3)

Situated 2 miles South West of Duisburg main station on the eastern bank of the river Rhine opposite Friedrich Alfred Hütte. The works produces rubber-insulated cables and other types of cables and explosives.

Eisenwerk Wanheim G.m.b.H.

Wahheim

(3)

Owned by Vereinigte Stahlwerke A.G., the works are situated on the east bank of the river Rhine,  $\mathbb{Z}_4^3$  miles South south west of Duisburg main station. The products are shell, bomb and grenade cases, crankshafts, etc.

Ewald Berninghaus

Hochfeld

(3)

Situated 1 miles West of Duisburg main station on the Aussen Hafen, the works is believed to be building ship's boilers.

G. Rubbert

Hochfeld

(3)

Situated just under 1 mile West of Duisburg main station, to the East of E. Berninghaus. The firm makes machine tools particularly lathes and grinding machines.

A. Theisen

Duisburg

(3)

The works of A. Theisen, Fabrikation Gummiisolierter Leitung are located at Hansastrasse, about 400 yards North-East of the main station. It is one of the smaller manufacturers of rubber-insulated cable and wire.

# Chemicals and Explosives

Chemische Fabrik Curtius A.G.

Wanheim

(2)

Situated 24 miles South West of Duisburg main station, this company has an annual capacity for 100% sulphuric acid of 130,000 tons, which is probably produced by the contact process, and is one of the chief consumers of pyrites.

Henkel & Cie. G.m.b.H.

Hochfeld (3)

Formerly E. Matthes und Weber A.G. The plant is situated 12 miles West of Duisburg main station, on the Southern sideof the Aussen Hafen. This plant makes the majority of the chemicals consumed by the Henkel company at Dusseldorf-Reisholz and elsewhere in Cermany. There is another branch at Duisburg proper whose products are belived to be some of those listed above.

A.G. fur Zinkindustrie

Hamborn

(3)

Formerly W. Grillo, the plant is situated 3 miles North of Duisburg main station, and has an annual capacity of 8,500 tons of 100% sulphuric acid and 7,000 tons of sulphur trioxider (95% recovert). Previously used the lead chamber process but is now believed to use the contact process. (See also under "Non-ferrous Metals").

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# DÜLKEN (Rhineland)

51° 15'N 6° 20' E:

280 miles:

(16,000)

Apart from a few small textile works, Dulken has no industry of importance. The town is situated six miles North West of München-Gladbach.

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# D W R E N (Rhineland)

50° 50° No 6° 30° E:

290 miles:

(46,000)

Situated 15 miles East of Aachen, Düren has, in addition to the important works mentioned below, a variety of small industries including paper products and cardboard boxes, several small engineering works, and a sugar factory. It is a railway centre of some importance to the lower Rhine district.

#### Transportation

reld (3)

iles

Railway Junction

Düren

(3)

The main line from Aachen divides at Duren into three branches leading into Dusseldorf, Cologne and Euskirchen respectively. Two other less important branches lead north and south from the town.

# Public Utility Services

Stadtisches Gas Werk

Duren

(3)

In 1936 this municipal gas works sold 116 million cubic feet of gas.

# Non-Ferrous Metal Manufacture and Fabrication

Durener Metallwerke

Duren

(1)

Situated in the North East outskirts of the town the Dürener Metallwerke A.G. is a large works which expanded rapidly in the five years before the war and in 1939 employed more than 4,000 workers in its works at Düren, Berlin-Borsigwalde, Berlin-Wittenau and Waren. A wide variety of non-ferrous metal products are made of duralumin, phosphor bronze, and copper alloy, particularly sheet, rectangles, pressed and drawn sections and rods, seamless drawn tubes, rolled and drawn wire, forgings, shaped articles, etc. The Dürener Metallwerke at Düren is one of the largest works of its kind in Germany and it is believed to produce approximately 7,000 tons of sheet per year.

Carl Canzler

Duren

(3)

Dynami

This firm manufactures apparatus chiefly of non-ferrous metals, for the chemical industry. They produce a special form of patented copper wire known as Canzlerdraht.

----COO-----

# DÜNEBERG-KRÜMMEL

(Schleswig-Holstein)

53° 27' No 10° 22' E:

468 miles:

(8,500)

The villages of Duneberg and Krummel lie to the North West and South East respectively of the small town Geesthacht (population 8,500). Both villages are of industrial importance on account of the two large works of the Dynamit A. -G. which are situated there.

# Chemicals and Explosives

Dynamit A. -G.

Duneberg

(1)

This factory is operated by Dynamit A.G., and is quite near the Krummel factory, with which it is associated. In the last war the Duneberg factory was Germany's largest producer of nitrocellulose and nitroglycerine. Most of this production was sent to the Krummel factory for the manufacture of powder. There has been very little ground information on the activities of this plant during the present war, and there is Such reports as have been received no air cover. suggest that it has attained at least its former activity, and it is probable that it bears the same relation to the Krummel plant as formerly. On this basis it may be assumed that the nitrocellulose production is upwards of 36,000 tons per annum, but it would be difficult to guess the nitroglycerine or diglycoldinitrate production, since it is unlikely that Germany will have concentrated her production of this class of explosive to so great a degree as in the last war, and at least one new factory engaged in this production has been identified.

/Dynamit A.G.

Dynamit A -G.

(3)

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e on

Krümmel (1)

This factory is operated by Dynamit A.G., and during the last war was the largest propellant powder factory in Germany, accounting for nearly one-third of the total German output of cordite, and also accounting for about 10 per cent. of the total German production of Nitrocellulose. In the peace years this factory was allowed to continue operations, manufacturing small quantities of nitroglycerine (probably for mining explosives); it also introduced, strangely enough, the production of T.N.T. on a small scale (a little over 1,000 tons a year), and engaged in the production of nitrocellulose for celluloid and synthetic fibre production.

There is very little information regarding the activities of the Krümmel factory in the present war, but it is clear that a very large labour force is now employed. Apart, however, from a report that its nitroglycerine or diglycol dinitrate production approaches 5,000 tons per annum, which is roughly the same as the production in the last war, there is little information as to its output. On the basis of the nitroglycerine or diglycoldinitrate output, it seems likely that this factory has achieved at least its last war importance, and may have considerably exceeded it. This would indicate a nitrocellulose output of about 20,000 tons a year. The factory lies on the banks of the Elbe, east of the village of Geesthacht. There is also probably a large propellant powder plant on this site.

# DÜSSELDORF (RHINELAND)

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The area covered here lies on both sides of the river Rhine to the south-west of the Ruhr district. It includes the city of Düsseldorf with its main suburbs of Derendorf, Oberbilk and Unterbilk, Lierenfeld and Flingern and the townships of Rath, Ratingen, Gerresheim, Erkrath, Reisholz, Benrath, Nievenheim (including Stürzelberg) Heerdt (including Niederkassel and Oberkassel) and Lohausen (including Stockum). The city of Neuss on the western bank of the Rhine is to be found under its own heading and is not included in Düsseldorf. The total population for this area is 559,000 (1940).

The city of Düsseldorf has a population of 528,000 (1940) and is the leading commercial city of western Germany. Situated on the eastern bank of the Rhine, it has exceptionally good transport facilities both by river and rail. It is furthermore Germany's third largest inland port, and therefore of particular importance as a transport centre. During and after the last war, Düsseldorf developed considerably and so far as the production of armaments and general engineering is concerned, it is as important as Essen or Duisburg. In addition Düsseldorf is the seat of the General Administrative Departments of practically all the important iron and steel, heavy engineering, and armament concerns in Rhine and Ruhr districts.

The distribution of industry in the Düsseldorf area may be said to lie in 4 main areas:-

- i) The eastern and southern part of the city proper. This is a highly concentrated area containing large engineering works, machine tool makers, wire-drawing plant, and the municipal gas and electricity works.
- ii) The northern suburb of Derendorf and townships of Rath and Ratingen. Here are to be found extensive marshalling yards and highly important armament manufacturers.
- iii) The harbour area on the Rhine to the southwest of the city with docks, storage and engineering firms.
- iv) South of Düsseldorf at Reisholz and Benrath. Engineering and chemical works, oil refinery and storage, electricity works, electric resistance wire works, lead and zinc fabricators are all grouped in this area which extends in a south-westerly and north-easterly direction and embraces the townships of Nievenheim and Erkrath.

#### Transportation

Railway Marshalling Yards.

Derendorf (3)

These important marshalling yards lie to the Northeast of the city approx, one mile north to the main passenger station. These yards have a capacity of 2,100 wagons per 24 hours.

Railway sidings.

Rath

(3)

North east of the Derendorf marshalling yards, is a large group of railway sidings. No further details are available.

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Dusseldorf (-)

Directly south of the Düsseldorf harbour is the second of the only two 4-track railway bridges across the Rhine, the other being at Cologne.

Dusseldorf Hafen.

Unterbilk (3)

This extensive port lies on the southern bank of a bend in the River Rhine 2 miles west of the main railway station It is mainly a harbour for piece goods, having in 1938 large warehouses, 49 electric oranes (capacity between 1.5 and 5 tons and one of 25 tons) and a large loading bridge. 82 shipping and forwarding firms are to be found within the harbour area, also 8 locomotives and 97 goods wagons owned by the harbour railway authority. The total turnover of Düsseldorf harbour in 1938 was 2,114,000 tons inwards and 954,000 tons outwards.

Reisholzkai.

Benrath

(-)

This is a large handling quay with 8 cranes and 1,150 m of quayage. It lies on the northern bank of a bend in the River Rhine approx. 5 miles south-east of the main railway station,

Heerdthafen.

Heerdt

(-)

Situated at the mouth of the Erft canal on the western bank of the River Rhine approx. 3 miles west of the main railway station, this harbour had, in 1938 large storage areas and warehouses, 3 travelling cranes each of 4 ton capacity, one of 5 ton capacity, and 2 each of 5 and 6 ton capacities, 2 port locomotives and 400 m. of quayage.

Public Utility.

Städtische Elektrizitätswerke.

Flingern (2)

The Dusseldorf City Power Station consists of two generating stations sometimes known as Flingern I and Flingern II stations. They are situated on the same site and separated only by the common coal storage ground, and by a group of 6 cooling towers.

Of the 9 Turbo generator sets installed before 1938 it is known that 4 are in station I and 5 in Station II. The two most recently installed sets may have replaced two older sets of smaller capacity.

It is believed that a convertor or rectifier station is attached to station I to supply D. C. to the central part of Düsseldorf.

There is a common 5/25 kV A.C. substation for both stations.

A. C. supplies are given at 5 kV and 25 kV. D. C. supplies are given at 600 volts - probably for traction - and at low voltages, for the D.C. network of the central part of the city.

It is believed that the station is connected by 25 ky cables to the Lierenfeld 110 ky substation in the South, and to the Rath 110 kV substation in the North of Düsseldorf. Both of these substations are connected to the 110 kV grid of the R.W. E. company.

There are no long distance supplies.

The installed capacity is 118 MW.

Bergisches Elektrizitätswerk m. b. H.

Reisholz. (1) Liquid Pu

Iron & St

Rher

This station operates on base load and supplies are given to the nearby industrial area of Dusseldorf as well as to the high voltage grid of the R.W.E.

An oil refinery owned by the Phenania Ossagcompany adjoins the station and a small chemical plant, possibly for hydrogen production, is situated among the station buildings. These two plants are probably large consumers of the electrical output of the station.

In 1938 the existing turbo-generator sets had a total capacity of 75 MW. It is believed that there were two or three units with a total capacity of 15 MW and three or four units with a capacity of 15-20 MW each. In 1939 two additional sets each of 20 MW capacity were installed by the A.E.G. The machine house is at present being further extended and it is possible that more generating plant is being installed. (Total installed caapcity 115 MW.)

There is an indoor substation for local supplies which are probably given through medium and low voltage underground cables. Local supplies are given to the adjacent works mentioned above, and to the industrial area of Dusseldorf.

There is a 110 kV outdoor substation in which at least 2 transformers are installed. Two 110 kV lines leave the station. One goes to the Erftwerk (Grevenbroich) aluminium plant of the VAWAG and crosses the Rhine immediately on leaving the station. The other goes to Lierenfeld substation near Düsseldorf.

Städtische Gaswerke.

Dässeldorf (3)

The municipal gasworks lies adjacent to the municipal electricity works. In 1936 the works made 1,900 million cu, ft. and in addition sold (in Benrath only) 65 million cu.ft. bought from Ruhrgas A.G. There is also the RWE gasworks at Reisholz, which

draws gas from Ruhrgas, and sold 70 million cu. ft. in 1936.

## Liquid Fuels.

iolza (1)

Rhenania Ossag Mineralölwerke A.G. Reisholz (2)

This benzine re-running plant lies at Reisholz, a S.E. suburb of Düsseldorf. Its annual capacity is believed to be 65,000 tons and it has a storage capacity estimated at 30,000 tons.

# Iron & Steel & Ferro-alloys

Lierenfeld (2)

Deutsche Röhrenwerke A.G. (Poensgen)

Situated one mile S.E. of the main railway station, this works is believed to have an open-hearth steel plant with 6 large furnaces, which are believed to have a total capacity of 350,000 tons per amum. Tubes of all kinds are its speciality, but universal and heavy plates are also made. The firm has a second tube plant in the suburb of Oberbilk (see under Engineering & Armaments) and other works in the Ruhr area. It is owned by Vereinigte Stahlwerke A.G.

Note: The steel works of Klöckner A.G., Gebrüder Böhler and Stahlwerk Krieger are listed under "Engineering and Armaments".

Non-Ferrous Metals/

eldorf (3)

# Non-Ferrous Metals

Stollberger Zink A.G. für Bergbau & Zink-Hüttenbetrieb

(2) 25 miles North of Nievenheim

This works consists of a roasting plant with 11 mechanical ovens; ore sintering plant, distillation plant, with 13 furnaces and 120 retorts each; Rotary furnaces for recovering zinc from zinc dust etc. It also has a clay plant for making retorts and condensers. The capacity of the plant is believed to

be 16,000 tons of zinc per annum.

The sulphuric acid plant consists of 2 lead chamber units, 4 concentration units and 1 contact unit. The capacity is believed to be 42,500 tons of 10% sulphuric acid per year. In 1937 the plant had an output of 34,600 tons of 95% sulphur trioxide.

# Engineering and Armaments

Rheinmetall Borsig A.G.

1) Derendorf 2) Rath

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- 1) The Derendorf plant of this firm covers an extensive area along the western side of the railway directly north of the Derendorf marshalling yards. It is believed to be engaged on the production of finished guns and shells, aerial bombs, and naval mine components. Also the machining of gun barrels, finished mountings, shields, breech blocks, carriages, cradles, heists, liners, naval gun turrets, ammunition carts, steel helmets, crankshafts and light metal goods. More than 30,000 workers are believed to be employed.
- 2) The Rath plant lies approximately 12 miles
  East of the Derendorf plant and approximately 3 miles North East of Dusseldorf main passenger station. It consists of steelworks estimated to be producing 160,000 tons of special steel per annum and an engineering section producing gun-barrel forgings, armour plate for tanks, tool steel, drop forgings, turbine rotors, reinforcement iron, aluminium alloy forgings and wire etc. This plant is one of Germany's principal consumers of ferro-alloys. Workers are estimated to number some 6-7,000.

Mannesmannrohren-Werke A.G./

Mannesmannröhren-Werke A.G.

rth (2)

Rath

(1)

Situated 32 miles North of the main railway station, this extensive plant produces iron and steel tubes, chromium-molybdenum tubes, submarine mine cases, tank mine cases, shells, bombs, welded boiler drums, high pressure cylinders for submarines, etc., and incediary bombs. 24,000 workers are believed to be employed.

Schiess A.G. (vormals Schiess Defries A.G.)

1) Oberbilk 2) Heerdt

(1)

- 1) This works lies along the railway directly
  North East of the main station. It is a
  leading German producer of machine tools,
  copper alloys, magnetic mines, ordinary
  steel mine bodies, bombs and shells of the
  heaviest calibre, and bomb and shell components. In 1937 approximately 2,200 workers
  were employed at the Oberbilk factory mainly on machine
  tool manufacture. It is believed that in
  1940 some 3,500 workers were engaged on
  machine tools and a further 3,500 on bombs,
  shells and mines. According to ground
  intelligence a further increase in the number
  of workers took place after 1940.
- 2) The second works of Schiess A.G. lies at Heerdt on the Western bank of the river Rhine. It is believed to be engaged on components supplied to the main plant in Dusseldorf proper.

Stahlwerk Krieger

Oberkassel

(3)

Controlled by the Ruhrstahl A.G. group of Vereinigte Stahlwerke A.G. this works is situated in the suburb of Oberkassel on the Western bank of the river Rhine approximately  $3\frac{1}{4}$  miles North-West of Dusseldorf main station. The engineering section of the plant specialises in castings, rolling-mill equipment and drop forgings. The steel plant (open hearth and electric steel) has an estimated annual capacity of 80,000 tons of crude steel. Some 1,800 workers are believed to have been employed in 1943.

Gutehoffnungshütte Oberhausen A.G./

Gutehoffnungshütte Oberhausen A. G.

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This plant lies approximately 12 miles North-North-East of the main railway station. It is mainly composed of engineering sections specialising in electric steel castings, forgings, wheels, and tubes, and is believed to have a considerable output of heavy bomb casings. The steel section of the plant has an estimated annual capacity of 100,000 tons of crude steel. It has been reported that in 1943 nearly 20,000 workers were employed at this works which also includes a number of departments operating on behalf of the G.H.H. subsidiary company, Schloemann A. G. These departments are believed to be mainly engaged on the manufacture of hydraulic presses, and rolling mill equipment which are sold under the name of Schloemann.

Klöckner A.G.

Oberbilk

(2)

The Düsseldorf branch of this Duisburg firm lies approximately  $\frac{3}{4}$  mile East of the main railway station. The plant comprises an open-hearth steel-works with 4 fifty-ton furnaces, a cold-rolling mill, and wire-drawing plant. It is estimated that 100,000 tons of crude steel are produced annually and every type of wire, including rope, net, and barbed wire, is manufactured. This works is one of the leading wire-drawing plants in Germany.

Gebrüder Böhler & Co., A.G.

Büderich-Heerdt

(1)

The extensive works belonging to this firm are situated approximately 4 miles North-West of Düsseldorf main station on the Western bank of the river Rhine. They are reported to be engaged in the production of alloy-steels for all purposes, spring steel, magnets, crankshaft forgings for aero-engines, and heavy shell. Some 4,000 workers are believed to be employed.

Haniel & Lueg G.m.b.H.

Flingern

(3)

This firm occupies part of the site of the Gutehoffnungshutte Oberhausen A.G. It is believed to be engaged on the production of mining machinery, oil borers etc. workers were employed in 1940.

Demag A.G./

Demag A. G.

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Benrath (3)

The Benrath works of Demag are situated along the Eastern side of the main Düsseldorf-Opladen railway line approximately 1 mile from the river Rhine. The manufacturing programms of these works includes the manufacture of slewing cranes, overhead travelling and giant cranes, loading bridges, excavators, and standard steam cranes. Also special factories for structural steelwork, steel buildings and bridge building.

Press u. Walzwerk A. G.

Reisholz (3)

Situated about 4 miles South East of Düsseldorf main station, this firm is engaged on the production of pressed and rolled steel goods, boiler bodies, railway materials and shell.

Oberbilk

boiler bodies, railway materials and shell. It has 3 basic steel furnaces with an estimated annual capacity of 50,000 tons.

(3)

In 1923, this firm was leased to the Press u. Walswerk A.G., Reishols, and it is believed that it is engaged on production similar to that mentioned above. The works cover a fairly extensive area adjacent to the east side of Dusseldorf main railway station.

Dusseldorfer Waggon-Fabrik

A. G. der Oberbilker Stahlwerke

Lierenfeld (3)

This plant lies 13 miles due East of the main railway station. It produces tractors, trailers, and about 2,000 railway wagons per annum. In 1938, some 700 workers were employed.

Hein, Lehmann & Co., A. G.

Oberbilk (3)

This is a firm of constructional engineers believed to be employing 1,600 workers. Constructional steel, railway sleepers, lines and cranes etc., are produced. The works lie approximately 3 mile South East of the main passenger station, adjacent to the Lierenfeld goods station.

Deutsche Carborundum Werke G. m. b. H.

Benrath (2)

Lying 41 miles South East of Dusseldorf, this firm produces silicon carbide, grinding wheels and abrasives. It is believed that this firm ranks fifth in importance among the German manufacturers of grinding wheels. It probably accounts for the bulk of its own requirements of silicon carbide.

Schenk u. Liebe-Harkort A.G./

Schenk u. Liebe-Harkort A. G.

Feerdt

(3)

Situated in the suburb of Heerdt approximately 3 miles North West of Dusseldorf rain station on the West bank of the river Rhine, this firm manufactures blast-furnace and equipment, such as automatic charging plant, cranes, electric cranes, presses and wire-working machinery etc. 600 workers are believed to be employed.

J. G. Schwietzke Metallwerke

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This firm, 3 miles North of the main railway station, is engaged on the production of centrifugal castings, torpedo tubes, and other torpedo components.

Deutsche Delta Metallwerk A. G. A.Diok & Co.,

(3) Flingern

Approximately 12 miles North East of Dusseldorf, this works has brass rolling mills and is engaged on the production of sheets, bands, profiles, rods, pipes, wires, drop forgings, forged parts, etc.

Malmedie & Co.,

Lierenfeld (3)

Lying 12 miles East of Dusseldorf main station, this firm manufactures wire-working machines.

Fischer A. G. für Blechverarbeitung

Düsseldorf (3)

Manufacturers of steel sheet products, this firm employs some 400 workers.

Elektrometall Schniewindt, Pose u Marre

(3) Erkrath

This firm is one of the leading German producers of electric resistance wire and nickel chromium wire.

Dürrwerke A. G.

(2) Ratingen

Prior to the war this factory employed 800 workers on the manufacture of boilers and associated products. According to unconfirmed ground reports the factory was enlarged in 1943 and converted to make heavy The reports suggest that several thousand workers were employed in 1943. It is known that the plant was fully active from 1938 on and that it was chiefly engaged on Government contracts.

Jagenberg Werke A.G./

Jagenberg Werke A. G.	Oberbilk	(3)
This works lies 1½ miles South of the station and is engaged on the product paper-working machines. 1,250 wor were employed in 1940.	tion of	
Calor-Emag Elektrizitäts A.G.	Ratingen	(3)
This firm is situated in the outlying of Ratingen just North of a group of sidings. It is a manufacturer of in switch gear, dynamos, and electric me	railway	
Wotan & Zimmermann-Werke A. G.	Düsseldorf	(3)
This firm employs 500 workers on the of welding, grinding, and planing made	production chines.	
Vereinigte Kesselwerke A.G.	Düsseldorf	(3)
Covering an area of 13,000 square met a site 24,000 square metres, this fir factures boilers and constructional m 700 workers are reported to be employ	m manu-	
Rheinische Metallwarenfabrik A.G.	Düsseldorf	(3)
Steel for projectiles and forged part motors and aircraft are produced by t	s for his firm,	
Maschinenfabrik Rheinland A.G. (V.K.F.)	Düsseldorf	(3)
This firm was engaged on the production ball bearing axles for road vehicles, is believed to have been closed since	but	
Gebrüder Loewe	Dusseldorf	(3)
Accessories for machine tools including lathe heads and spindles are produced this firm.	ng by	
Paul Forkhardt K.G.	Düsseldorf	(3)
In 1939 some 550 workers were employed this firm on the production of machine	l by tools.	
Dr. Ing. R. Stotz	Lohausen	(-)
This factory makes foundry plant - mai cupolas.	inly	
Hasenclever Maschinenfabrik A. G.	Dusseldorf	(-)
Manufacturers of cableways, conveyors, dischargers, rail laying machines. I they employed 300 workers.	wagon n 1938	

A. Ehrenreich & Cie./

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(2)

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	- 11 01-1-1-1	(7)
A. Ehrenreich & Cie	Heerdt-Oberkassel	(3)
Situated in the suburb of Oberkass Western bank of the river Rhine, t manufactures propeller shafts, and joints.	his works	
Habersang & Zinsen G. m. b. H.	Oberbilk	(-)
Employing 300 workers, this works machine tools.	produces	
Deutsche Drahtwalzwerk A.G.	Düsseldorf	(-)
This firm is a subsidiary of Manne Werke A.G., and is engaged on the of steel wire.	esmannrohren- production	
Senssenbrenner G. m. b. H.	Oberkassel	(3)
Situated near the Western bank of Rhine, this firm manufactures cast ladles, and ladle cars; also steel equipment.	ting machines,	
Walzmaschinenfabrik August Schmitz G.m.b.H.	Unterbilk	(3)
		(3)
These manufacturers of rolling mitheir equipment, are situated $l_2^{\frac{1}{2}}$ . West of the main railway station.	niles South-	
Westdeutsche Werkzeugmaschinen A. G.	Benrath	(3)
This factory makes electric weldi	ng apparatus	
Gustav Zimmermann		173
Maschinenfabrik G. m. b. H.	Rath	(3)
Situated in the Northern suburb of this firm is engaged on the production of the production of the state of t		
Trebelwerk A. Lambert G. m. b. H.	Rath	(3)
This small works specialises in t facture of grinding wheels.	the manu-	
L. Soest & Co.,	Reisholz	(3)
Situated 33 miles South East of t station, this works is engaged or duction of heavy tool-making mach machine tools, and is reported to some 650 workers. It was taken Schiess A.G. in 1938.	ines, compley	

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buchinenfal

Engage

Rohde & Dörrenburg/

cassel (3) Rohde & Dörrenburg Düsseldorf (3) Manufacturers of twist drills, reamers, milling outters, and twist drill grinders. Hiller & Müller Nickel-Fabrik A. G. Düsseldorf (-) (.) Fabricators and rolled nickel for anodes, sheets, rods, bars, and tubing. No details of the capacity are available. Maschinenfabrik Sack G. m. b. H. (-) Ratingen (-)

Engaged on the production of rolling mill equipment.

Chemicals and Explesives/

(3)

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# Chemicals and Explosives

Henkel & Cie Reisholz (3)

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Situated 3½ miles South East of Dusseldorf main station, the chemical works of Henkel & Cie (incorporating Henkel G.m.b.H. on the same site) are the largest manufacturers of soap and the second largest producers of sodium perborate, and glycerine, in Germany. In May 1943, this plant was reported to be employing more than 3,000 workres.

Thompson-Werke G.m.b.H. Oberbilk (3)

Manufacturers of soap powder and miscellaneous chemicals. Plant lies exactly 1 mile East of main railway station.

Rutgerswerke A.G.  $2\frac{1}{2}$  miles north (3) of Nievenheim

This is one of the largest wood impregnating plants in Germany.

Rubber

Pahlsche Gummi u. Asbest-Gesellschaft Rath (3)
"Pagnag" m.b.H.

Fibre and asbestos joinings, sheets, hose (reinforced), particularly rubber lined asbestos products, and possibly fuel tanks are manufactured. Well-equipped modern factory employing 4-500 workers before the war.

Düsseldorfer Gummiwerk
Theiler and Seeberger G.m.b.H. Heerdt (3)

This firm employed 400-500 workers in 1938 when they were principally engaged in producing rubber soles and heels reputedly at the rate of between 50 and 60 tons per month.

Erwin Pfeffer Düsseldorf (3)

This company is a government-licensed re-treating concern with capacity to process 1,000 motor tyres per month.

Foodstuffs

Rheinmühle A.G. Benrath (-)

This plant consists of flour mills, grain storage, cold storage installations. Milling capacity is 12,000 tons per annum and the total storage capacity is believed to be 1 million cubic feet.

Simons Mühle Hafenbecken I (-)
Düsseldorf

This plant consists of a flour mill and grain silos.

Rheinmähle Hafenbecken II (-)

Rheinmühle consists of flour mill and silos.

Simons Muhle

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Hafenbecken Düsseldorf

(-)

This plant consists of a flour mill and grain

Rheinmühle

Hafenbecken II Düsseldorf

(-)

Rheinmithle consists of flour mill and silos.

UNIVERSITÄTS BIBLIOTHEK mainz

# EBERSWALDE (Brandenburg)

52° 50' N. 13° 50' E:

600 miles:

(39,000)

Eberswalde is situated on the railway line from Stettin to Frankfurt (Oder) It is important as a connecting link between Berlin and Stettin owing to its location on the Hohenzollern Car .1. This canal leaves the Havel at Oranienburg and flows past the northern districts of Eberswalde to join the Oder at Niederfinow. A large ship-lifting lock connects the levels of the cenel and the Oder. town is chiefly important for its large brass and copper works. There are also engineering plants, raile y repair shops, and a chemical

#### Transportation

Reichsbahnausbesserungswerke

Eberswalde

(3)

ingineer:

Chamicals

Soher

habber

These large railway repair shops are in the West part of the town and are believed to employ some 2,000 workers on the repair and maintenance of passenger and goods wagons.

Shiplifting Lock

Niederfinow

(2)

Situated some 3 miles East of the town this lock was the first of its kind to be built. The process of lifting ships bodily from one level to another dispenses with several locks and shortens the time required for the change of level, by about six hours. This lock can accommodate vessels up to 1,000 G.R.T. and is believed to be the largest of its kind in the world.

#### Public Utility Services

Märkisches Elektrizitätswerk A.G.

Finow

(1)

The installed capacity of this thermal power station is believed to be 66 MW. The 100 kV substation is a focal point for the 100 kV transmission lines which run from the Berlin area to Northern Germany. Two 100 kV long distance lines run to Güstrow via Liebenwalde, one to Pasewalk, West of Stettin, and one to Strausberg, East of Berlin. One line, Strausberg, East of Berlin. One probably 50 kV runs to Angermunde.

#### Non-Ferrous Metal Manufacture and Fabrication

Hirsch-Kupfer & Messingwerke A.G.,

Finow

(1)

These are one of the largest producers in Germany of rolled copper and brass and other copper alloy products. They also produce aluminium sheet, rectangles, discs, sections, rods, tubes and wire on a large scale and are believed to employ several thousand workers.

# Engineering and Armaments

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# Ardelt Werke G.m.b.H.

Eberswalde (2)

This firm is reported to employ some 3,000 workers on the manufacture of light-metal castings and steel castings for aircraft construction as well as gear boxes for use in tanks and other military transport, lifting and conveying appliances, cranes, etc.

## Franz Seiffert A.G.

Eberswalde

(3)

The main factory of this company is situated at Eberswalde on the Hohenzollern Canal and there is a branch works at Bochum. At Eberswalde some 1,200 workers were employed in 1940 on the manufacture of high-pressure tubes.

# Chemicals and Explosives

# Schering A.G.

Finow

(3)

Situated on the Hohenzollern Canal at Finow this is a branch factory of Schering A.G. It is one of the only two syntheticcamphor factories in Germany, the other being the Rheinische Kampfer G.m.b.H. at Düsseldorf which is also owned by Schering. Other products of this works are agricultural insecticides, berax and boric acid and formic acid.

# Textiles and Paper

Paper Factory - Siemens

Finow-

Wolfswinkel (3)

A large factory, owned by Siemens-Schuckertwerke A.G. It produces paper both for electrical and general purposes, and it occupies an area of 146,600 sq.ft. and is situated some 3 miles East of Eberswalde.

#### Rubber

Rubber Factory - Hochwald

Eberswalde (3)

Autoreifen-Hochwald, are a Government licenced retreading firm with capacity to treat 1,200 car and truck tyres per month.

# EBINGEN (Württemberg)

48° 15' N. 9° E:

470 miles

(25,000)

Situated some 15 miles North West of Lake Constance, Ebingen's chief importance lies in its engineering and textile works. Owing to industrial expansion, the town's population is said to have increased during the past three years by more than 5,000. Apart from those mentioned below, Ebingen contains a number of smaller factories but none of these is of individual importance.

#### Engineering and Armaments

Gottlieb Guhring

Ebingen

(3)

Iron and

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This firm is reported to employ some 800 workers and to manufacture all types of boring and some other machine tools.

Mauser Werke A.G.

Ebingen

(2)

This is a branch factory of the well-known Mauser Werke A.G. of Oberndorf. It is believed to specialise in the production of rifles and machine guns and is reported to employ some 4,000 workers.

#### Textiles, Rayon, Pulp and Paper

Schwäbische Zellstoff

Ebingen

(3)

This firm produces woodpulp and viscose staple fibre. The output of staple fibre is believed to be 10,000 tons per annum.

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#### EHRANG (Rhine province)

49° 50' N. 6° 50 E:

320 miles:

(4,800)

Ehrang is a small town situated near the left bank of the River Mosel some six miles north of Trier. It is an important railway junction - the main line running north-south from Cologne to Saarbrücken crosses the line running northeast-southwest from Koblenz to Luxembourg - and it is a vital centre for the carriage of goods between the Rheinland and France. The important marshalling yard and the Klöcknerwerke branch foundries at Quink are referred to below.

#### Transportation

Marshalling yard

Ehrang

(2)

The marshalling yard is situated south of the railway junction. It had a capacity of 4,000 wagons per 24 hours in 1938, and included a depot for 76 locomotives with 3 turntables, and large storage and reception sidings. The yard is one of the main sorting places for French and Lorraine iron ores and other raw materials in transit to the Ruhr and one of the vital yards for the carriage of industrial material between France and the Rhineland.

#### Iron and Steel

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Sbingen's

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Koblens

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Owing nave

Werk Quink of Klockner

Ehrang

(3)

The highly important firm of Klockner-Werke A.G., whose headquarters are in Duisburg, have a branch works at Quink, a small village 1 mile north of Ehrang. The works comprise an iron foundry, enamel works, a light-metal foundry, nickel plating plant, and a brick works. There is also a plant which specialises in the manufacture of furnaces.

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# EILENBURG (Saxony)

51° 30' N. 12° 40' E:

550 miles:

(20,000)

Eilenburg is situated on the river Mulde some 15 miles north east of Leipzig. The principal industry of this small town is celluloid and celluloid products. There are two main factories, listed below, both of which are owned by the I.G. concern and are now reported to be engaged on the manufacture of explosives.

#### Transportation

Reichsbahnausbesserungswerke

Eilenburg

(3)

These railway repair shops are engaged on the repair and maintenance of goods wagons.

# Chemicals and Explosives

Deutsche Celluloid A.G.

Ziegelstr. (3)

Prior to the war this factory employed some 800 workers on the manufacture of fire-proof celluloid goods, and photographic films. Intelligence reports suggest that parts of the factory have been converted and are now making explosives on a considerable scale.

## I.G. Farbenindustrie

Eilenburg (3)

Formerly known as the Deutsche Cellulose Fabrik, this branch of I.G.Farbenindustrie specialises in the manufacture of cellulose, gun cotton, and nitro-cellulose film. Some 1,300 workers are employed here and their monthly output of nitrocellulose is believed to be approximately 1,200

# EISENACH (Thuringia)

51° N. 10° 20' E:

455 miles

(50,000)

Eisenach is on the main line from Berlin to Frankfort/Main. It has a considerable industry including the important aero-engine and M.T.works of B.M.W. mentioned below. The industrial quarter is mainly grouped in that part of the town which lies North of the railway.

# Transportation

Marshalling Yard

Eisenach South East

(3)

On the Eastern side of the railway station there are marshalling yards, a goods station and a small railway repair shop.

#### Aircraft and Aero Engines

Bayerische Motorenwerke A.G.

Eisenach

(1)

Risenberg

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ior-Ferr

Mansf

This firm has its parent works at Munich and the Eisenach works was formerly known as the Dixi-Werke, makers of small automobiles, delivery cars, and other transport.

After the acquisition of the Dixi company by B.M.W. a considerable expansion of the works was undertaken and a subsidiary factory opened at Stockhausen near Eisenach. It is believed that a third factory, built just to the North East of Eisenach since 1940, is also owned by B.M.W. Ground reports suggest that the new plant is exclusively engaged on the manufacture of military transport, including A.F.V's, and is supplied with components by the Stockhausen works. The latter is believed to supply components also to the main Eisenach works, the chief activities of which are the manufacture of sero-engines, engines for military transport, gears and gear-boxes, and a small range of engine components which are believed to be supplied to other B.M.W. works. It is believed that the Eisenach group of B.M.W. plants together employ some 7,000 workers.

#### Engineering and Armaments

Gebrüder Demmer

Eisenach

(3)

These works are situated South of the main B.M.W. plant and are believed to produce mine cases, shells, mines and components for mines.

# EISENBERG (Thuringia)

50° 58° N. 18° 54° E:

520 miles:

(11,000)

Risenberger Trockenplattenfabrik

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h East (1)

quarter is

Eisenberg (3)

The Eisenberger Trockenplattenfabrik Otto Kirschen A.G. is one of a small number of German firms making photographic plates and films.

EISERFELD (Westphalia) See under Siegen.

EISLEBEN (Saxony)

51° 30' N. 11° 30' E:

500 miles:

(24,000)

Eisleben which is 20 miles West of Halle, is the centre of an important copper-mining district.

Non-Ferrous Metal Manufacture and Fabrication

Mansfeld A.G.

Eisleben/ Mansfeld

(1)

The Eisleben/Mansfeld area is by far the most important concentration of copper production in Germany. It is believed that with the installation of new equipment and plant, the productive capacity of the Eisleben/Mansfeld plants had by the outbreak of war been stepped up to as much as 30,000 tons of copper per annum out of a total German production of new copper of 33,500 tons per annum.

The Eisleben/Mansfeld production is distributed over the following works, the individual

output of which is not known: -

- a) Mansfeldscher Kupferschiefer Bergbau A.G. at Mansfeld near Eisleben.
- b) Kur-Hessische Kupferbergbau G.m.b.H. Hosel near Mansfeld.
- c) Studiengesellschaft Deutscher Kupferbergbau G.m.b.H. at Liedersdorf and Sotterhausen near Mansfeld.

The Mansfeld company operates two mines at Eisleben and others nearby are at Krughütte and Clothildenschacht.

The company has a smelting plant at Eisleben and a smelting plant and refineries at Hettstedt with a total capacity of 30,000 tons per annum of which 25,000 tons is electrolytic refining and 5,000 tons fire refining. The smelting plant at Eisleben treats only ores produced from the Mansfeld mines and has no provision for refining. The smelters and refineries at Hettstedt treat the blister copper from Eisleben, copper ores and matter from Mansfeld, Liedersdorf, and Hasel as well as copper scrap.

The Mansfeld plants at Eisleben and Hettstedt fabricate virtually the whole production of the Mansfeld refineries. They have an output of approximately 25,000 tons per annum of copper sheet and wire, the bulk being in the form of copper sheet.

# ELBING (East Prussia)

54° 10' N. 19° 25' E:

835 miles:

(81,000)

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Elbing is an important Baltic port where the Schichau ship-building concern have extensive yards. It is on the main railway lines from Berlin and Stettin to Königsberg, Riga and the Eastern front. The town has an important engineering and shipbuilding industry and has gained considerably in industrial importance since 1939 owing to its large submarine building yards.

# Public Utility Services

Power Station

Elbing North (2)

This is a thermal station supplying the town and dock areas and has a capacity of 48 MW. It was built in 1927/8 for ultimate capacity of 50 MW. One generating set of 24 MW was installed in 1937 to supplement the three originally installed sets totalling 24 MW.

#### Aircraft and Aero Engines

Wittowsky G.m.b.H.

Elbing North (3)

This firm is believed to specialise in the manufacture of ply-wood components and sections for aircraft.

#### Ship Building

F.Schichau G.m.b.H.

Elbing North (1)

These highly important ship yards specialise in the building of submarines, torpedo boats, and destroyers of the Elbing class. They lie to the North of the town on the banks of the Elbing river. The site of the yards includes a small electric power plant and foundries. The latter also serve the locomotive and engineering works mentioned below.

# Engineering and Armaments

F. Schichau G.m. b. H.

Elbing (2) South East

In the South East quarter of the town the Schichau concern has a large works chiefly engaged on the manufacture of locomotives. Other products include general machinery, boilers and steel bridges.

Bussing-N. A. G.

Elbing South (2)

These works which formerly belonged to the Maschinenfabrik Kommick G.m.b.H., produce heavy lorries and other types of military transport on a large scale.

# ELMSHORN (Schleswig-Holstein)

53° 45' N. 9° 40' E:

31,000)

ship-building

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South (A

440 miles:

(18,000)

Elmshorn is a junction on the railway from Hamburg to Kiel and Esbjerg. Its chief industries are leather tanning, engineering, textiles and food-stuffs, but none of the factories are of individual importance.

## ELBERFELD

See under WUPPERTAL

# ELSNIG

See under Torgau.

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# EMDEN (Hanover)

50° 20' N. 7° 10' E:

340 miles:

(35,000)

Emden, situated on the right bank of the Ems estuary opposite the Dutch coast, is the most westerly of the German North Sea ports and the nearest to England. The surrounding country is flat, and low-lying, intersected by canals and almost entirely devoted to agriculture. Apart from its harbour and associated industry, Emden and the surrounding district is not industrially significant. Its position, however, as a terminus of the Dortmund-Ems Canal and the Ems-Jade Canal connecting Emden with Wilhelmshaven makes it a valuable service port for the Ruhr, particularly in the handling of Swedish iron ore for which it is specially equipped. It is also important as a naval station, a base for mine-layers and mine-sweepers, and for its facilities for shipbuilding and ship repairs.

There are four main harbours, the Outer Harbour, the Inner Harbour, the New Inner Harbour, and the Industry Harbour. Of these, only the Outer Harbour is tidal, the others being entered from the sea, either via the lock at the entrance to the New Inner Harbour, or through that at the northern end of the Outer Harbour. The Outer Harbour is capable of accommodating the largest sea-going vessels at its quays.

The New Inner Harbour, in which is handled a large proportion of Emden's traffic, is reached by the large ocean lock (260 m. long by 40 m. wide). On the south of this harbour is the Ore and Iron Quay; coal and coke are also dealt with at this quay.

Adjacent to the New Inner Harbour on the north is the Industry Harbour with the Nordseewerke shippard and a briquette factory. The harbour equipment includes a great variety of cranes, and good railway connections to the quays enable loading to be effected direct from truck to ship without the need of intermediate storage.

Emden is supplied with electricity on the grid system. A grid and transformer station is situated at the eastern extremity of the Industry Harbour. A small power plant on the east quay of the Inner Harbour, at its southern end, supplies power for dock installations.

Emden has no important local industries. Its value lies rather in its trade, which causes the port to rank high among German seaports. It is the import and export harbour for bulk goods to and from the eastern and central Ruhr, notably serving this district with supplies

There is also an active trade in agriof iron ore from Sweden. cultural produce, cattle, timber, coal and coke, while it was in peace time an important base for the deep sea fishing fleet. On the east quay of the Outer Harbour are large grain warehouses and a silo. Submarines and small surface craft are constructed at the Nordseewerke.

# Transportation

Port Area

(2) Emden South

Emden has four main harbours. These are the Aussen-Hafen, Binnen-Hafen, Neuer-Binnen-Haffen, and Industrie-Hafen. A new submarine harbour has been constructed on the south side of the Industrie-Hafen. The only harbour directly accessible from the sea is the Aussen-Hafen, the remainder being reached by means of locks. largest of these is the Ocean Lock at the entrance to the Neuer-Binnen-Hafen which is 260 metres long by 40 metres wide. Iron ore, coal and coke, are dealt with at the quays situated on the South The Dortmund-Ems and Emsside of this harbour. Jade Canals terminate in the Eastern quarter of the town and are connected by a third canal known as the Verbindungs-Kanal.

Marshalling Yards

(3) Emden South

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The marshalling and goods yards lie to the North of the main railway station.

#### Ship Building

Nordseewerke G.m.b.H.

Emden

(2)

This is an important ship building yard belonging to the Vereinigte Stahlwerke A.G. of Dusseldorf. There are four slipways capable of building large ocean-going vessels, and a floating dock of 5,000 tons capacity. Up to six submarines have been reported as under construction in these yards simultaneously. Naval auxiliaries and freighters are also built here.

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# EMMENDINGEN (Baden)

48° 10' N. 7° 50' E:

425 miles:

(15,000)

Emmendingen lies on the railway from Basle to Karlsruhe. industries include machine, leather and cigar factories, but apart from the one plant listed below, none of these is of individual importance.

#### Engineering and Armaments

Wehrle Werke A.G.

(3) Bismarkstr.

This factory formerly manufactured machinery and appliances for breweries. It is now reported to have installed a number of machine tools and to be making tank and submarine components.

----000-----

# EMMERICH (Rhineland)

51° 50' N. 6° 51' E:

275 miles:

(17,000)

Emmerich, situated on the right bank of the Rhine, lies on the railway from Western Germany to Holland and is well known as a Customs station for Rhine river traffic. Its only factories, apart from those listed below, are a small number of wine and spirit distilleries and a few small engineering plants.

# Liquid Fuels and Substitutes

Deutsche Gasolin A.G.

Emmerich (2)

This oil refinery has distillation facilities and a cracking plant. The annual capacity is believed to be approximately 60,000 tons. In 1940 the plant was severely damaged by the R.A.F. but is believed to have been fully active again in July 1943. The Deutsche Gasolin A.G. has another refinery at Dollbergen, near Peine, and in 1938 some 2,000 workers were employed in the two works.

# Food-Stuffs

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Oelwerke Germania G.m.b.H.

Emmerich

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This vegetable oil hardening plant is reported to have closed down in 1943.

# EMSDETTEN (Westphalia)

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52° 10' N. 7° 40' E:

335 miles;

(18,000)

Emsdetten, on the river Ems, lies some 10 miles West of Osnabrück. Apart from a small textile industry chiefly engaged in jute spinning, it contains no industries of importance.

# ERFURT (Saxony)

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51° N. 11° E:

485 miles:

(148,000)

Erfurt lies on the railway lines from Berlin to Frankfort/Main and Berlin to Schweinfurt and Würzburg. It is chiefly noted for its boot and shoe industry but there are a number of well known engineering plants specialising in the manufacture of small arms.

#### Transportation

Railway Marshalling Yards

Erfurt

(3)

These marshalling yards are situated to the east of the town and in 1939 had a capacity of 2,600 wagons per 24 hours.

#### Public Utility Services

# Städtische Elektrizitäts-Werke

Radowitzstr. (2)

The principal power station is situated to the South of the main railway station. It has a capacity of 44 MW.

# Aircraft and Aero Engines

Flugzeugreparatur Werk Erfurt

(3) Erfurt

Situated at Erfurt aerodrome, which lies to the East of the town, these workshops are engaged on the repair and maintenance of aircraft and aero-engines.

## Engineering and Armaments

"Erma"

(3)Zietenstr.

The "Erma" Erfurter Maschinen und Werkzeugfabrik B.Geipel G.m.b.H. is believed to be engaged on the manufacture of rifles, pistols, machine guns and their components. They are reported to employ some 850 workers.

"Gauda" Werkseug und Maschinenfabrik

(3)

Leather

Eduary

Brlan h laberg

river Main

neiting in

Miner

Siener

Some 1,600 workers are reported to be employed by this firm on the manufacture of automatic pistols and machine guns.

J.A. Jahn A.G.

Schwerbornerstr. (3)

This company, which has branch factories in Scandinavia, formerly specialised in making cooling, heating, and cleaning installations. It is now believed to be engaged on the manufacture of small-arms components, and to employ some 1,000 workers.

"Mako" Maschinenges. m.b.H.

Reichartstr. (3)

Formerly engaged on the manufacture of vacuum pumps and their accessories, this company is now believed to make apparatus and equipment for the new explosives industry.

Olympia A.G.

Mainzerhofplatz

Before the war this firm made typewriters and other office machinery but they are now reported to employ some 2,000 workers on the manufacture of small arms and small arms ammunition.

#### Leather

ritzstr, (2)

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splats (2)

Schuhfabrik Hess A.G.

Erfurt

(3)

This factory is reported to employ 1,000 workers on the manufacture of boots and shoes and to be one of the big suppliers to the German Forces.

Eduard Lingel

Steigerforst (3)

This is one of the largest shoe factories in Germany and is now believed to be making boots and shoes mainly for army use.

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# ERKENSCHWICK (Westphalia)

See under Oer-Erkenschwick. Recklinghausen.

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# ERLANGEN (Bavaria)

49° 35' N. 11° E:

510 miles:

(33,000)

Erlangen is a small university town on the railway from Nurnberg to Bamberg and is situated on the Ludwigs Canal which connects the river Main with the river Donau. It has a small clothing and metal working industry in addition to the important Siemens works mentioned below.

# Engineering and Armaments

Siemens-Reiniger Werke A.G.

Erlangen

(2)

The Erlangen Works of the Siemens Reiniger Werke A.G. (a subsidiary of Siemens & Halske) were formerly the Reiniger Gebbert & Schall A.G. They are important makers of X-ray apparatus, all kinds of electrical therapeutic appliances, and dental equipment. Siemens Reiniger have a second factory in Rudolstadt in Thuringia and before the war employed some 4,000 workers. They are the leading German suppliers of this type of medical equipment.

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#### ESCHWEGE (Hesse-Nassau)

51° 10' N. 10° E:

440 miles:

(15,000)

Eschwege lies on the river Werra some 12 miles East of Kassel. It has a variety of industrial establishments, including textiles, chemicals, soap, and leather. None is of individual importance.

# ESCHWEILER (Rhineland)

50° 50' N. 6° 15' E:

280 miles

(34,000)

The town of Eschweiler lies approximately 9 miles North East of Aachen and approximately 30 miles South West of Cologne. It is in the centre of the Inde Valley where coal, iron ore and zinc are found. Industry in Eschweiler is mainly concerned with coal mining, and some engineering. The most important industrial concerns are given below.

## Public Utility Services

Kraftwerk Zukunft A.G.

Eschweiler (1)

Engin

Controlled by R.W.E. and the Eschweiler
Bergwerks-Verein A.G., this thermal power
station lies approximately 1½ miles north
east of the town of Eschweiler and adjacent
to the Zukunft coal mine. (see under Solid
Fuels.) It has an estimated capacity of
108 MW. There is also a switchhouse and an
outdoor substation. A 5 kV and a 25 kV
line provide power to the hearby briquette
works (see under Solid Fuels) and the carbide
works (see under Non-Ferrous Metals), four
35 kV lines supply power to Aachen, Düren,
Nothberg and Heimbach respectively, and there
are two long distance lines, one of 220 kV
and one of 110 kV, to Fortuna and Aachen
respectively.

#### Kraftwerk Kohlscheid

Kohlscheid (3)

This is a small thermal station owned by the Eschweiler Bergwerks-Verein A.G. situated at Kohlscheid approximately 6 miles west of Eschweiler. Its estimated capacity is 35 MW. Together with the Alsdorf station the 1937 output was 222 million KWH.

#### Solid Fuels

Eschweiler Bergwerks-Verein A.G.

Nothberg (2)

The Nothberg mine (3 shafts) and coking plant of this company lies approximately  $\frac{1}{2}$  mile south east of Eschweiler. The coking plant has 120 ovens and has an estimated annual dry coal capacity of 512,000 tons.

Eschweiler Bergwerks-Verein A.G.

Eschweiler (3)

Formerly Braunkohlen-Industrie A.G. Zukunft, this mine has open pits north of the Zukunft Power Station and a briquette works immediately east of the power station. The brown coal and briquette production in 1937 was 3,895,000 tons and 919,000 tons respectively.

### Iron and Steel and Ferro-Alloys

Gesellschaft für Elektrometallurgie

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Eschweiler Weisweiler (2)

Since 1938 this company has been a subsidiary of Vereinigte Stahlwerke A.G. and the Hermann Göring combine. It is a ferroalloy plant lying immediately south of the Zukunft power station. Its estimated annual capacity of ferro-alloys, including ferro/silicon, ferro/chrome, ferro/molybdenum, ferro/vanadium, totals 30,300 tons. Calcium carbide is also produced.

### Engineering and Armaments

Eschweiler Bergwerks-Verein A.G.

Eschweiler-Aue (3)

Approximately one mile south south west of Eschweiler, this company owns 4 plants:

- 1) Concordishutte producing foundry iron.
- 2) Werke Aue with rolling mills producing strip-iron, tubes and rods, also gas and water pipes, screws, plates and bolts.
- 3) Abteilung Stahlbau manufacturing steel constructions.
- 4) Werk Ermag with 2 basic Siemens-Martin furnaces and tube works producing seamless tubes and other types of tubes for industrial purposes.

Felten & Guilleaume-Eschweiler Draht A.G.

Eschweiler (3)

These works, owned by Felten & Guilleaume Carlswerk Eisen u.Stahl A.G., consist of iron and steel wire-drawing plant and rolling mills and produce, in addition to cables and wire, chains and metal drums.

Lynenwerke K.G.

Havermuhle (-)

This is a small works manufacturing cable and wire products and accessories.

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### ESSEN (Rhineland)

(1,139,000) 51° 25' N. 7° 00' E: 310 miles:

#### General

The area covered by this report is in the central part of the Ruhr; it consists of undulating country varying from 100 to 400 ft. above sea level with some wooded area to the north and south. Essen includes within its boundaries a number of sprawling suburbs with a total population of 670,000; the original town and surrounding villages have long since outgrown their boundaries and industrialization has given the area a character not unlike that of an English mining district.

Essen is the great armaments centre of the Ruhr. reputation as Germany's greatest armaments arsenal ("Die Waffenschmiede des Reichs" as the Germans call it) originates from World War I in the course of which the famous Friedrich Krupp works expanded on a scale unprecedented in history. In 1917/18 a peak figure of over 150,000 workers were employed by the Fr. Krupp A.G. undertaking, some 80,000 of whom worked at the main plant at Essen.

But whereas Krupp throughout the last war remained the principal producer of armaments in the Reich it had, up to the outbreak of World War II, to a great extent lost its dominating position in the field of German arma ents manufacture, partly as a result of the complete reorganisation of the works after the collapse of Germany's war machine in 1918 and in accordance with which several large departments were successfully switched over to commercial commodities such as locomotives, lorries, Diesel engines for heavy road transport, small ships' diesels, forged drums for high-pressure boilers, wheels and axles for locomotives, railway trucks and wagons etc., and also due to the fact that other important armaments producers, particularly the Rheinmetall Borsig works at Derenderf near Düsseldorf (20 miles S.W. of Essen), Germany's second largest armaments producers in the last war, have been considerably extended and today are probably of equal importance as armaments makers. There is no doubt that the main Essen works of Friedrich Krupp A.G. remained the largest individual armaments and heavy engineering plant in the Reich, but instead of being one vast arms producing centre, as was the case during the last war, it became rather a combination of factories producing a wide range of materials and articles, many of which, although of the utmost importance to Germany's war effort, are not of an armament nature. However, Krupp remains the principal if not only producer in Germany of heavy naval, coastal defence and railway guns.

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aployee: unber w It was estimated in 1942 that the total number of workers and employees operating in the various Krupp works was 175,000. This number was divided roughly as follows:-

centres, trading companies, e to.	20,000
Krupp Germania Werft, Kiel. (shipbuilding yards) Administrative staff at the various works, holding and financing companies, distribution	5,000
various places in Western Germany Friedrich Alfred Hutte steelworks near Duisburg Friedrich Krupp iron and steel works, Essen, (situated several miles West of the main works).	18,000
(armaments and heavy engineering) Coal mines, iron-ore mines, coke-oven plants, synthetic oil plants, etc. situated at	35,000
Krupp Gruson Works at Magdeburg	40,000
Armaments sections of the main works at Essen Heavy engineering sections of the main works	35,000

At the southern boundary of the district is the River Ruhr, which is navigable by smaller barges from Duisburg to Witten, east of Essen. Across the centre of the area run the Emscher Canal and the Rhine-Herne Canal. The former is used for drainage purposes and runs from Walsum on the Rhine to Dortmund. The latter is an important connecting link between the Rhine and the Dortmund-Ems Canal; along it passes traffic which has come down the Rhine and its tributaries to Duisburg-Ruhrort and by its junction with the Dortmund-Ems Canal the traffic passes on to the Mittelland Canal and so to the great towns of north Germany. Damage to any of the three locks would therefore have a serious effect on the industrial life of a great part of the country. It will be observed that many of the important industries of this district lie close to or on the canal harbours.

The area is provided with large marshalling yards and a network of railways, so interconnected that it is difficult to pick cut those of outstanding importance. It is probable, however, that the Osterfeld Marshalling Yard (see under "Oberhausen") handles a large proportion of the traffic between Duisburg and northern Germany. The other targetted yards in this area probably serve mainly as local yards.

The most important electrical objective in this area is the Essen-Karnap 220 MW. R.W.E. electric power station situated a few miles north of Essen. This is the most important power plant in the Ruhr industrial area. There is also a 45 MW. R.W.E. station in Essen itself.

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ESSEN (continued)

Although it is hardly possible to distinguish any areas as industrially more important than others, because any attempt to do so would leave out of account some very important targets, it may be said that the principal group of targets covered by this report lie within the area of Essen proper, and stretch north-westwards from Essen-town to the Rhine-Herne Canal. It includes the steel works of Friedrich Krupp A.G. as well as the vast arms, locomotives and general engineering works of that firm, besides large coal mines and coke-oven plants; the zinc smelters of A.G. des Altenbergs für Bergbau and Zinkhüttenbetrieb at Borbeck; the plastics works of Presswerk A.G.; the very important chemicals and non-ferrous metals works Th.Goldschmidt A.G. (now inactive, see under Non-Ferrous Metals); and finally the important railway traffic centre Essen-Verschiebebahnhof.

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During 1943, the town of Essen was largely devastated. Extremely severe damage was inflicted on the Friedrich Krupp works and it was thought that by the end of July 1943, output had been reduced to one third of capacity. Since then, some reconstruction has taken place, and by the end of 1943 output was reckoned at 40% of pre-raid capacity.

The works of Theodore Goldschmidt A.G. were also severely damaged and are believed to be inactive (see under Non-ferrous Metals).

#### Transportation

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nal. s well as Railway traffic centre.

Essen.

(3)

This centre also known as the "Verschiebebahnhof" is located adjoining the main station the greater part being on the Eastern side of it. The yards had a capacity of 2,600 wagons per 24 hours in 1938.

Marshalling yards.

Kupferdreh

(3)

These yards lie on the southern bank of the river Ruhr and extend for about 1½ miles S.E. of Kupferdreh. They had a capacity of 2,600 wagons per 24 hours in 1938.

Marshalling yards.

Frintrop

(2)

The yards are located in the N.W. corner of the Essen district, about  $5\frac{1}{4}$  miles N.W. of Essen main station. They had a capacity of 5,400 waggons per 24 hours in 1938.

Krupp's Harbour.

Rhein-Herne Canal

(3)

The private harbour of the Krupp concern, which leads off the Rhine-Herne Canal, is situated immediately north of the blast furnace complex at Borbeck. The harbour has a length of 768 yards and a width of 65 yards and provides the means of bringing iron materials to the plant. (See also under "Iron & Steel").

### Public Utility Services.

R.W.E. power station.

Essen-Karnap.

(1)

The station owned by the Rheinisch-Westfälisches Elektrizitätswerk A.G. lies on the Northern bank of the Emscher Kanal 41 miles north of Essen main station. This is the most important power station in the Ruhr industrial area. It was under construction at the outbreak of the war, and is believed to have been completed by the summer of 1943. It is hard-coal fired but brown coal can also be fired. The coal-storage ground lies on the opposite side of the Emscher canal and between it and the Rhein-Herne canal. There is a single boiler house adjoining the machine-house in the centre of the plant. 4 turbo-generator sets have a total installed capacity of 220 MW. A row of 6 transformers adjoins the generator hall, forming part of the open-air substation which also contains gas blast switches and auxiliary equipment.

The important 220 kV line from Leithe to Hamborn has been looped into the station but no other overhead lines appear to be connected. Probably

a considerable part of the output of the station is supplied locally by underground cables. also be a connection to Bottrop-Welheim.

Kupferdreh power station.

Kupferdreh

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Owned by Bergische Elektrizitätswerke A.G. station is situated just East of the Kupferdreh marshalling yards and 6 miles S.E. of Essen main station. There are 5 generating sets with an estimated capacity of 34 MW.

Viktoria Matthias power station.

Borbeck

(3)

Owned by Friedrich Krupp A.G., this station is situated at the Borbeck plant, about 32 miles N.W. of Essen main The plant is fired by blast-furnace gas and station. tar oil. There are 3 generating sets having a total estimated capacity of 42 MW. This station supplies the Borbeck steel plant.

Amalie power station.

Essen

(3)

Situated on the mine within the Krupp complex and south of Altendorfer Str. There are 3 generating sets with an installed capacity of 40 MW.

Kruppsche Wasserwerk.

Lake Baldeney

(3)

Owned by Friedrich Krupp A.G. The works are situated on the north bank of the river Ruhr, 5 miles south of Essen station and ½ mile N.E. of the Baldeney power station. There are 4 generating sets with an estimated capacity of 34 MW. This station supplies all the water for the entire Krupp iron and steel works and the engineering works, and is believed to be the only available source of

supply. Baldeney Reservoir.

(3)

5 miles South of Essen, the reservoir is the source of drinking water for the Rhenish-Westphalian industrial At the western end, on the weir, is the Baldeney Power Station having an installed capacity of 9 MW.

Stadtische Gaswerke

(2)

Situated in Essen proper on the north-east border of the Friedrich Krupp complex, this municipal gasworks obtains its supplies from the Ruhrgas grid and the Thyssen grid, and ten independent coke-oven plants. In 1936, purchases and sales of gas amounted to 1,650 million cubic feet of gas.

There are believed to be several other small gasworks in the Essen area, notably at Borbeck, Kupferdreh, Steels and Frillendorf.

# Solid Fuels

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(2)

Emil Coking Plant N.W. of Esse	n (2)
The plant is situated adjoining the Emil colliery, 3 miles N.W. of Essen main station. It is owned by Hoesch A.G. and there are 156 owens with an estimated annual dry coal capacity of 900,000 tons.	
Wolfsbank Coking Plant Borbeck	(3)
Owned by Gebrider Stumm G.m.b.H. the plant is situated 2½ miles N.W. of Essen main station, and just East of Borbeck station. There are 170 owens having an estimated annual dry coal capacity of 455,000 tons. Gas is supplied to the Ruhrgas grid.	
Friedrich Ernestine Coking Plant N.E. of Essen	(3)
Owned by Direktion der Stinnes'schen Zechen, the plant is located 2 miles N.E. of Essen main station. There are 60 ovens having an estimated annual dry coal capacity of 450,000 tons. Gas is supplied to the Ruhrgas grid.	
Helene Coking Plant N. of Essen	(3)
Owned by Friedrich Krupp A.G. the plant is situated 2 miles North of Essen main station. There are 140 ovens with an estimated annual dry coal capacity of 317,000 tons.	
Emscher Coking Plant N.W. of Essen	(3)
Owned by Hoesch A.G. the plant is situated $3\frac{1}{2}$ miles N.W. of Essen main station. There are 110 ovens having an estimated annual dry coal capacity of 308,000 tons.	
Amalie Coking Plant At Krupps	(3)
Owned by Friedrich Krupp A.G. the plant is situated within the Krupp complex south of Altendorfer Str., 12 miles N.W. of Essen main station. There are 82 ovens having an estimated annual dry coal capacity of 237,000 tons.	
Zollverein 1/2 Coking Plant N.E. of Essen	(3)
Owned by Gelsenkirchener Bergwerks-A.G. the plant is situated 2½ miles N.E. of Essen main station. There are 5½ ovens having an annual estimated dry coal capacity of 210,000 tons.	

Hubert Coking Plant	Frillendorf	(3)
Owned by Mannesmannrohren-Werke A.G. the is located at the Hubert colliery, at Fr. 2 miles N.E. of Essen main station. The 80 old ovens working, having an estimated dry coal capacity of 188,000 tons. 2 ad batteries of 40 ovens each were being re at the end of 1943.	re are ammal ditional	
Salzer-Neuack Coking Plant	At Krupps	(3)
Owned by Friedrich Krupps A.G. the plant situated at the Sälzer-Neuack colliery, within the Krupps complex 1 mile West of main station. There are 67 ovens having estimated annual dry coal capacity of 17 tons. The plant has its own power stati "Public Utilities").	Essen g an 77,000	
Wilhelm Coking Plant	N.E. of Essen	(3)
Owned by Mannesmannröhren-Werke A.G. the is situated at the Wilhelm colliery adjute goods station, 14 miles N.E. of Essistation. There are 60 ovens having an annual dry coal capacity of 153,000 ton	en main estimated	
Bomifacius Colliery	Kray	(3)
Situated North of Kray station the collowned by Gelsenkirchener Bergwerks-A.G. output of hard coal in 1937 amounted to 1,050,000 tons.	The	
Emil-Emscher Colliery	N.N.W. of Essen	(3)
Situated 31 miles N.N.W. of Essen main the colliery is owned by Hoesch A.G. T of hard coal amounted to 1,489,000 tons	he output	
Fritz-Heinrich Colliery	N. of Essen	(3)
Owned by Hoesoh A.G. the colliery is significant of Essen main station, 1,365,000 tons of hard coal were product 1937, when there were 2,800 workers em	oed in	
Mathias Stirmes Colliery	Karnap	(3)
Owned by Direktion der Stimmeschen Zeo colliery is situated just North of Ess station and 5½ miles North of Essen ma The output of hard coal in 1937 amount 2,500,000 tons.	en-Karnap in station.	

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Owned by colliery The outp in 1937.

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Königin Elizabeth Colliery

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Kray

(3)

Owned by Mannesmannröhren-Werke A.G. the colliery is situated East of Essen near Kray. The output of hard coal was 1,040,000 tons in 1937.

König Wilhelm Colliery

Borbeck

(3)

This colliery is located North of Essen-Borbeck station; it is owned by Gebrüder Stumm G.m.b.H. In 1937 the output of hard coal amounted to 1,033,000 tons.

Iron and Steel and Ferro-Alloys/

### Iron and Steel and Ferro-Alloys

Fr.Krupp A.G.

Borbeck

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The iron and steelworks of the Friedrich Krupp A.G. are situated 4 miles north west of Essen main station on the Rhein-Herne Canal at Borbeck. This modern plant contains 2 blast furnaces of the latest suspended type having an estimated annual capacity of 300,000 tons of pig iron. There are 5open-hearth furnaces with an estimated annual capacity of 400,000 tons of crude steel. The steelworks have cast ingots of up to 230 tons. There are also rolling mills, etc. Raw materials are brought to the company's private harbour, just north of these works, on the Rhein-Herne canal (see also under "Transportation"). Power is supplied to the works by the Krupp power station at Borbeck (see under "Public Utilities").

## Non-Ferrous Metal Manufacture and Fabrication

Goldschmidt

East Essen (-)

The site of the works of Theodor Goldschmidt A.G. is situated  $\frac{1}{2}$  mile west of Essen main station, just south of the railway line. They formerly produced lead and tin, bearing metal, welding materials and sulphuric acid and were large producers of incendiary bombs. The works has been completely gutted and is now believed to be inactive.

Karl Hamm

Kupferdreth (-)

Röhrenwerk Kupferdreth, Karl Hamm, is situated on the south bank of the river Ruhr about  $4\frac{1}{2}$  miles south east of Essen main station. The firm are makers of lead pipes.

A.G. des Altenbergs für Bergbau und Zinkhüttenbetrieb

Bergeberbeck (3)

A subsidiary of the Stollberger Zink A.G. für Bergbau und Hüttenbetrieb, this zinc distillation plant is situated 3 miles north west of Essen main station and has an estimated annual capacity of 30,000 tons of metal. (The output in 1938 was 28,700 tons). It is also estimated that the works has a capacity of 34,000 tons of sulphuric acid. The number of workers is believed to be about 1,800.

### ENGINEERING AND ARMAMENTS

#### FR. KRUPP A.G.

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ESSEN (1)

The engineering and armaments works of FRIEDRICH KRUFP are situated in the Western half of ESSEN itself. These works are built on a site of more than 2,150 acres, of which nearly 300 are covered by factories and workshops, the area being approximately 2 miles long and a mile wide.

There are 11 open-hearth furnaces, having an estimated annual capacity of 400,000 tons of crude steel. Pig iron and crude steel is also sent to these works from the BORBECK iron and steel works. Electric steel is also made. In the S.W. area of the plant, lies the section producing WIDIA (tungsten-carbide), which is used for the tips of tools, cores of armour-piercing ammunition, etc.

The finished and semi-finished products of these tremendous works cover an extensive range, only the more important of which can be mentioned here.

The northern part of the works contains one of the largest locomotive shops in Europe, which consists of a simple building having 19 parallel bays, with a total floor space of over 88,000 square yards.

There is a tyre-rolling plant covering 34,000 square yards, which has an annual production estimated at 315,000 tyres and 120,000 wheel centres.

The numerous forges are capable of producing the largest forgings for guns, including the heavier naval types, parts for turbines and locomotives, and also smaller forgings such as components for motor vehicles and aircraft. The hammer and forging shops contain 120 steam hammers and 11 steam hydraulic presses. In the largest forging shop there are presses of 200, 400, and 500 tons capacity, and one large press of 1,500 tons capacity, which is served by two 400-ton cranes manipulating the ingots, while another two 100-ton cranes handle the necessary tools.

Amongst the many rolling mills are those containing drawing and flanging presses of various capacity, aggregating over 8,000 tons.

There are several foundries for iron, malleable iron, rustless and heat-resisting castings and non-ferrous castings in brass, bronzes, and aluminium.

Besides these, there are numerous other shops engaged on general engineering.

The number of employees engaged in the heavy engineering and armaments section of the works was estimated at 75,000 in 1942.

The harbour on the RHEIN-HERNE canal is described under "Transportation", the power station and waterworks under "Public Utilities", the coking plants and collieries under "Solid Fuels", and the Borbeck plant under "Iron and Steel". A note on Krupp's generally is to be found in the introduction to "ESSEN", which also covers the question of bomb damage.

Buderussche/

Buderussche Eiserwerke

(3) Kray

Situated 3 miles East of Essen in the suburb of Kray, this works manufactures cast pipes, baths, hardware and enamelware.

Ausfuhrungsrechte Maschinen-Bau A.G. Union, (Demag) H. Neuenburg, Bergwerksmaschinenbau Emil Wolff Maschinenfabrik G.m.b.H. Skip Compagnie A.G.

Essen Altessen) (3)Essen Essen

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These firms are four of several in Essen all engaged on the production of shaft winding equipment and mining machinery in general.

#### CHEMICALS -

Carbidwerk W. Vogelsang G.m.b.H.

(-) Steele

Situated 6 miles South East of Essen in the suburb of Steele, this works is believed to have a capacity of 6,000 tons per annum of calcium carbide.

### ESSLINGEN

See under Stuttgart

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# EUSKIRCHEN (Rhineland)

50° 40' N. 6° 50' E:

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310 miles:

(16,000)

Euskirchen is on the direct railway line from Cologne via Trier to the Saar. Two branch lines lead from Euskirchen to Duren (to the West) and to Bonn (to the East). It has a small textile and engineering industry.

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### FALKENSKE (Brandenburg)

(25,000)52° 35' N. 13° 5' E: 570 miles:

Falkensee, though a separate municipality, almost adjoins the outer suburbs of Berlin, being immediately west of Spandau. Apart from the factory mentioned below there are no industries of individual importance.

### Engineering and Armaments

Berlin-Seegefelder

(3)Falkensee

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The Berlin-Seegefelder Industrie A.G. are manufacturers of high pressure steel containers. were employing some 700 workers in 1939.

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### FALKENSTRIN (Saxony)

12° 20' E: 550 miles: (16,000)50° 30' N.

Falkenstein is situated in the S.W. part of Saxony and has a number of textile factories. It specialises in curtain and lace These firms are of little individual importance. manufacture.

### Textiles, Rayon, Pulp and Paper

Gardinen Weberei

(-) Falkenstein

The Falkensteiner Gardinenweberei u. Bleicherei worm. Georg Thorey manufactured curtains before the war and employed some 2,000 workers. Nothing is known regarding the firm's present activities.

Dresdner Gardinen A.G.

(-) Falkenstein

This is one of three curtain and lace factories belonging to the Dresdner Gardinen u. Spitzen Manufaktur A.G. of Dresden.

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### FALLERSLEBEN (Hanover)

(39,000) 52° 25' N. 10° 40' E: 470 miles:

Fallersleben, which is 16 miles N.E. of the town of Brunswick, until 1935 had not more than 3,000 inhabitants. It was chosen as the site of the Peoples Car factory - Volkswagenwerke - and developed rapidly and simultaneously with the erection of the great automobile Since 1940 a number of workers' colonies have been built in the vicinity of the works mainly for the purpose of housing prisoners of war, and labour imported from occupied countries.

#### Public Utility

Electricity Works

(2) Fallersleben

The Power Station is owned by the Volkswagenwerke

G.m.b.H., and is situated at the eastern end of the works, on the Mittelland Canal, and the main Hanover-Berlin railway. The plant is designed for duplication or even triplication, but it is possible that the generating station is not in use, and that the works is obtaining its electrical requirements from outside sources. There is a single boiler house and a single generator house. The generator house is reported to contain 63 M.W. of generating plant capacity, but details of the sets are not known. A medium voltage line connects via Weferlingen to the important 220 kV substation at Hasbke between Brunswick and Magdeburg.

### Engineering and Armaments

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#### Volkswagenwerke

Fallersleben

The Volkswagenwerke G.m.b.H. belonging to the Hermann Goring concern was originally intended to mass-produce an austerity-type automobile designed by Dr. Porche, a former chief engineer of the Daimler-Benz A.G. at Stuttgart-Unterfürkheim. the outbreak of the war the Fallersleben plant was still under construction, and it has never been utilized for its original purpose. However, much of the original installations are now employed on the large scale manufacture of a military version of the "Peoples' Car" in both the normal and amphibious types. Another major activity of this works is believed to be the repair of aircraft fuselages and possibly also the manufacture of components. Ground intelligence suggests that at least one section of the works is engaged on the machining of bombs up to 2,000 kg. It is believed that approximately 15,000 workers are employed at Fallersleben.

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### FERNDORF (Westphalia)

50° 55' N. 8° E: 355 miles: (2,800)

Ferndorf is four miles north of Siegen and has no noteworthy industries other than that mentioned below.

### Engineering and Armaments

#### Stahlschmidt

Ferndorf (3)

The Albert Schaub-Eberh. Stahlschmidt G.m.b.H. are known as manufacturers of boilers. They are now reported to be building gas-producer shells for army use.

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### FINKENHEERD (Brandenburg)

540 14° 30' E: 630 miles: (3,000) 20' N.

Thermal Power Station

Near Frankfort - a.d. -Oder.

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This important thermal power station is owned by the Märkisches Elektrizitätswerk A.G. (M.E.W.) Berlin, and has an installed capacity of 232 M.W. Begun in 1921, it has been frequently extended, and there is space for an ultimate capacity of 400 M.W. The station supplies power to Br province, Berlin, Lower Siberia, Grenzmark, The station supplies power to Brandenburg Pomerania, and Mecklenburg-Strelitz. It is situated on the brown coalfield 5 miles south of Frankfurt a.d. Oder, on the Brieskow Lake, a stretch of water running south from the Oder, sharp north of the point where the lake is joined to the Friedrich-Wilhelm Kanal. There are 3 boiler-houses and a fourth may have been built when the station's capacity was increased in 1940. There are 7 turbo-generator sets; the seventh with a capacity of 50 M.W, was installed in 1940. An important substation containing the 6/50 kV and the 6/110 kV transformers, and the switchgear, is attached to the station. One 50 kW double-circuit line connects to Frankfurt a.d. Oder, two 110 kV. double-circuit lines go to Furstenwalde, thence to Berlin. 2 110 kV. double-circuit lines go to Guben, and one to Landsberg.

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### FINNENTROP (Westphalia)

51° 10'N. 8° E: 350 miles: (1,500)

Finnentrop is one of the many small industrial towns situated along the valley of the river Lenne between Hagen and Siegen. from that mentioned below there are no factories of individual importance.

#### Iron and Steel and Ferro-Alloys

Netter u. Jakobi

Finnentrop

The Netter u. Jakobi Werke K.G. of Frankfort/Main have a large sheet rolling mill in Finnentrop where 1,000 workers were employed in 1939.

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### FINSTERWALDE (Brandenburg)

13° 40' E: 595 miles: 51° 35' N.

Finsterwalde, which is 25 miles west of Cottbus, has a number of industrial establishments in addition to those mentioned below, such as bicycles, cloth, furniture and soap factories. No one of these is of individual note.

#### Engineering and Armaments

Reichelt

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nkfort - a.d. -Oder.

Finsterwalde (3)

The Reichelt Metallschrauben A.G. are makers of screws, nuts, bolts, and machine tools. Between 1933 and 1939 they increased their number of workers four-fold and were employing some 2,000 at the outbreak of war.

Kjellberg

Finsterwalde (3)

The Kjellberg Elektroden u. Maschinen G.m.b.H. are makers of arc-welding plants, dynamos and connector sets, as well as welding transformers and electrodes.

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#### FLENSBURG (Schleswig-Holstein)

54° 45° No 9° 25° E: (66,000)460 miles:

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Power Stat

Flensburg is at the inner end of a deep fjord of the Baltic and lies close to the German Danish frontier. is on the main line between Germany and Denmark and is a junction for two branch lines leading West to the North Sea coast and East along the Baltic coast to Kiel. has a considerable industry including several small engineering works and foundries. Its principal importance is, however, due to the shipbuilding yards, now engaged largely on submarine construction.

#### Transportation

(3) Railway Junction Flensburg

The junctions of the branch lines are to the South of the town and there are marshalling yards close to the main railway station. The chief goods yards are in the harbour area in the North East part of the town.

#### Public Utilities Services

Gas Works Flensburg (3)

The Gaswerk Flensburg G. m. b. H. made 280 million cubic feet of gas in 1936.

Flensburg (1) Schiffsbau A. G.

The Flensburger Schiffsbau A.G. formerly a comparatively small undertaking building river craft and coasting vessels, was developed rapidly during the years 1934 to 1939 and the number of workers engaged increased ten-fold to approximately 2,500. The company has two yards, the larger of which, known as the Neue Werft, is on the West bank of the fjord and to the North of the town. This is reported to be solely engaged on submarines and can undertake construction of 8 submarines at one time. The Alte Werft, situated in the town and opposite to the port, employs some 800 workers and builds small freighters and river craft.

#### Engineering and Armaments

Gebrüder Klaus Flensburg (-)

Before the war this engineering firm, which has its own iron foundry, specialised in dairy machinery.

#### FORBACH

48° 40'N 08° 23'E

425 miles (2800)

The village of Forbach 27 miles S. of Karlsruhe, in the Black Forest, is situated on the river Murg, a tributary of the Rhine and on the railway line Karlsruhe-Rastatt-Freudenstadt. It is the centre of the Forbach or Murg-Schwarzenbach hydro scheme, described below:

### Public Utility services:

Power Stations

It a

tance

Forbach

(3)

The Forbach hydro-electric power scheme is owned by the Badenwerk A. G. Karlsruhe and has a total installed capacity of 67 MW.

It consists of 2 stations, Murg (25 MW) and Sohwarzenbach (40 MW) and 2 small stations of 1 MW each.

The scheme uses the water power reserves of the Rivers Murg, Schwarzenbach and Raumunzach in the Black Forest, approximately 30 miles S. of Karlsruhe. Two reservoirs were created for daily storage and for supply of water to the 2 main stations which stand on sluice weirs built across the rivers and contain a total of 8 turbo generator sets. The small stations contain one turbo generator set each.

The greater part of the output of the plant is transmitted over a 110 kV double circuit line to the Scheibenhardt sub-station at Karlsruhe, where connection is made to the main 110 kV. transmission system.

Small supplies are ven locally on a 20 kV line. The annual output of the scheme is about 120 million kWh. and it is used mainly for peak load and standby purposes.

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#### FORST (Brandenburg)

51° 45° N. 14° 40° E:

635 miles: (38,000)

Situated 12 miles East of Cottbus on the main line from Cottbus to Silesia, Forst is a railway junction of local importance and has a considerable textile industry. There are also several firms making textile and laundry machinery.

Transportation/

FORST (Cont'd.)

#### Transportation

Railway Repair Shops

(3) Forst

Meir Kilmi

Guss

Food Stu

These are chiefly engaged on the repair of goods wagons.

#### Liquid Fuels

Synthetic Petrol/Storage Depot

(-) Forst

Although a synthetic petrol factory, with largely underground buildings, is reported to exist in the woods to the east of Forst, it would appear to be more likely that a fuel storage depot has been built here. The area is said to extend from the Forst-Sommerfeld road to the Forst-Sagen railway line.

### Textiles, Rayon, Pulp and Paper

Haensel & Co. A.G.

(-) Forst

This is one of a large number of spinning, weaving and cloth making factories in Forst. Haensel & Co. specialised in weaving horsehair fabric before the war.

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### "FORTUNA" (Rhineland) see under Bergheim.

#### FRANKENBERG (Samony)

50° 55' N. 13° E: 570 miles: (15,000)

This town, which is 6 miles N.E. of Chemnitz, has textile and tobacco industries, but no factories of individual importance.

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#### FRANKENTHAL (Palatinate)

49° 35' N. 8° 20' E: 400 miles: (27,000)

Frankenthal, which is in the Bavarian Palatinate, is a largely industrial town 5 miles N.W. of Ludwigshafen on the main railway line halfway between Ludwigshafen and Worms. It is 4 miles from the left bank of the Rhine, with which it is connected by a canal. Frankenthal is well known as a centre for the manufacture of compressors, pumps, turbines and other engineering products, and as the seat of one of the largest German beet-sugar refineries.

#### Engineering and Armaments.

Balcke

(3) Frankenthal

The Frankenthal works of the Maschinenbau A.G. Balcke, of Bochum, specialise in the making of pumps and compressors. They are believed to be important producers of submarine pumps. Prior to the war Balcke employed about 800 workers at their Frankenthal plant.

Klein, Schanzlin & Becker A.G. and )
Kühnle, Kopp and Kausch A.G. ) Frankenthal (1

The KSB factory is a well known maker of pumps and compressors as well as of machinery for the chemical and textile industries. In 1939 the firm employed some 2,000 workers.

The KKK works are well known builders of turbines, industrial ventilators, air purification plant, evaporators and a variety of apparatus for the chamical industry. In 1939 they employed more than 1,000 workers.

Both the KSB and KKK works have been enlarged since 1939, and are now believed to be working in close association with each other. It is possible that the nearby engineering works of Schnellpressenfabrik Albert, which was largely inactive prior to the war, has been incorporated into this industrial complex.

According to reliable ground intelligence, the KSB and KKK works together now employ more than 5,000 workers and are partly, if not mainly, engaged on the manufacture of parts of new weapons or appliances for such weapons.

Gusswerke A.G. Wormserstr. (-)

This company belongs to Brown Boveri & Co. of Mannheim and is believed to specialise in the production of steam cylinders.

Food Stuffs

textile and

tance.

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is a largely railway him rom the left Prenkuits Zuokerfabrik Frankenthal

The Frankenthal factory of the Stddeutsche Zucker A.G. is one of the largest beet sugar refineries in Germany with an annual output of 160,000 tens.

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### FRANKFORT ON MAIN (Hesse Nassau)

50° 10° N. 8° 40° E:

395 miles:

(570,000)

#### General

The area covered hereunder includes the town of Frankfort/Main proper as well as the outlying suburbs Höchst, Griesheim, Nied, Rödelheim, Heddernheim, Praunheim, Fechenheim, Mainkur, Oherrad, and Niederrad, together convering an area of 49,000 acres.

The nearby town of Offenbach/Main, lying within the borders of the province Hesse, is dealt with separately under Offenbach.

Frankfurt is the commercial, industrial and cultural metropolis of the Upper Rhineland, an important transport centre, and since 1933 also important as a military training centre with a large number of new and extensive barracks situated around the Friedberger Warte in the suburb Praunheim to the North of the town.

### Communications

Frankfort is an important railway junction on the lines from Berlin to Basle, from Cologne via Nurnberg to Vienna, from Hamburg and Kassel and from Dresden and Leipzig to France and Switzerland. The river Main is sufficiently dredged to take heavy barge traffic several hundred miles up the river, thus making Frankfort one of the leading inland ports on the Rhein-Main-Danube canal route.

### Industry

The largest industrial plants in the area are the chemical works of I.G. Farbenindustrie at Höchst and Griesheim-on-Main some 5 miles west of the town. Within the built-up outskirts of Frankfort proper are the Adler Werke, important manufacturers of motor vehicles &military transport, and immediately adjacent the large works of Alfred Teves which in pre-war days produced the well known ATE refrigerators and were also the leading manufacturers in Germany of Lockhead brakes and piston rings. The Teves works have been enlarged considerably during the last four years and have replaced refrigerator production by the manufacture of retractable undercarriages for aircraft and a variety of other aircraft components.

At Heddernheim, a North-Eastern suburb, is the important non-ferrous metal works of the Vereinigte Deutsche Metallwerke formerly well known under the name of Heddernheimer Kupferwerke. To the war industry this plant is of particular importance as a prominent producer of air-screws.

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Many other factories, the production of which is solely confined to the supply of Germany's war machine, are located within this town. Among these special war products are aircraft and motor-vehicle instruments, detonating apparatus for naval mines, precision measuring instruments, special electrical gear, including range finding apparatus for the Navy, small-arms-ammunition and so forth. Frankfort has also large grain stores, flour mills, power stations, and oil storage plants.

In addition to the huge chemical plants at Griesheim and Höchst, more than twenty other chemical factories are located, within, or in the immediate vicinity of the town. Frankfort is often referred to as the centre of Germany's chemical industry. This is partly due to the fact that the I.G., Germany's great chemical trust, have their administrative headquarters here in the so-called I.G. Hochhaus. This is a very modern office building in the western section of the town where more than 3,000 officials, are housed. In addition Frankfort is also the headquarters of the "Degussa" Chemical concern (Deutsche Gold & Silber Scheideanstalt) another important chemical trust and of the Metallgesellschaft A.G., a large chemical and non-ferrous metal concern.

### Principal Industrial Areas

Within or immediately adjacent to the built-up area of the town are a number of industrial targets of primary importance situated in two distinctly separate areas:-

- Area "A" Stretching South from the Main Goods Yards to the
  River Main includes such important targets as the
  Adler Werke A.G. (vorm. Hch. Kleyer), building M.T.,
  A.F.V.'s and A.F.V. components, M.G. and small-arms
  components; Fritz Gerner, making components for
  Messerschmitt fighters; Alfred Teves making M.T.
  and a/c components, piston rings, brakes, propellor
  shafts, valves etc., V.D.O. Tachometer making a/c
  and M.T. instruments; Hartmann und Braun making
  a/c and other instruments, gauges, etc.; and a
  number of small engineering works, as well as
  Peters-Union (Continental) making tyres and tubes
  and other rubber manufactures; as well as the three
  factories of F. & C.A. Schneider, largest slipper
  manufacturers in Germany. Also within area "A" is
  an important 58 MW power station.
- Area "B" which stretches from the Marshalling Yard-Ost to the river Main, includes the East Harbour, Gaswerk-Ost; Messer & Co., making welding machines; a petroleum receiving depot, flour mills and grain storage plants; and the large works of Voigt & Häffner A.G. making switchgear and special electrical equipment. Roughly ½ mile North-West of area "B" is the important plant of Naxos Union one of the leading German makers of grinding wheels.

#### Transportation

Railway Repair Shops

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These very large railway repair shops are believed to be employed exclusively on the repair of locomotives. Reports suggest that some 4,000 - 5,000 workers were employed in two ten-hour shifts in 1943.

Railway Repair Shops

Frankfort-West

(2)

Reports suggest that this works, which is engaged on the repair of passenger coaches and goods Wagons, was less active in 1943 than in 1941 when 2,000 workers were employed.

Hauptgäterbahnhof

Frankfort-West

(2)

These railway goods yards are situated in the western part of the town adjacent to a large marshalling yard. The area also includes the Reichsbahn customs house and a large number of storage depots with extensive facilities.

Railway Marshalling Yards

Frankfort/Ost

(3)

These yards are situated to the North of the East Harbour. In 1939 they had a capacity of 2,700 wagons per 24 hours.

East Harbour

Frankfort/Ost

The East Harbour was the larger and best equipped of Frankfort's two inland ports. In 1939 the area included a gas works, grain silos, oil storage depots and many storage plants for general merchandise but it was mainly used for the handling of the coal requirements of the town. During the past six months, many of the harbour installations and facilities have been destroyed by the R. A. F.

West Harbour

Frankfort

(3)

This part is mainly for the handling of grain, flour, other foodstuffs and general merchandise. The main facilities are the storage capacity of 100,000 tons.

#### Public Utility Services

(1)

-West (2)

-West (2)

Ost (j)

(3)

#### Städtisches Elektrizitätswerk

Frankfort

(2)

This municipal thermal power is situated on the river Main in the Gutleut Strasse, to the S.W. of the central district of Frankfort/Main.

Built originally in 1894, it has been successively extended, but the plant is old and the capacity is insufficient to meet the requirements of the city, so that a supplementary supply is imported from the Preussische Elektrizitäts A. G. (Preag. ) and the R. W. E. Its installed capacity is 58 MW.

There are 35 kV. lines connected to the Osthafemplatz, Schillerplatz and Bookenheim switching stations, and a further cable connects to the Griesheim hydro station. There are 100 kV. double circuit lines which link the station via Wölfersheim to Borken, and to Dörnigheim, thus linking up via Dettingen and Aschaffenburg with the Bayernwerk grid and via Kelsterbach with the 220 kV. grid of the R. W. E.

#### Kelsterbach

5 miles S. W. of Frankfort

(2)

This large sub-station is situated in wooded country, approximately 5 miles S.W. of Frankfort. It is a focal point in the high-voltage transmission system, lines diverging northwards to feed into each end of the Ruhr industrial area, and southward to collect surplus output from the water-power stations on the river Rhine and in the mountainous districts of Bavaria and Austria.

The sub-station has two 380/220 kV. double-circuit lines to Koblenz and Rheinau respectively, one 220 kV. line, believed to be a double-circuit line, to Kreuztal, and four 110 kV. lines to Aschaffenburg, Ershausen, Wölfersheim, and Höchst/Main. The plant has two 48 MW. transformers for 220/110 kV, 2 sets of three single-phase reactors, and three Petersen coils.

### Public Utility Services (contd.)

#### Elektrisitätswerk Höchst

Höchst

(3)

(3)

This is a small municipal generating station with an estimated capacity of 40 MW. It is connected by 30-80 kV lines to Niederhausen, Oberursel, and Wiesbaden, and by 100-150 kV to the Kelsterbach sub-station.

#### Griesheim Unterstation

3 miles W. of Frankfort

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This is a small sub-station connected by 100-150 kV lines to the Kelsterbach substation and the Frankfort municipal power station, to the latter of which it is also connected by a 30-80 kV line. The capacity of this sub-station is not more than 10 MW.

#### Gaswerk Ost

Osthafen

(2)

Owned by the MAIN GASWERKE A. G., this works made 2,800 million cubic feet of gas in 1936 and bought a further 17 million cubic feet from the I.G. works at Mainkur. The works cover the area between the Riederhofstrasse, Kohlrauschstrasse, Daimlerstrasse, and the Schielestrasse, directly East of the East harbour.

#### Gaswerk West

Bookenheim

(3)

This works lies one mile N. E. of Rebstock aerodrome. In 1936 it sold some 25 million cubic metres of gas.

#### Gaswerke Höchst

Höchst

(3)

Owned by the HESSEN-NASSAUISCHE GAS A. G. This works made 310 million cubic feet of gas in 1936.

#### Gaswerke Griesheim

Griesheim

(-)

This is a small gas works, adjacent to the eastern end of the I.G. Farben works at Griesheim. No details of production are available.

### Liquid Fuels and Substitutes

Oil storage plants

Frankfort/Ost

(3)

A little upstream of the East Harbour is a large petroleum receiving depot consisting of 58 large tanks with a reported total capacity of over 200,000 tons. Prior to the war this depot was used jointly by the various well-known distributing companies D.A.P.G., Shell, Benzol Verband, Rhenania Ossag etc.

#### Non-ferrous metals

W. of

(2)

(3)

Vereinigte Deutsche Metallwerke A.G. Heddernheim (1+) (Heddernheimer Kupferwerke)

This target is the airscrew, aircraft components and non-ferrous metal works of the Vereinigte Deutsche Metallwerke A.G. (V.D.M.) (Heddernheimer Kupferwerke) situated about ½ mile North of Heddernheim, a suburb of Frankfort/Main and about 4 miles North by West of the centre of that city. It occupies a triangular area of about 600 acres on the West side of the marshy ground which here forms a broad belt to the West of the river Nidda.

This works has been considerably expanded in recent years, particularly since 1939, and the total number of workers employed is now thought to be not far short of 10,000.

The V.D.M. was originally engaged mainly in the production and fabrication of copper and copper alloys and produced sheets, strips, rods, sections, castings, stampings, extensions, tubes and wire in copper, bronze, brass, coppernickel etc. These products included many specialities such as locomotive boiler tubes, condenser tubes, vessels for chemical plant, welding electrodes, bearing alloys, detonators etc. and also fine copper wire for use in electrical apparatus.

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Owing to its great experience in the working of non-ferrous metals it was inevitable that when the light alloy industry began to be developed V.D.M. should play a leading part in it.

In addition to its production of copper and copper-alloy semiproducts Heddernheim is believed to be producing a large range of semi-products in light alloys for use by aircraft manufacturers and other armament manufacturers and an important range of specialized aircraft components. The semiproducts include sheet and strip, tubes, pressings and stampings, extruded sections, and castings. The special aircraft components are known to include airscrew hubs and all metal variable pitch airscrews, retractable undercarriages and oleo legs, wheels, shock-absorber devices and control gear. Examples of V.D.M. products in military equipment are also known, and the company is almost certainly also making light-metal fittings for submarines.

#### Capacity

An up-to-date estimate for the capacity of the Heddernheim works is difficult to produce, especially owing to the difficulty of estimating the extent to which copper-fabricating plant in this and other works has been turned over to working on light alloys.

It is known that Heddernheim had one of the best rolling mills in Germany for aluminium sheet and strip and produced about 6,000 tons per year which was about 10% of the country's total former output.

Heddernheim's capacity for the production of extruded sections is believed to have been about 4,000 tons per year or about 25% of the total German capacity. At least 50% of the total output was required by the aircraft industry. It is also (after I.G. Bitterfeld) one of the two most important producers of wrought magnesium alloy products.

The output of complete airsorews at Heddernheim at the present time is believed to be slightly above 30% of the total German production.

## Non-ferrous metals (continued)

Deutsche Gold-& Silber Scheideanstalt (see under Chemicals)

Silumin G. m. b. H.

Fechenheim (3)

This firm is believed to employ several hundred workers and to produce light metal castings.

Metallgesellschaft A. G.

Fechenheim and (3)
Griesheim

This is the leading German nonferrous metal trading concern. It works in close co-operation with the I.G. Farbenindustrie chemical trust and the Deutsche Gold- und Silber- Scheideanstalt. The firm's headquarters are at the Reuterweg in Frankfort and consist of general administrative offices with a staff of about 800 and very extended laboratories. Both the Griesheim and Mainkur factories are relatively small. They are believed to be engaged on the manufacture of light metal castings possibly only for experimental purposes.

### Aircraft and aero-engines

Alfred Teves

Gustavsburg Str. (1) and Höchster Str.

The Alfred Teves works has expanded rapidly since 1935 and already in 1939 employed more than 6,000 workers. In the course of the war further extensions have taken place and it is believed that at the end of 1943 some 10,000 workers were employed.

Tewes is a key firm in the German aircraft, aero-engine, and motor-vehicle industry. It is the leading German maker of valves, piston pins, and piston rings for aero- and M.T.-engines, one of the leading makers of pressure and oil pumps, brakes, / retractable

### Aircraft and aero-engines (contd.)

retractable undercarriages for aircraft, crankshafts, radiators, propeller shafts, universal joints, master cylinders for hydraulic actuating devices, piston rings for submarines and a variety of other components for the aircraft and motor transport industries.

Prior to the war Teves was also well known as a maker of refrigerators which were sold under the trade name "ATE". Ground reports suggest that, apart from a few small contracts carried out in the early part of the war, activity in this line has ceased.

Vereinigte Deutsche Metallwerke Heddernheim (Please see under Non-ferrous metals)

Max Gerner

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(2) b) Gutleutstr.

Prior to the war this firm was engaged on the construction of gliders and operated a small plant off the Leipziger Str. Since 1939 the firm has greatly developed and now operates a very large works in the Gutlent Str. and another works (also reported to be owned by Alfred Teves) just south of the Rebstock aerodrome. Gerner is now an important link in the Messerschmitt complex and supplies aircraft and aero-engine components to Messerschmitt at Regensburg and Erla at Leipzig. It is believed that the Gerner works now employ more than 5,000 workers.

### Engineering and Armaments

Nationale Telephon- und Telegrapherwerke G.m.b.H.

a) 134-140 Mainzerlandstr. (2) b) Kleyer Str.

The products of this works are telephone equipment, automatic and manual exchanges, signalling devices, air raid sirens, safety alarms, safety fuses, electric and factory time clocks, etc. It is believed that in 1942 some 2,500 workers were employed.

Diskus-Werke A.G.

Frankfurt

(3)

Before the war this firm employed about 300 workers on the manufacture of precision grinding machines.

Messer & Co. G.m.b.H.

Hanauer Land Str.

(2)

This is the leading German maker of acetylene and electric welding plants, cutting machines, and oxygen and mitrogen producing plants. Prior to the war Messer employed about 600 workers. Reports suggest that this number had been doubled by 1942.

Frankfurter Maschinenbau A.G. (vormals Pokorny and Wittekind)

Bockenheim

(2)

This is one of the leading German makers of pneumatic tools of all kinds and is also an important builder of heavy machine tools. In 1939 nearly 1,000 workers were employed.

Lurgi

lire

ebstock (2

Seckbach

(2)

This firm consists of three associated undertakings known as Lurgi Gesellschaft für Wärmetechnik, Lurgi Gesellschaft für Chemie and Hutterwesen, and Lurgi Apparatebau Gesellschaft. These firms are also affiliated companies of the Metallgesellschaft (see under Non-Ferrous Metals). They are mainly construction and designing engineers but operate three adjacent factories at Seckbach where Soederberg electrodes, special plant for the chemical and processing industries, gas purification plant etc. are made. Research and development laboratories are at Wauson Str. and Gervinus Str.

Miag/

Miag

Frankfort/Ost

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This is a branch factory of the Muhlenbau and Industrie A.G. at Brunswick. The Frankfort works of Miag is believed to be solely engaged on the manufacture of Diesel engined tractors, the engines being supplied from the Motoren Werke at Maunheim.

A. Fischer A.G.

(2)

This is one of the leading German makers of carburettors for aero-engines, motor transport and motor cycles.

Heinz Waerner

Fechenheim

(3)

Prior to the war this firm specialised in the manufacture of screws, look muts, and a variety of minor components for the automobile industry. It is reported to be now supplying material to the Gerner aircraft components works.

Adler-Werke

Kleyer Str.

(1)

The Adler-Werke (vormals Heinrich Kleyer) consists of a group of three factories (Werk I: II and III) situated closely together and forming one single target area. It is believed that the production programme of this large plant from the end of 1940 until about the end of 1942 was: - construction and repair of semitracked motor vehicles, repairs of tanks, production of engines, production of components, production of torpedo motors, repair of motor transport, manufacture of typewriters and bicycles.

Ground reports suggest that the assembly of armoured fighting vehicles and tanks as well as the manufacture of aircraft components were among the firms activities as from the end of 1942 on, but it is believed that, apart from the possible assembly of armoured fighting vehicles, the new activities are more likely to consist of repair work rather than mammfacture.

V.D.O. Tachometer

König Str.

(2)

This firm is believed to employ more than 1,000 workers on the manufacture and assembly of instruments for motor vehicles and aircraft. V.D.O. is the leading German maker of speedometers.

> Maschinenfabrik vormals Ph. Mayfarth & Co. G.m.b.H./

Maschinenfabrik vormals Ph. Mayfarth & Co, G.m, b.H.

Fechenheim

Prior to the war this firm was engaged on the manufacture of drilling machines, presses, agricultural machinery and cranes etc. Some 400 were then employed. Reports suggest that nearly 800 workers were employed in 1943 and that a large part of the works had been converted to undertake repair of military transport including A.F.V's.

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Moltke Allee (3)

This is one of the leading German type foundries employing some 600 workers in 1939. It is believed that a large part of the works is now engaged on the manufacture of small arms components and S. A. A.

D. Stempel A.G.

Hedderich Str. (3)

In 1939 this was the largest German type foundry and it employed about 1,000 workers. Already prior to the war the manufacture of S.A.A. and small arms components was taken up and minor aircraft components were made on behalf of the Fieseler aircraft works at Kassel. No firm evidence is available regarding the firm's war time activities.

Voigt & Häffner A.G.

Hanauerland Str.

(3)

It is believed that this firm employed approximately 2,500 workers in 1943 on the manufacture of range-finders, special electrical gear and switch gear for the forces and a wide range of electrical apparatus and appliances. The works was recently severely damaged by the R.A.F.

Hartmann & Braun A.G.

König Str. (3)

This is an important maker of precision apparatus and instruments including firing apparatus for mines, range finders, aircraft navigation instruments, oil and temperature gauges for all purposes, etc. The works is believed to employ about 2,000 workers.

Lorch, Schmidt & Co.

Hanauerld. Str. (3)

Some 500 workers are believed to be employed by this firm on the manufacture of precision machine tools and gauges.

Fellner & Ziegler

Kreusnacher Str. (3)

This firm specialises in the manufacture and erection of boilers, rotary furnaces as well as plant and fittings for cement and aluminium works.

Günther & Kleinmend

Rödelheim

(3)

In 1938 some 500 workers were employed by this firm on the manufacture of machine tools.

/J.S. Fries Sohn.

J. S. Pries Sohn

(3) Fries Str.

This is a well known firm of builders and erectors of cranes, elevators, bridges, and heating and sanitary installations.

Moenus A.G.

Bockenheim

(3)

This firm is believed to employ about 450 workers, mainly on the manufacture of shoe machinery.

Merz Werke A. G.

Rödelheim

(3)

Prior to the war this firm employed about 500 workers on the manufacture of typewriters and other office machinery. Its present activities are not known.

This American owned company is by far the

employed. Reports suggest that large parts

largest shoe machinery works in Germany.

Prior to the war some 850 workers were

Deutsche Vereinigte Schuhmarchinen -Ges. m.b.H.

REdelheim

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of this factory are now engaged on the manufacture of shell casings.

Naxos Union

Waldschmidt Str. (1) (and others)

This company operates four factories in the Frankfort area. The main works is at Waldschmidt Strasse/Wittelsbacher Allee and consists of two factories separated by a main road. One of these factories is exclusively engaged on the manufacture of grinding wheels whilst the other and larger works is partly engaged on components for grinding machines and other machines tools which are supplied to the firms branch factory at Seckbach for assembly. A further branch factory of Naxas Union is the firm Burkhard & Co. at Rödelheim, makers of small grinding wheels as well as grinding and polishing tools and appliances. It is believed that the Naxos Union group of factories together employ some 1,500 workers.

Fontaine & Co.

Bockenheim

(3)

This firm is associated with the Naxos Union but operates as an independent company. It is engaged on the manufacture of grinding wheels.

Chemicals and Explosives.

Hiag-Verein.

Mainkur

(3)

The Hiag-Verein, Holzverkehlungs-Industrie G.m.b.H. are a branch of the Deutsche Gold-und

/Silber

Hiag-Verein (Contd.)

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Silber Scheideaustalt. The Mainkur works is engaged on the production of solvents, aldehydes, katones and the distillation of wood.

Merz & Co. Eckenheimerld.Str. (3)

This firm is believed to employ several hundred workers on the manufacture of pharmaceuticals.

Limmer & Co. Niederrad (3)

The Vereinigte Chininfabriken Limmer & Co. G.m.b.H. are one of the leading German quinine refiners.

Deutsche Gold & Silber a) Weissfrauen Str. } (2
Scheideanstalt. b) Westhafen

This very important chemical and non-ferrous metal firm has a number of large works in different parts of Germany. Their Frankfort works are relatively small but important because they include the firm's principal research laboratories.

The Weissfrauen Str. works includes the firms administrative offices, where in 1939 some 1,200 persons were employed, as well as chemical laboratories and a small production plant.

The Westhafen plant is fairly large and is mainly engaged on the separation and treatment of precious metals. It includes extensive laboratories.

Dr. C. Schleussner A.G. Eschersheimerld.Str. (3) and Neu-Isenburg.

This firm is believed to employ some 600 workers on the manufacture of photographic film, plates, and paper.

I.G. Farbenindustrie A.G. Mainkur (2)

These very large works were formerly known as Leopald Cassella, Mainkur. They are important producers of sulphuric acid and dyestuffs as well as of arsenicals and synthetic resins. The dyestuffs produced here are mainly supplied to dyers of artificial fibres.

I.G. Farbenindustrie A.G. Griesheim (2)

These large works were formerly known as the Griesheim Elektron. They are mainly engaged on the production of sulphuric acid, nitric acid, fertilizers, caustic soda and chlorine, cyanamide, and industrial gases.

/I.G.Farbenindustrie

I.G. Farbenindustrie A.G.

Höchst (1)

This is one of the principal works of the I.G. trust.

The products known to be produced are heavy chemicals (sulphuric, nitric, and hydrochloric acids, chlorine and fertilisers), intermediates, dyestuffs, pharmaceuticals, solvents, plastics, Chlorsulphuric acid (used for smoke screens); capacities of this plant as per 1943 are estimated as follows: -

Sulphuric acid Nitric acid Chlorine

Tons per annum 300,000 25,000

It has been frequently reported that poison gas and other chemical warfare substances are made here but this has not as yet been definitely ascertained.

### Textiles

Deutsche Kleider Werke

Bismark Allee

(3)

Hafen

Hafen

It is believed that some 1,200 workers are employed at this large Government owned factory on the manufacture of military clothing particularly on garments for the German Air Force.

#### Rubber and Tyres.

Continental Gummiwerk

Mainzerld. Str.

(2)

This large rubber fabricating plant was formerly known as the Peters Union Gummiwerke. It now forms part of the Continental combine which has its headquarters and main works at Hanover.

The Frankfort works are believed to employ some 1.500 workers on the manufacture of tyres and tubes for motor transport and on other rubber goods.

#### Leather

I. & C.A. Schneider

Mainzerld.Str.

(3)

I. & C.A. Schneider together with their affiliated factories Adler & Neumann and Golo Schuhfabrik, all of which are situated within a few hundred yards of each other, are the leading German manufacturers of slippers, industrial footwear and special footwear for the forces. Together they are believed to employ several thousand workers.

/Foodstuffs

## Foodstuffs

bohst

(2)

Grossmarkthalle Osthafen

(3)

The basement and sub-basement of this, the largest market-hall in South-West Germany contain a series of very extensive cold storage depots far in excessof the towns requirements. Reports suggest that large emergency stores are held here on bahalf of the Reichswehr.

Hafenmühle Osthafen (-)

In 1939 these mills had a capacity for milling 600 tons of grain per day.

Adjacent to the mills are two silos, each with a storage capacity of 5,000 tons.

Hafenspeicher Westhafen (-)

In 1939 this grain and flour storage depot had a capacity of 20,000 tons.

## FRANKFORT/ODER (Brandenburg)

50° 20' N. 14° 30' E:

630 miles: (86,000)

Frankfort/Oder is on the main line from Berlin to Posen. Subsidiary railway lines of some importance from Stralsund and Stettin to the N. and from Silesia and Saxony to the S. pass through the town. The river Oder is navigable at this point. The industries of Frankfort/Oder are of minor importance.

## Transportation

Marshalling Yards

Frankfort/ (3) Oder

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The marshalling yards at Frankfort/Oder have a capacity to handle 2,700 wagons per 24 hours.

## Textiles, Rayon, Pulp and Paper.

Greiff

Goepelstr. 22 (-)

The Greiff Werke A.G. are dyers and clothing manufacturers. Their works at Frankfurt a.d. Oder are a branch factory, the main works of this firm being in Greiffenberg in Silesia.

#### Foodstuffs

Koehlmann Werke A. G.

Küstrinerstr. (-)

This concern specialises in the processing of potatoes to yield starch, potato flour, dextrose, and other products. They are a leading firm in this branch and have several factories in N.E. Germany of which those at Frankfort/Oder and Schneidemähl are the largest.

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## FRECHEN (Rhineland)

50° 55' N. 6° 50' E: 305 miles: (16,000)

Situated 10 km. West of Cologne, Frechen is the centre of a considerable briquetting industry, utilising the large brown coal deposits close to the town. There are no other industries of importance.

## Solid Fuels

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elstr. 22 (-)

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d and

Brown-coal Mines and Briquette Works.

Frechen (3)

There are a number of these undertakings mining and briquetting the brown coal in the neighbourhood of Frechen. They belong to the I.G. Farbenindustrie A.G., Rheinische A.G. für Braunkohle, and others. In 1937 3½ million tons of brown coal and 1 million tons of briquettes were produced by these undertakings.

## ----000-----

## FREIBERG (Saxony)

50° 55' N. 30° 20' E: 585 miles: (38,000)

Freiberg is 30 miles East of Chemnitz on the main line to Dresden and was formerly the centre of a lead and silver mining area now no longer worked.

## Non-Ferrous Metal Manufacture and Fabrication

Bleiindustrie

Branderstr. (-)

The Bleiindustrie A.G. Vorm. Jung u. Lindig are manufacturers of lead piping and other lead products as well as of apparatus for the chemical industry.

Arthur Meissner

Freiberg (-)

This firm specialises in weighing machines and measuring instruments.

#### Leather

Moritz Stecher

Freiberg (-)

Maker of sole and belting leather.

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## FREIBURG (Baden)

48° N. 7° 50' E: 430 miles: (119,000)

Freiburg is on the main railway line leading to Basle and is a junction for two important branch lines leading West across the Rhine at Breisach into France and East through the Black Forest (Höllental), to Donaueschingen and Bavaria. There are various small industrial firms but only those mentioned below are of individual importance.

/Transportation

#### Transportation

Railway Junction

Freiburg (2)

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The branch lines diverge from the main track inside the town area. There are marshalling yards on the South West outskirts near to the Hauptbahnhof and at the goods station close to the Industriegebiet North West of the town. There are also repair shops dealing with both goods and passenger wagons.

## Public Utility Services

Gas Works

(3) Freiburg

This municipal gas works made 376 million cubic feet of gas in 1936.

## Engineering and Armaments

Hellige & Co.

Tennenbacherstr. (3)

This firm of instrument makers which employed some 500 workers in 1940, is reported to be making radiolocation apparatus.

### Textiles, Rayon, Pulp and Paper.

Acetate A.G.

Angesserstr.

(3)

The Deutsche Acetate Kunstseiden A.G. "Rhodiaseta" in the Industriegebiet at the North West corner of the town is a large rayon factory which employed some 2,000 workers in 1939. It is reported to be making artificial silk suitable for parachutes. The total annual rayon capacity of this plant is believed to be 3,500 tons continuous filament and 1,400 tons of staple fibre.

Mez A.G.

Kartauser :r.

(-)

Prior to the war the Mez A.G. were makers of sewing silks and cottons, and employed 1,000 workers. They were owned by the Coats concern. Their factory is in the South East corner of the town. Ground reports suggest that the factory is now inactive.

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### FREISING (Bavaria)

48° 25' N. 11° 45' E:

570 miles:

(18,000)

Situated 20 miles North of Munich on the railway line to Landshut and Regensburg, Freising has a small textile industry and an engineering works which normally specialised in brewing machinery and apparatus. There are no factories of importance .

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## FREITAL (Saxony)

51° N. 13° 38' E.

600 miles: (36,000)

FREITAL, an industrial town, is situated approximately 8 miles South West of Dresden in the valley of the Weisseritz, a small tributary of the Elbe, on the railway to Freiberg and Chemnitz, and is close to a small coal field.

### Liquid Fuels

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Rhenania-Ossag

Freital

(3)

The Rhenania-Ossag Mineralölwerke A.G. have a lubricating-oil plant in Freital and it is believed that its pre-war capacity was 70,000 tons.

## Iron, Steel and Ferro-Alloys

Gusstahlwerk

Freital

(2)

The works of the Sächsische Gusstahl-Werke Döhlen A.G. are believed to produce high-grade steel for ship and aircraft components, railway equipment, A.F.V's, and armaments. There are 8 open hearth furnaces and a large rolling mill. The estimated annual capacity of Siemens and Electric crude steel is 200,000 tons. Approximately 3,000 workers were employed in 1939. The firm has a branch works in Kainsdorf and one in Pirna.

## FREYBURG (Saxony)

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51° 10' N. 11° 50' E.

500 miles: (4,500)

Freyburg is 10 miles West of Weissenfels and apart from possible existence of the plant mentioned below, is of no industrial importance.

### Liquid Fuels

Synthetic Petrol Plant

Freyburg

(-)

There are ground reports that a factory at Freyburg ppoducing methanol was completed in 1942 and was to have started production at a rate of 8,000 tons per month. Confirmation of the reports is lacking.

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### FRIEDBERG (Hesse)

50° 20' N. 8° 40' E.

390 miles (11,000)

Friedberg is 15 miles North of Frankfort/Main on the railway from Frankfort/Main to Giessen. It is the junction for three minor branch railways and is an agricultural market centre. The well-known health resort Bad Mauheim is 3 miles North of Friedberg. Apart from the manufacture of photographic paper by the factory mentioned below, the industries are not on a large scale. They include a varnish factory, a sugar refinery, and several small engineering works.

## Transportation

Railway Repair Shops

Friedberg

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Transpo

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These are small repair shops undertaking the repair of goods wagons.

## Chemicals and Explosives

Trapp & Münch

(3) Friedberg

The Trapp und Münch A. G. are important makers of sensitised paper of all kinds for photographic use. company was acquired in 1932 by the Mimosa A. G. of Dresden, manufacturers of similar products.

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## FRIEDRICHSFELD (Baden)

49° 30° N. 8° 30° E.

400 miles (4,000)

Friedrichsfeld is situated halfway between Mannheim and Heidelberg. Its only industry is the very large earthenware manufacturing concern mentioned below.

## Engineering and Armaments

Steinzeugwarenfabrik

(3) Friedrichsfeld

The Deut sche Steinzeugwarenfabrik für Kanalisation u. Chemische Industrie is believed to be one of the largest German concerns making earthenware drain pipes and stone-ware. The works occupy a large area and before the war employed several thousand workers. The supply of stone-ware containers and apparatus to the chemical industry is an important part of this firm's activities.

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#### FRIEDRICHSHAFEN (Wurttemberg)

47° 40' N. 9° 30' E:

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510 miles: (25,000)

Friedrichshafen is on the Northern shore of Lake Constance at the junction of the railway lines from Lindau and from Ulm which run together westwards from Friedrichshafen to Basle. It is a railway centre of some importance.

Industrially Friedrichshafen is probably the most important town of its size in Germany. It is the seat of four very large engineering works; the Dornier Werke G.m.b.H., Maybach Motorenbau G.m.b.H., Inftschiffbau Zeppelin G.m.b.H., and the Zahnradfabrik Friedrichshafen A.G. These are situated at, or in the immediate vicinity of Friedrichshafen proper and are supplemented by a number of small engineering plants scattered throughout the area.

## Transportation

Goods Station

Friedrichshafen (3)

There are goods yards and sidings adjacent to the railway station which are of importance in view of the large amount of traffic centred on the Friedrichshafen works. There is also a railway repair shop where the maintenance of locomotives as well as wagons is carried out.

#### Public Utility Services

Gas Works

Friedrichshafen (3)

Although these works sold only 108 million cubic feet of gas in 1936 they probably produce much more gas now, since the local industries are likely to be large consumers.

### Aircraft and aero-engines

Dornier Werke G. m. b. H.

Loewenthal and (2)

The Allmansweiler-Löwenthal plant has been devoted to final assembly, special installations, tests, and possibly repairs of Do. 217s.

In August 1943, according to a wellinformed source, this unit was the
centre for the development of
specialized Dornier types such as the
Do. 217M, equipped with DB. 603 engines,
and a high altitude reconnaissance
type. At that time it was assembling
20 Do. 217s per month. Since then all
/ evidence

## FRIEDRICHSHAFEN (continued)

evidence points to decreased activity and recent cover of the field shows only 20 to 25 aircraft, including a number of modified types and experimental models. It is doubtful if new Do. 217s are being produced here at present, though repairs and the installation of special equipment may be continuing on a small scale.

Interest in this plant as a target derives mainly from (1) reports that the Dornier organization and this unit in particular are tooling up for production of F.W.190s, (2) reports that certain Dornier plants in the Friedrichshafen area are engaged in production of the Peeneminde 20, and (3) the possibility that this plant may resume production of Do. 217 fighters in an effort to make up losses in twin-engine fighters resulting from recent attacks on German aircraft factories and operating attrition of the GAF.

Dornier Werke G. m. b. H.

Manzell

(2)

This plant is the parent works of the Dornier complex at Friedrichshafen. A year ago it was engaged in experimentation and development of new Dornier types, the production of Do 217 components for assembly at Allmansweiler/Iswenthal, and possibly some seaplane development and assembly.

The nature and scale of the plant's activities at present can only be inferred from the accumulation of existing ground reports. This intelligence is summarized below:

- i) There is no evidence that seaplanes are being assembled, though the plant probably serves as a seaplane base and may continue to do experimental work on Dornier seaplanes.
- ii) Manufacture of Do 217 components may be continuing on a reduced scale. The total output of Do 217s in all three complexes is not believed at present to exceed 20 per month.

/ (iii)

- 111) With other plants in the Friedrichshafen district, Dorner at Manzell may contribute in some way to the production of pilotless aircraft. Intelligence is not conclusive on this point but points strongly to some type of involvement.
- iv) This plant may be tooling up for the manufacture of FW 190 components since it is reported that Dornier is to undertake production of this aircraft and Friedrichshafen has been specifically mentioned.

## Engineering and Armaments

Maybach Motorenbau G. m. b. H.

Friedrichshafen (1)

While the Maybach plant has been variously reported producing ball bearings, aeroengines, gears, gear boxes, and a multiplicity of other articles, its primary importance lies in the tankengine field. Virtually all German tank engines are Maybach designed and available evidence renders it probable that upward of 60 per cent. of all German tank engines pass through the Friedrichshafen works. The plant also produces about one third of Germany's engines for semi-tracked vehicles. Engine repair facilities of considerable size and importance are also contained within the Friedrichshafen plant.

## Zahnradfabrik Friedrichshafen A. G.

Friedrichshafen (1)

Ground reports and other sources of intelligence justify classifying the Zahnradfabrik Friedrichshafen as Germany's leading gear and gear-box makers. The relative importance of the firm's several plants is difficult to assess but it may be safely said that the Friedrichshafen branch is one of the leading German gear makers, making its greatest contribution to the A.F.V. field, but being important also in the manufacture of aircraft reduction gear, truck steering gears, etc.

#### FRIEDRICHSHAFEN (continued)

#### Luftschiffbau Zeppelin G.m. b. H.

Friedrichshafen (1)

The full range of products turned out by these large works is not known but it may safely be assumed that its principal activities are a) the manufacture of gear boxes (and possibly also gears) which are made in association with the aforementioned Zahnradfabrik: b) the assembly and erection of RADAR equipment probably in association with Telefunken of Berlin. It is possible that the Luftschiffbau also undertake the manufacture of light metal components (castings and pressings) for radiolocation ground equipment and other purposes.

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### FULDA (Hesse Nassau)

50° 30' N. 9° 40' E.

430 miles: (32,000)

Fulda is on the main line from Berlin to Frankfort/Main. There are a number of firms making wax products and varnishes, enamels, colours and dyes and several weaving mills, of which only those mentioned below are of particular note.

#### Transportation

richshafen [1]

Railway Repair Shops

Fulda

(3)

These repair shops undertake the repairs of goods wagons. 600 workers were employed at these workshops prior to the war.

## Textiles, Rayon, Pulp and Paper

Val. Mehler

Edelzellerstr. (3)

The Val. Mehler Segeltuchweberei A.G. employed some 1,750 workers before the war manufacturing water-proofs, tent cloth, and tarpaulins. It has been repeatedly reported that they are fully engaged on government contracts.

#### Rubber

Gummi Werke Fulda A. G.

Künzeler Weg (2)

This firm manufactures tyres and tubes, solid tyres are also produced and there is a retreading plant. Although not of the first importance, it raised its number of workers three-fold during the five years before the war to a total of 1,800 in 1938. The Gummiwerke is now owned by the Vorwerk company of Wuppertal. Its pre-war capacity of tyres has been estimated at 60,000 per month and its current output of truck and motor tyres at 12,000 per month.



## FURSTENHAGEN (Hesse Nassau)

51 13' N. 9 42' E.

415 miles: (1,500)

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Fürstenhagen lies a few miles south of Kassel in a wooded area and prior to the war it was of no industrial importance at all.

Since 1939 a very large unidentified works has been erected here and the large number of workers employed on its construction and on production within the completed parts of the works, are housed in groups of hutments in the Fürstenhagen area, thus increasing its population to probably more than 5,000.

## Chemicals and Explosives

Unidentified factory possibly making explosives (2)

No ground information about this plant has been obtained. Its existence was detected by photograph reconnaissance. The factory is very large, and its layout is not typical of any known explosives plant. The size, construction and mounding of the buildings suggests very strongly that it is associated with the manufacture of a sensitive high explosive, and there is certainly nothing which can be associated with the manufacture of a solid propellant explosive or with the manufacture of propellant powder.

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#### FURSTENWAIDE (Brandenburg)

50 20' N. 14 5' E.

610 miles: (28,000)

Fürstenwalde is on the River Spree halfway between Berlin and Frankfort/Oder. The Spree is connected by canal with the Oder and Fürstenwalde is well situated for inland water transport. The town has had in recent years a considerable industrial development, and the torpedo works of the Julius Pintsch concern have given it additional importance since the outbreak of war. The chief industrial plants are mentioned below, including those at Ketschendorf, a settlement which lies one mile to the South East.

/Iron, Steel and Ferro Alloys

### Iron, Steel and Ferro Alloys

#### Hammerhütte

(1,500)

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Ketschendorf (3)

It is reported that a small iron and steel works known as the Eisen & Stahlwerke Hammerhitte has recently been considerably enlarged and is producing A.A. shells. The plant includes a Bessemer convertor. Some 400 workers were employed here in 1939.

## Non-Ferrous Metal Manufacture and Fabrication

### Chemische Fabrik Marienhätte

Fürstenwalde (-

The Chemische Fabrik Marienhitte G.m.b.H. specialise in the manufacture of lithopone and zinc paints. They belong to the I.G. Farbenindustrie chemical combine.

### Engineering and Armaments

#### Julius Pintsch

7,000.

Fürstenwalde (1)

The Julius Pintsch K.G. of Berlin have established what are now the largest works of this concern in Fürstenwalde, to the North of the town and on the Northern side of the Berlin-Frankfort/Oder railway. This works has been considerably enlarged in the course of the war and further extensions are under construction. It is reliably reported that the works include foundries, turning shops and testing sections, and undertake the manufacture and assembly of complete torpedoes. The torpedo engines are supplied from other factories, and the torpedoes are fully assembled at Fürstenwalde and despatched mainly to Kiel for filling. There is a section devoted to the manufacture of mine casings and another engaged on the manufacture of aerial torpedoes. A separate steel-plate cutting and welding section is believed to make complete oil tanks for fitting to railway wagons, and intelligence reports suggest that this section also prepares steel plates for U-boats. It is believed that in addition to the aforementioned armaments a fairly wide range of electrical and general engineering products are made at this works which has its own machine-tool fitting shop where alone some 250 workers are employed. The total number of workers employed by Julius Pintsch at

Fürstenwalde is believed to be approximately

Kabelwerke/

Kabelwerke

Ketschendorf

(2)

The Deutsche Kabelwerke A.G. belongs to the Kabelwerke Rheydt A.G. Their works at Ketschendorf are large-scale cable works equipped to produce aluminium, copper, and lead cables of all kinds from telephone wire to high-tension overhead cables. Ketschendorf is one mile South East of Fürstenwalde.

#### Rubber and Tyres

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Ketschendorf

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The Berlin Rixdorfer Gummiwarenfabrik Hans Schmmann produced light rubber goods for surgical and technical requirements in 1939. It has been reported that during the last few years this firm has been turned over to the production of tyre-repairing materials, rubber hose and belting.

#### Chemicals and Explosives

Dr. B. Hecker

Fürsterwalde

(3)

The Chemische Werke Fürstenwalde Dr. B. Hecker and W. Zeidler G.m.b.H. are makers of pharmaceuticals. They are also important producers of solvents, particularly turpentines, ethers, and alcohols, also of aldehydes, especially formaldehyde. Ketones, particularly acetone, are also produced. The actual capacity of the firm in any of these products is not available.

Chemische Fabrik vorm. Gebrüder Dollfus Fürstenwalde (-)

This firm are also producers of solvents. Their manufacture of ketones, particularly acetone, is important but the amount produced is not ascertainable.

## FÜRTH (Bavaria)

49° 30° N. 11° 5° E: 510 miles: (81,000)

Firth is 5 miles W. of the centre of Nürnberg with which town it is closely associated. Two main railway lines coming from the N. and W. through Würzburg and Bamberg respectively converge at Fürth before entering Nürnberg. There are two airfields, the larger of which is roughly two miles N.N.W. of the town and the second, where an important aircraft factory is situated, is 1 mile W. of the town. The most important of Fürth's present industries is the aircraft factory mentioned below, but the town contains a great number of factories, mostly of small individual size, with a big range of products. Glass mirrors are one of Fürth's main specialities. The Bayerische Spiegelglasfabriken A.G. is the largest of several such mirror manufacturers. Toys, spectacles, and furniture are made by a great number of firms. The gold-beating, bronze paint, and metalfoil industries have many factories in Fürth and there are 5 largescale breweries which, in peace time, did a big export trade.

Public Utility Services/

## Public Utility Services

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Purth

(3)

In 1936, this gas works made 250 million cubic feet of gas.

## Aircraft and Aero-Engines

Bachmann von Blumenthal & Co.

Fürth

(2)

The Backmann plant at Fürth is engaged on the manufacture of components and does repair work for the Me.110. The volume of output is not known wither with respect of its repair work or components manufacture. A study of available intelligence indicates that the Backmann plant supplies fuselage parts, control surfaces, wing units, and engine units to the Miag plant at Brunswick-Waggum.

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## FURTWANGEN (Baden)

48° N. 8° 10° E:

لِبُلِO miles:

(6,000)

Furtwangen is one of the several small towns in the Black Forest where watch and instrument making is the traditional industry. There is a technical school for watchmakers and, besides those mentioned below, there are a number of small works and workshops.

## Engineering and Armaments

Jos. Koepfer & Schne

Furtwangen

(3)

These works manufacture precision grinding machinery, tools and clockwork components (particularly wheels) for the watchmaking industry. They are reported to be also making aircraft instruments.

#### Dat-Fabrik

Furtwangen

(3)

. The Dat-Fabrik Emil Furtwingler is a fairly large watch and clock making factory where prior to the war several hundred workers were employed.

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## GAGGENAU (Baden)

48° 50° N. 8° 20° E: 420 miles: (8,000)

Gaggenau is 6 miles South East of Rastatt with which it is connected by a branch line. Its importance is due to the presence here of the Daimler-Benz heavy motor vehicle works. The other industries, mostly engineering firms, are not individually noteworthy.

#### Engineering and Armaments

Daimler-Benz A.G.

Gaggenau

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This establishment of the Daimler-Benz concern specialised in peace time in the construction of heavy Diesel and motor lorries, omnibuses, fire engines, and ambulances. They employed 5,000 workers in 1938. These works can undertake the construction of the heaviest types of motor vehicles and are of considerable importance. They also build high-speed fire engines; it is believed that the fire-engine department has been enlarged since the associated works of Carl Uletz at Karlsruhe was severely damaged by the R.A.F. in 1943.

#### Gottfried Lindner

Gaggenau

(3)

The Gaggenau branch factory of the Gottfried Lindner A.G. of Ammendorf is a repair works for wagons, trailers, and other heavy motor transport built by this concern.

#### ----000----

## GARMISCH (Bavaria)

47° 30' N. 11° 5' E:

575 miles:

(18,000)

Garmisch, with the adjacent town of Partenkirchen, is well-known as an Alpine health resort. There are no industries of importance.

#### ----000-----

# GEISLINGEN (Wurttemberg)

48° 35' N. 9° 50' E:

485 miles:

(16,000)

Geislingen is a small industrial town on the main line from Stuttgart to Ulm. In addition to those mentioned below there are a few smaller engineering works and makers of machine tools. Geislingen is also in the area of the Wurttemberg iron ore deposits, which are referred to below under Iron and Steel.

#### Iron and Steel

Gutehoffnungshutte Oberhausen A.G.

Altenstadt

(-)

#### Iron and Steel

Gutehoffnungshütte Oberhausen A.G.

Altenstadt

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This concern operates the "Karl" iron-ore mine at Altenstadt 3 miles west of Geislingen. There are no details of the amount produced or the number of workmen employed.

## Engineering and Armaments

Süddeutsches Präzisionswerk

Geislingen

(-)

This firm make small tools particularly precision tools for the manufacture and vesting of threads.

Metallwarenfabrik

Geislingen

(2)

Prior to the war the Württembergische Metallwarenfabrik manufactured household cutlery, kitchen utensils and a very wide range of fancy metal goods. The factory closed down several sections in 1939 but is now reported to be making components for small arms and precision instruments and to be employing approximately 1,000 workers.

#### Textiles, Rayon, Pulp and Paper

Baumwoll Industrie

Kuchen

(3)

This is the largest of the five factories owned by the Süddeutsche Baumwoll Industrie A.G. and contains 40,000 spindles and 550 weaving stools. Kuchen is approximately 2 miles to the North West of Geislingen.

GEISWEID (Westphalia)

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50° 55' N. 8° E:

360 miles:

(15,000)

Geisweid is 3 miles North of Siegen on the railway line leading via the valleu of the Lenne to Hagen. It is one of a group of small adjoining settlements at the southern end of the chain of metal industries situated along the Lenne valley. The population figure shown above is an approximate total for Geisweid together with Weidenau which lies between Geisweid and Siegen.

#### Iron, Steel and Ferro Alloys

Geisweider Eisenwerke A.G.

This plant, owned by the Klöckner A.G. Duisburg, has blast furnaces, three Siemens-Martin furnaces and rolling mills. The estimated annual capacity is 360,000 tons of pig-iron and 150,000 tons of Siemens steel.

Birlenbacher Hutte, Schleifenbaum & Co. Klafeld (3)

Geisweid

(3)

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This works has one blast furnace but no steel plant. It is engaged on the production of Siegerland pig-iron, bars, special shapes and sheets.

#### Engineering and Armaments

Siegener A.G. Geisweid (3)

The Siegener A.G. für Eisenkonstruktion Brückenbau und Verzinkerei are makers of steel girders and plate for bridge building, pressure boilers, and corrugated iron roofing. They employed some 700 workers in 1939.

P. Schleifenbaum & Steinmetz Weidenau (-)

The works of Schleifenbaum and Steinmetz are reported to be equipped with metal-cutting machines and steam hammers, and to produce sheet and forgings. It is believed that between 300-400 workers are employed.

Hund & Weber G.m.b.H. (-) Geisweid

Hund & Weber are makers of centrifugal casting machinery and foundry equipment.

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## GELSENKIRCHEN (Westphalia)

51° 33' N. 7° 6' E:

310 miles:

(333,000)

The region covered - the town of Gelsenkirchen including Buer is in the administrative area of Essen and lies 7 miles North-East of that City on the Southern bank of the Rhine-Herne Canal. extends North of the centre of the Ruhr and is approximately 9 miles in length and about 4 miles wide. The importance of Gelsenkirchen lies chiefly in its large hydrogenation plants and its coking industry.

Other industries include the manufacture of iron and steel goods and sulphuric acid. The most important firms are given below.

#### Transportation

Weid

Twin locks

Rhine-Herne Canal

(3)

The 4th set of twin looks on the Rhine-Herne Canal are situated 3 miles North West of Gelsenkirchen main station.

Marshalling yards

Schalke

(3)

The yards are situated 14 miles North West of Gelsenkirchen main station. The capacity of these yards is 2,200 wagons per 24 hours.

Marshalling yards

(3)

These yards extend about 1 mile in length and lie immediately West of the main station. They have a capacity of 2,000 wagons per 24 hours.

## Public Utility Services

Scholven power station

North of Buer (1)

Owned by the Bergwerks A.G., Hibernia, the power station is situated adjoining the Scholven coke-oven plant (see under "Solid Fuels") North of the railway, 7½ miles North West of Gelsenkirchen main station. The station has an installed capacity of 100 km, and is interconnected with other stations owned by the same company, of which Bermannsgluck (14 MW) and Wilhelmine Victoria (46 MW) are the most important. The total installed generating capacity of this group of stations is about 200 MW. The group partly supplies the synthetic-oil plant (see under "Liquid Fuels") and the synthetic-ammonia plant (see under "Chemicals"). The electrical requirements of the oil plant are estimated at a maximum demand of 150 MW and an annual consumption of 1,100 million Kwh. It is believed that these interconnected stations are linked up to the main transmission system at Buer substation, whence one 110 kV double circuit line connects to Recklinghausen and another to Herverst Dorsten.

Nordstern power station

Horst

(1)

Owned by Gelsenberg Benzin A.G., it is a subsidiary of Bergwerks A.G. Hibernia. The power station is situated to the North of the synthetic-oil plant complex, 4 miles North West of Gelsenkirchen main station on the North bank of the Emscher Canal. capacity of the works is estimated at 150 MW. There is no information as to any connection between the station and the grid. (See also under "Liquid Fuels")

Graf Bismarck power station

North Gelsenkirchen

(3)

This power station is situated 21 miles North North West of Gelsenkirchen main station at the Graf Bismarck colliery and is owned by Deutsche-Erdol A.G. The installed capacity is estimated at 23 MW.

Consolidation power station

Schalke

(3)

Owned by Mannesmannrohren-Werk A.G., the power station is situated at Consolidation 1/6 pit, about 12 miles North West of Gelsenkirchen The installed capacity is estimated at 34 MW.

Owned by Deutsche Eisenwerke A.G. (a subsidiary of Vereinigte Stahlwerke A.G.), the power

station is situated within the steelworks complex. It is believed to have an installed

Schalker Verein power station

capacity of 33 MW.

Gelsenkirchen

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Scholven

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Dahlbus

Vester

Gelsenkirchen (3)

The gas works are located 2 miles North West of Gelsenkirchen main station and just North of Consolidation Pit 1/6. In 1936 the works bought and sold 800 million cubic feet of gas.

Both the Gelsenkirchen and Buer gasworks (mentioned below) draw gas from the Gelsenkirchen Bergwerks A.G. and the Ruhrgas A.G.

A further gasworks in this area is one owned by the R.W.E. at Gelsenkirchen-Ratthausen which buys from the Gelsenkirchen Bergwerks A.G. No figures relating to its activity are available.

Municipal Gasworks

Municipal Gasworks

(3)

These gasworks are situated 5 miles North West of Gelsenkirchen, just East of Hugo R.mine.

#### Solid Fuels

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Nordstern coking plant

North West of Gelsenkirchen (2)

This is the largest coking plant in Germany and is owned by the Gelsenkirchen Bergwerks A.G. It is situated 32 miles West North West of Gelsenkirchen main station and has 192 ovens having an estimated annual dry coal capacity of 2,096,000 tons. Gas is supplied to the Ruhrgas grid.

Scholven coking plant

Zweckel

(3)

Owned by Bergwerksgesellschaft Hibernia A.G., the plant is situated near the Scholven colliery 74 miles North North West of Gelsenkirchen main station and  $\frac{1}{2}$  mile West of the synthetic-oil plant. There are 274 ovens having an estimated annual dry coal capacity of 1,367,000 tons.

Consolidation I/VI coking plant

North West of Gelsenkirchen

(3)

The plant is owned by Mannesmannrohren-Werke A.G. and is located at Consolidation colliery, pit 1/6, and lies  $1\frac{1}{2}$  miles North West of Gelsenkirchen station. There are 236 ovens having an estimated annual dry coal capacity of 1,051,000 tons.

Alma-Pluto coking plant

East of Gelsenkirchen

(3)

Owned by the Gelsenkirchener Bergwerks A.G. this coking plant is situated half a mile East of Gelsenkirchen main railway station. It has 143 ovens and an annual dry coal capacity of 1,035,000 tons. It also supplies gas to the Ruhrgas grid.

Dahlbusch coking plant

West South West of Gelsenkirchen (3)

Situated 14 miles West South West of Gelsenkirchen main station. This coking plant is owned by the A.G.Bergwerksgesellschaft Dahlbusch. It has 160 ovens and an annual dry coal capacity of 760,000 tons.

Westerholt coking plant

Gelsenkirchen/

Owned by the Hibernia A.G., this coking plant with 240 ovens and an annual dry coal capacity of 470,000 tons lies 62 miles North of Gelsenkirchen main railway station.

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Schalke

Consol	idation III/IV coking plant	Gelsenkirchen	(3)
	Owned by the Mannesmannröhrenwerke A.G. lying ly miles North of Gelsenkirchen m station. This coking plant has 80 over and an annual dry coal capacity of 470, tons. This plant together with Consol I/VI is believed to employ some 5,000 w	ain ns 000 idation	
Hugo I	I coking plant	Buer	(3)
This coking plant is owned by the Harpener Bergbau A.G. and has 100 ovens with an annual dry coal capacity of 330,000 tons. It lies 54 miles North West of Gelsenkirchen station.			
Graf E	dismarck coking plant	Gelsenkirchen	(-)
	Situated 2½ miles North North West of Gelsenkirchen main station. This coki plant has 210 ovens and an annual dry of capacity of 230,000 tons. It is owned Deutsche Erdol A.G. This plant has it power station of 23 MW capacity. (See under "Public Utility Services".)	oal by s own	
Westerholt Colliery Gelsenkirohen			(3)
	Lying 2 miles North East of Buer and ow by Bergwerksgesellschaft Hibernia A.G., colliery had an output in 1937 of 1,193 tons of hard coal.	this	
Bergma	annsglück Colliery	Buer	(3)
	Also owned by the Bergwerksgesellschaft Hibernia A.G. and situated North of Bue Nord station. This colliery had an ou in 1937 of 1,164,000 tons of hard coal.	r- tput	
Hollar	nd Colliery	Gelsenkirchen	(3)
	This colliery lies South of Gelsenkirch Wattenscheid station and is owned by th Gelsenkirchener Bergwerks A.G. In 193 the output of hard coal was 1,121,000 to	ne 57	
Consol	Lidation (including Unser Fritz Colliery)	Gelsenkirchen	(3)
In 1937 this colliery, owned by Mannesmannrohren Werke A.G., had an output of 2,945,000 tons of hard coal.			
Graf I	Bismarck Colliery	Gelsenkirchen	(3)

Owned by the Deutsche Erdol A.G. This colliery in 1937 had an output of 2,700,000 tons of hard coal.

Dahlbusch Colliery

Gelsenkirchen (3)

This colliery to the South West of Gelsenkirchen had an output in 1937 of 1,000,000 tons of hard coal. It is owned by A.G.der Bergwerksgesellschaft Gelsenkirchen "Dahlbusch".

#### Liquid Fuels

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Gelsenberg-Benzin A.G.

Horst

(1)

This synthetic-oil plant is situated adjoining the Nordstern III mine,  $3\frac{1}{2}$  miles North West of Gelsenkirchen main station on the North bank of the Emscher canal, and covers an area of about 160 acres. The Bergius process is used, bituminous coal being the raw material. Annual capacity is estimated at 400,000 tons of oil products, the chief of which is aviation spirit. Storage capacity is estimated at 87,000 tons.

Hydrierwerk Scholven A.G.

North of Buer (1)

This synthetic-oil plant is situated immediately East of the Scholven pits (1 and 2),  $7\frac{1}{2}$  miles North West of Gelsenkirchen main station, and is a subsidiary of Bergwerksgesellschaft Hibernia A.G. The raw material is bituminous coal, and the Bergius capacity 350,000 tons. It is reported that aviation spirit is also being produced here.

#### Iron and Steel and Ferro Alloys

Mannesmannröhrenwerke A.G. (Grillo Funke Works)

North Gelsenkirchen (3)

Lying  $1\frac{1}{2}$  miles North West of Gelsenkirchen main station, this plant includes 6 Siemens Martin furnaces and rolling mills. Products include steel sheets, bars, and plates, and the annual output of crude steel is believed to be approximately 100,000 tons.

Schalker Verein

Gelsenkirchen (3)

Owned by the Deutsche Eisenwerke A.G. group of Vereinigte Stahlwerke, the works are situated to the North East and almost adjoining the Gelsenkirchen main station. There are five blast furnaces having an annual capacity of approximately 450,000 tons of pig-iron. The plant also has an adjacent cement works.

#### Non-Ferrous Metals

a) Blechwarenfabrik und Verzinkerei Karl Keller.

Gelsenkirchen (-)

b) Mannesmannröhrenwerke A.H.

These two plants specialise in the manufacture of galvanised sheets and products including corrugated sheets.

Gelsenkirchener Bleiwerk G.m.b.H.) Gebrüder Kestemann

Gelsenkirchen (-)

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Both the above-mentioned firms manufacture lead articles, and Gebruder Kesteman specialises in the production of rolled lead.

### Engineering and Armaments

Gelsenkirchen-Vereinigte Stahlwerke A.G. (Dortmunder Union Bruckenbau A.G.) (Werke Orange) (3) Schalke

This works, formerly owned by the Vereinigte Kesselwerke, is situated 21 miles North West of Gelsenkirchen main station. It produces sheet metal, gas-holders, oil tanks, chemical apparatus, pipelines, railway and road bridges.

F.Kupferbusch & Sohne A.G.

furnaces.

Gelsenkirchen-(3) Schalke

This firm owns two works: Work I lies  $1\frac{1}{2}$ miles North West of Gelsenkirchen main station, and Work II lies adjoining the East of the Schalke marshalling yards. Both manufacture water-heating apparatus and the plant includes iron-foundries and open hearth

Vereinigte Stahlwerke A.G. (Ruhrstahl A.G.) Gelsenkirchener Gusstahlwerke

Gelsenkirchen (3)

This special-steel works manufactures cast steel parts, wheels, and axles.

"Stern" Eisen und Metall A.G.

East of Gelsenkirchen (-)

500 workers were employed here in 1939 on the buying, selling, recovery, as well as sorting and working up of scrap metal. Stern is believed to operate one of the largest individual scrap metal depots in the Ruhr.

## Chemicals and Explosives

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A.G.fur Chemische Industrie

Gelsenkirchen (3)

This sulphuric acid factory is situated 2 miles North of Gelsenkirchen main station and just East of Schalke station. The lead chamber process is used, and the annual output of 100% sulphuric acid exceeds 20,000 tons. The plant probably handles a large proportion of the domestic ore produced by Sachtleben A.G. (Homberg).

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#### GENSHAGEN (Brandenburg)

52° 20' N. 13° 20' E:

575 miles: (13,000)

This small town lies about 10 miles due south of Berlin.

In the course of the last few years its population has rapidly increased as a result of the great development of the Daimler-Benz aero-. engine works.

### Aircraft and aero-engines

Daimler-Benz A. G.

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This branch of the Daimler-Benz concern acts as the pilot works under the re-arrangement of German aero-engine production.

Air cover shows that there have been many recent additions to the factory including the completion of a very large shop and a block of 20 test beds. The layout is of a very dispersed character, encompassing 57 acres of working space in a 885 acres site.

The production figure for DB-605 engines, which is the engine most widely manufactured by Daimler-Benz, was estimated in August 1943 to be 400 per month, and the plant was then thought to be approaching full capacity.

It is believed that some 6,000 workers were employed here prior to the war and that this number may have increased to 13,000 by the end of 1943.

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## GENTHIN (Saxony)

52° 24' N. 12° 10' E:

530 miles: (12,000)

Genthin is a town of considerable industrial activity being 18 m. west of Brandenburg on the main Berlin-Magdeburg line. Sugar refining, dyeing and paper making are among the principal industries.

#### Foodstuffs

Zuckerraffinerie

Genthin

(-)

Zuckerraffinerie Genthin is one of the principal sugar factories in Germany, in 1938 it had a capacity to process about 44,000 quintals per day.

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## GERA (Thuringia)

50° 50' N. 12° 5' E:

(13,000)

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530 miles: (84,000)

Gera, formerly capital of the small principality of Reuss, is the largest town in Thuringia. Formerly textiles constituted its principal industry but since 1927 Gera's engineering industry has taken first place and by 1939 employed approximately 10,000 workers. Gera is on the railway line from Weissenfels to Plauen and Eger, one of the through routes from northern Germany to Bavaria. Branch lines lead from Gera W. to Weimar and to Saalfeld and E. to Chemnitz. Included in the administrative area is Tinz, a suburb 4 miles N. of the town centre.

#### Public Utility Services

Gas Works. Gera (3)

In 1936 the municipal gasworks of Gera made 170 million cubic feet of gas.

#### Transportation

Railway Marshalling Yards Gera (3)

In 1939 these yards had a capacity to handle 2,000 wagons per 24 hours.

#### Engineering and Armaments

Moritz Jahr A. G. Liebschwitz (3)

This firm specialises in machinery for the chemical and textile industries and in 1938 employed some 800 workers. It is in the village of Liebschwitz 3 miles S. of Gera. It belongs to the firm of Gebrüder Dix A.G. mentioned below.

## Gebrüder Dix A. G. Weinbergstr. (-)

Prior to the war this firm made special sewing machines for the textile industry and also produced gramophone components and needles. In 1938 some 500 workers were employed.

## Wesselmann Langestr. (3)

The Wesselmann - Bohrer Co. A. G. are makers of machine tools and are believed to employ approximately 1,000 workers. Their works are in the southern suburb of Zwötzen.

Heinrich Leo

Talstr.

(3)

IM (con

Texti:

This firm makes air compressors and industrial storage tanks and are believed to employ some 800 workers. In addition to the main works there is a foundry belonging to this firm in the northern suburb of Tinz.

Karl Wetzel

Karl Wetzel Str.

(3)

The Karl Wetzel Maschinenfabrik und Eisengiesserei are believed to employ approximately 1,000 workers and to make borers, grinders and other machine tools.

Konrad Modrach

Wiesestr.

(-)

This firm makes all kinds of punching machines and plate shears.

Robert Todt

Reichstr.

(-)

The Robert Todt G.m.b.H. are specialists in lathes and drilling chucks and have a modern and well-equipped machine-tool factory.

M. Jahr

Karl Wetzel Str.

(3)

The firm of Moritz Rudolf Jahr A. G. specialises in textile machinery and machinery for the chemical industry. In 1938 some 800 workers were employed.

Kurt Hässner

Oststr. Wiesestr.

(-)

Fr. Aug. Jahr

Two of several small factories making machine tools, boring machines and lathes.

## Chemicals and Explosives

Zschimm u. Schwarz

(3) (Heinrichshall)

This firm, situated one mile east of Pohlitz,  $4\frac{1}{2}$  miles N. of Gera, produces sulphuric acid and sulphur trioxide. Prior to the war their production of acid was approximately 30,000 tons, and of trioxide 24,000 tons p.a. The consumption of pyrites was 22,000 tons p.a. There is no recent information about this plant. The firm own another plant at Dölan referred to under Gouz, Thuringia.

GERA (continued)

(3)

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### Textiles, Rayon, Pulp and Paper.

Gera - Greizer

Zwöten

(-)

The Gera-Greizer Kammgarnspinnerei A.G. employed some 800 workers in 1937 and had a wool-combing and spinning plant with 59,000 spindles. No firm information is available regarding the companies' present activity.

Bardzki & Oeser

Admiral Scheer Str.)

Seidenweberei Gera

Kaiser Wilhelm Str.)

The above are two of a number of weaving mills situated in Gera.

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GEVELSBERG (Westphalia)

See under Hagen

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### GIESSEN (Hesse)

50° 35' N. 8° 40' E: 390 miles: (48,000)

Giessen is the chief administrative town of Oberhesse and the seat of a University. It is on the railway line from Frankfort/Nain to Marburg and is a junction of some local importance. There are no industries of any consequence.

#### Transportation.

Railway Marshalling Yards.

Giessen

(3)

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In 1937 these yards had a capacity to handle 2,000 wagons per 24 hours.

### Engineering and Armaments

Schunk & Ebe

Giessen

(3)

This firm is one of the smaller German makers of carbon brushes and holders. Prior to the war they employed 300 to 400 workers.

#### Rubber & Tyres

Poppe & Co. Giessener Gummiwarenfabrik Giessen

(3)

This firm manufactures mechanical rubber goods including solid rubber tyres on a small scale, as well as belting and hose. In 1940 some 300 to 400 workers were employed.

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## GLADRECK (Westphalia)

51° 35' N. 7° E. 305 miles: (60,000)

Lying at the north-west extremity of the Ruhr, Gladbeck is important chiefly for its coking industry described below.

### Solid Fuels

Direktion der Stinnes'schen Zechen Gewerkschaft Mathias Stinnes

2 miles South of Gladbeck.

(3)

Prior to the war 2,000 workers were employed at this coking plant, which has 135 ovens with a rated dry coal capacity of 618,000 tons per annum. In 1937 the Mathias Stinnes coal mines had an output of hard coal of approximately 2,500,000 tons.

Gelsenkirchener Bergwerks A.G. Graf Moltke Colliery

 $1\frac{1}{2}$  miles South of (3)

In 1937 one million tons of hard coal were produced at this mine which then employed some 1,500 workers.

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## GLATZ (Silesia)

50° 25' N. 16° 40' E: 730 miles: (23,000)

Situated approximately 50 miles south of Breslau and within 10 miles of the Czechoslovakian border, Glatz is on one of the main routes through the mountains between Silesia and Bohemia. It was a garrison town. There are no industries of note.

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### GLAUCHAU (Saxony)

50° 50' N. 12° 30' E: 550 miles: (33,000)

Glauchau is 17 miles west of Chemnitz on the railway to The town's main industry consists of a number of small textile factories but the machine tool factory mentioned below is of some importance.

#### Engineering and Armaments

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th of (3)

Wotan & Zimmermann

(3) Glauchau

The Wotan & Zimmermann Werke A.G. are makers of grinding and planing machines, lathes, and other machine tools. The number of workers was increased three-fold during the five years before the war to a total of 800 in 1939.

## Chemicals and Explosives

Bernhard Dalichow A.G.

Glauchau

(-)

Makers of dyes and cleaning agents for the textile industry.

#### Textiles, Rayon, Pulp and Paper

Spinnstoffwerk

Glauchau

(3)

The Spinnstoffwerk Clauchau A.G. after being closed for some years, reopened in 1937 as an artificial silk mill. Approximately 1,000 workers were employed in 1938, and the capacity was reported to be 31 tons daily of viscose rayon. ---000----

### GLAUSIG

See under K O T H E N.

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#### CLEIWITZ (Silesia)

50° 18' N. 18° 40' E: 825 miles: (120,000)

Gleiwitz is the most westerly of the three adjacent mining

#### Gleiwitz (Continued)

towns in the extreme south-eastern corner of Upper Silesia; the others being Hindenburg and Beuthen. The former Polish frontier approaches within 2 miles of the south-eastern corner of the town. Two of the large Upper Silesian coal mines are in the southern outskirts of Gleiwitz. The Klodnitz Canal, through which water borne traffic can reach the Oder via the valley of the river Klodnitz, connects Gleiwitz and the adjacent coal field with the inland waterway system. There are several large steel and engineering works within the town area close to the important marshalling yards, and these are mainly owned by the Vereinigte Oberschlesische Hüttenwerke A.G. (VOHAG). In 1939 this concern owned ten large plants in Upper Silesia at Gleiwitz, Beuthen and Hindenburg.

Solid Puel

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#### Transportation

Inland Port Neuweide (3)

North-west of the town on the Klodnitz canal there is an inland harbour which was in process of extension at the outbreak of war. Gleiwitz is an important coal trans-shipment centre.

Marshalling Yards Gleiwitz (1)

On the eastern side of the town are very large marshalling yards and an extensive goods station which are of great importance to the Upper Silesian traffic. These marshalling yards, which can handle 6,800 wagons per 24 hours, are the focal point for the whole network of railway lines serving the various mines and industries in the Gleiwitz, Hindemburg, and Beuthen areas. In addition to this heavy local traffic, Gleiwitz is on one of the main railway connections to Poland.

Marshalling Yards Sosnitza (3)

South of the main goods yards and of the eastern suburb of Sosnitza is a further system of shunting and marshalling yards.

Railway Repair Shops Gleiwitz (2)

These are large repair shops situated in the eastern quarter of the town, immediately north of the main marshalling yards. Some 2,700 workers were employed in 1941, and the repair of locomotives as well as other rolling stock is undertaken.

## Public Utility Services.

Municipal Gas Works Gleiwitz (3)

In 1936 these municipally owned gas works purchased and sold 137 million cubic feet of gas.

#### Solid Fuels

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#### Gleiwitzer Grube

Gleiwitz

(3)

The Gleiwitzer coal mine belonging to the Borsig Kokswerke A.G. is approximately 1 mile south of Gleiwitz. This company owns 2 other large coal mines in the Hindenburg area. The Gleiwitz mine has 3 pitheads. A coking and by-products plant is attached. Before the war 2,000 workers were employed, and in 1936 the output was 1,200,000 tons of coking coal. The coking plant has 108 ovens, with a maximum rated dry coal capacity of 657,000 tons per armum. A sulphuric acid plant, mentioned below under Chemicals and Explosives, utilises the high sulphur content of this coal.

#### Ochringen Grube

Gleiwitz

(3)

The coal mines of the Oehringen Bergbau A.G. are near the village of Sosnitza on the south-eastern outskirts of Gleiwitz. Some 2,000 workers were employed in this mine in 1938 and the output for that year was approximately 900,000 tons of coal. There are 2 pitheads.

## Engineering and Armaments

The Vereinigte Oberschlesische Hüttenwerke A.G. (VOHAG) is a concern with a capital of 20 million Marks and was formed to unite in one Cartel a large number of the most important Upper Silesian iron and steel works. In 1939 there were 10 large large plants owned by the VOHAG in Upper Silesia and a total of some 14,000 workers were employed. Five of these works are in the Gleiwitz area and are mentioned below. Two large steel works are in the adjacent towns of Hindenburg and Beuthen (Bobrek) and are included under those headings. The remaining plants are in Andreashttte, Königshuld, and Malapane, three small towns in the district east of Oppeln, which are also shown separately.

#### VOHAG Stadtwerk

Gleiwitz

(3)

This plant is in the eastern quarter of the town on the eastern side of the main railway station, and comprises Siemens Martin furnaces, a foundry, forging and hammer works, rolling mills, and sheet-steel presses for wagon components. The plant turns out railway equipment on a large scale.

## VOHAG Stahlröhrenwerk

Gleiwitz

(3)

These large works are situated in the Gleiwitz Stadtwald to the north-east of the town and are equipped with rolling and drawing mills for all kinds of steel tubes.

#### (3) VOHAG Herminenhütte Laband In the suburb of Laband 4 miles north-west of Gleiwitz, the VOHAG have a large rolling mill for band iron, rods, and structures. These works also include tin rolling and cold rolling plants. VOHAG Drahtwerk (3) Gleiwitz In the Northern quarter of the town and immediately west of the main railway station are works producing wire, nails, chains, screws, nuts, and springs. In 1938 some 1,600 workers were employed.

VOHAG Blechwarenfabrik (-) The products of this smaller plant are pressings

and stampings, metal casings and galvanised iron.

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Press & Stahlwerke (3) North of the VOHAG Herminenhitte a large new plant

has been erected during the war on a site measuring about 800 yards each way. It is reported that the production of these works is entirely devoted to bomb casings, in particular the 250 kg. and 500 kg. type. The firm should have started full production at the end of 1942 with the full intended complement of 6,000 workers, but it is believed that the completion has been delayed and that in the early part of 1943 only 2,000 workers were engaged.

Margarethenstr. The Oberschlesische Kesselwerke B. Meyer G.m.b.H., a firm of boiler makers which employed some 850 workers in 1938, are situated to the north-west of the main railway station. This firm belongs to the Deutsche Babcock & Wilcox A.G.

Weinmann & Lange This firm specialises in armatures and heavy cast-

iron and steel fittings for steam, gas, and water pipes. Chemicals and Explosives

Sulphuric Acid Plant (3) Gleiwitz

Adjoining the Gleiwitzer Grube mentioned above under Solid Fuels, is a sulphuric acid plant working on sulphur recovered at the Borsig coking It produces annually 25,000 tons of sulphuric acid.

Rubber & Textiles.

Kesselwerk

Georg Müller (3) Gleiwitz

This is a Government licensed re-treading plant

with a capacity to process 600 motor tyres per month. It is also engaged on the manufacture of technical rubber goods.

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## GLOGAU (Silesia)

51° 40' N. 16° 5' E: 700 miles: (30,000)

Glogau, which is 60 miles north-west of Breslau, is close to the Polish border. It is on the railway line from Frankfurt (Oder) to Breslau and is a junction for four branch lines. It was a garrison town. The industries which include sugar refining, starch, furniture and clock-making, are of no great importance.

#### Transportation.

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Railway Repair Shops

Glogau

(3)

These railway repair shops are believed to be engaged on repair and maintenance of locomotives, coaches, and goods wagons. Ground reports suggest that the works here have considerably enlarged since 1939.

#### Public Utility Services.

Elektrowerke A.G., Berlin

Glogau

(3)

This is the principal gas works in the Glogau area, and supplies the town of Glogau and many nearby inhabited localities. In 1936 the works made 117 million cubic feet of gas

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## GÖPPINGEN (Württemberg)

48° 45' N. 9° 40' E: 475 miles: (30,000)

Göppingen is on the main line between Stuttgart and Ulm and has a considerable industry of which machine tools and textiles are the chief products.

#### Engineering and Armaments

L. Schuler A.G.

Goppingen

(3)

This firm is believed to employ some 1,200 workers and makes machinery for sheet-steel pressing such as the manufacture of shell and bomb bodies and steel helmets. A branch works of this firm is at Ebersbach 6 miles west of Göppingen.

Gebrüder Böhringer

Goppingen

(3)

Approximately 1,000 workers are believed to be employed by this firm which makes lathes, boring grinding and planing machines, and other machine tools.

W. Speiser

Göppingen

(3)

Before the war well-known makers of agricultural machinery and implements, this firm is now reported to be employing 1,000 workers, and to be engaged on unspecified armaments production.

Robert Bosch

(-)

(-)

Göppingen is one of several towns in which the firm of Robert Bosch of Stuttgart is reported to have opened a new works with a view to decentralising production, but there is as yet no firm confirmation of these reports.

The Munchner Strickwarenfabrik Karela G.m.b.H. and the Württembergische Strickwarenfabrik Volkert & Co. K.G. are two of a number of small textile

## Textiles, Rayon, Pulp and Paper

works in Göppingen.

Karela

Göppingen)

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## GORLITZ (Silesia)

51° 10' N. 15° E:

650 miles:

(97,000)

Gorlitz is in the western part of Silesia close to the industrial region of eastern Saxony. To the S. it is only 10 miles distant from the Czechoslovakian border. It is on the main line from Dresden to the coal fields of Upper Silesia and is a railway centre of importance. In addition to the industries mentioned below there are a number of cloth factories of no individual importance and minor works making agricultural and other machinery.

## Transportation

alising mation

Railway Junction

Görlitz

(2)

The principal line from Dresden through Hirschberg to the Upper Silesian, Polish, and Czechoslovakian coal fields, passes through Görlitz from W. to E. Two important lines run northwards from the town, one to Cottbus and Berlin and the other to Sorau and eastern Brandenburg. Both of these lines connect Görlitz with the main Dresden-Breslau line 10 miles N. of the town. A further branch line leads southwards from Görlitz to Zittau and Czechoslovakia.

## Public Utility Services

Görlitz

(3)

Municipal Gas Works

In 1936 the municipal gas works made 257 million cubic feet of gas.

# Engineering and Armaments

WUMAG

Görlitz

(2)

The Waggon & Maschinenbau A.G. Görlitz is an important engineering works making steam turbines, pumps, hydraulic presses, boilers, tanks for water, oil and gas, railway waggons, gun carriages, and other heavy vehicles including motor ambulances. Diesel engines were also among their products but they are now reported to have suspended production of these and to be concentrating on steam turbines. There are three separate works belonging to this firm, one occupying a large area in the Northwestern quarter of the town, the second 400 yards to the E. of the first and the third in the Lutherstr. W. of the main railway station. Upwards of 3,000 workers are believed to be employed.

#### Zeiss Works

Görlitz

(3)

A branch of Carl Zeiss of Jena is reported to have been established at Görlitz and to be producing optical instruments on a large scale. It is believed that this has been done by taking over and extending the works

of the Optische und Feinmechanische Werke Hugo Meyer at Fichtestr. 2, formerly makers of components for cameras and cinema apparatus.

G.A.Fischer

Brückenstr. (2)

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elipals.

CHOM

This firm is an important producer of all kinds of fire-fighting appliances and machinery (excluding fire engines). Approximately 1,000 workers are believed to be employed.

Kosmos

Cottbuserstr. (3)

The Kosmos Rud. Pawlikowski G.m.b.H. are makers of wood gas generators. They also specialise in conveyors and sifting machinery.

Karl Dickow

Cottbuserstr. (-)

The Apparate & Maschinenfabrik Karl Dickow are makers of centrifugal vacuum pumps.

Richard Raupach

Fischerstr.

The Richard Raupach Maschinenfabrik & Eisengiesserei G.m.b.H. have their own foundry and are specialists in ceramic and brick making machinery.

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## GOSLAR (Hanover)

51° 55' N. 10° 25' E.

455 miles

(24,000)

Goslar is situated at the foot of the northern edge of mountains, 25 miles south of Brunswick, on the rich ore deposits of the Harz district. In the vicinity are smelters producing lead, zinc and copper. In the year 1937 the district contributed 41% of the total German lead production.

The chief producer of lead in the district is the Rammelsberg mine, situated 2 miles south of Goslar, which, when working at full pressure, yields an output of lead concentrates amounting to about 30% of Germany's total production; the copper output of this mine, though principally a producer of lead and zinc, is also considerable. The mining company owning the mine, the Unterharzer Berg- u. Hüttenwerke, is a subsidiary of the Preussische Bergwerks- u. Hütten A.G. which company operates other metal mines in Klausthal and Lautenthal through subsidiary undertakings .

The mines are scatterdamong the hills, at Harlingerode to the East, Rammelsberg to the South, and at Klausthal and Lautenthal to the south west. The latter two areas are referred to under their own names.

There are a number of small industries such as textile fancy goods, a chemical factory which is mentioned below, and a factory making office requisites which is some note in that branch. At Langelsheim 5 miles to the west is a factory making chemical products.

#### Non-Ferrous Metals.

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Unterharzer Berg- u. Hüttenwerke G.m.b.H.

Oker

(3)

This firm, a subsidiary of Preussische Bergwerks- u. Hutten A.G. are important metal producers. The smelting works, 2 miles east of Goslar, have an estimated capacity of 15,000 metric tons of crude and 15,000 metric tons of refined lead. The actual output of 1942 was reported to be 9,000 tons. Their annual capacity for production of crude zinc assessed in 1939 at 40,000 tons and of redistilled zinc probably rather lower.

Bleiwerk Goslar.

Klangthal

(3)

The Bleiwerk Goslar G.m.b.H. are important lead fabricators. Their production includes rolled lead, lead pipes and wire, and anti-friction metal.

Hans Heinrich Hütte G.m.b.H.

Langelsheim

(3)

This firm, situated 5 miles NW of Goslar, had an annual production capacity of 12,000 metric tons of refined lead before the war; it has since been reported to have suspended the smelting of lead ores and to be refining scrap metal on a limited scale.

Gebr. Borchers A.-G.

(See under Chemicals.)

## Engineering and Armaments.

Fr. Schinke Maschinenfabrik

Goslar

(-)

This firm manufacture foundry plant particularly cupolas.

## Chemicals & Explosives

Gebrüder Borchers A.G.

Glockengiesserstr.

(2)

This works is a subsidiary of H.C.Stark, Berlin. In 1939 some 500 workers were employed in two departments a) making borax, cobalt, nickel and arsenic compounds and dyes for the pottery industry; and b) producing tungsten powder at an estimated rate of 200 tons per annum. This works is also an important refiner of cobalt the capacity being in the region of 3,000 tons per annum.

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# GOTHA (Thuringia)

50° 55' N. 10° 40' E:

470 miles:

Gotha is on the main Berlin-Frankfurt a. Main railway line and is between Erfurt and Eisenach. It is a junction for two branch lines. The most important industry of the town is the aircraft assembly works described below. The other industries include rubber hose and engineering, and there are also a number of flour mills and a scap factory, none of which is of individual importance.

## Transportation

Railway Junction

Gotha

(2)

The railway station is on the southern edge of the town. An important branch line leads N. from the station via Mülhausen to Kassel and Northwestern Germany. Another branch line leads S. to the Thuringer Wald district. Adjacent to the main railway station are medium sized railway repair shops engaged on the repair and maintenance of good wagons and coaches and believed to employ about 2,000 workers.

### Public Utility Services

Power Station

Gotha

(2)

wineering

Brand

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Mode

The Gotha electric power station of the Thuringer Elektrizitäts Lieferung Ges. A.G. was originally a power station of the Gotha tramway system and is now an important station of the Thuringian network which supplies current for general purposes and also for the electrified railway leading from Gotha into the Thuringer Wald. It has an installed capacity of approx. 50MW.

## Aircraft and Aero Engines

Gothaer Waggonfabrik A.G.

Gotha

(2)

This works is situated on the Northeastern edge of the town where it occupies a very large area. The firms' title is misleading as the larger part of this plant if not its entirety is devoted to the manufacture of aircraft components and the assembly of fighter aircraft their connection with which dates from the 1914-18 war when the Gotha aeroplane was one of the chief German types. The activity of the Gotha plant has expanded more or less steadily since 1934 when some 3,000 workers were employed. By 1937 that number had increased to 4,000 and by 1939 some 4,500 were employed. Further expansion has occured in the course of this war. Prior to the war a large proportion of this

this plant was devoted to the manufacture of narrow gauge locomotives, trailers and other heavy vehicles. During the early part of this war these activities were continued on a smaller scale and some of the capacity of the plant that became available is believed to have been employed on the manufacture of tank transport vehicles. There is reason to believe that most of these activities were dragged in the course of the last two to three years and that the plant was practically completely converted for the manufacture of aircraft components and the assembly of aircraft particularly the erection of components and the final assembly of Me. 110. Prior to a raid by the U.S. Air Force in February, 1944, in the course of which the works was very severely damaged, its estimated output was 75 Me. 110 per month. The works also supplies wing sections, fuselage parts etc. to Brunswick and Augsburg.

# Engineering and Armaments

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Theodor Ehrlich Gotha (3)

This firm makes gears, differentials and driving gear.

Brand & Grasemann Paul Hennicke Str. (-)

This firm makes ventilators, exhausts and air compressors on a small scale.

Looss & Hempel Gotha (-)

The Gothaer Werkzeugmaschinenfabrik Looss & Hempel, are makers of boring and grinding machines.

Automatikus Am Seeberg (-)

The Automatikus Specialfabrik für Apparatebau Eduard Haas, specialises in apparatus for cleansing and scouring metal.

# Rubber and Tyres.

Gothania Werke A.G. Hindenburgstr. ) (3)
Blödner & Vuerschrodt Schlichtenstr.

Both these firms are manufacturers of rubber and woven hose for fire fighting appliances and industrial purposes. The Vereinigte Gothania Werke A.G. were employing some 250 and the Blodner & Vierschrodt Gummiwarenfabrik & Hanfschlauchweberei A.G., some 600 workers in 1939. Both are factories of importance in this branch.

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# G O T T I N G E N (Hannover)

51° 30' N. 9° 55' E: 430 miles: (47,000)

Gottingen is on the main line from Hannover to Frankfurt (Main) and is 60 miles South of the city of Hannover. It is a University town and apart from a number of makers of scientific instruments it has no industries of note. As a railway junction it is of some local importance.

## Transportation

Railway Repair Shops and Goods Yard Göttingen (3)

The repair shops are close to the main railway station on the Western edge of the town. They undertake the repair of goods wagons. Two branch lines lead to the West and one to the East of Göttingen. All of these diverge from the main North to South line inside the town area. The goods yards are about 700 yards to the North of the railway station.

Railway Marshalling Yards Göttingen (3)

In 1937 the Göttingen railway marshalling yards had a capacity for handling 2,600 wagons per 24 hours.

## Public Utility Services

Municipal Gas Works Göttingen (3)

In 1956 the Municipal Gas Works made 176 cubic feet of gas.

## Non-Ferrous Metal Manufacture and Fabrication

Aluminiumwerke Göttingen (3)

The Aluminiumwerke Göttingen G.m.b.H. are makers of aluminium goods and light-metal stampings, pressings and sections.

### Engineering and Armaments

Sartorius Werke A.G. Physikalische Werkstätten A.G. Gebruder Ruhstrat Weender Landstr. )
Am Zentralfriedhof)(3)
Lange Geismarstr. )

These three associated firms are makers of precision balances, galvonometers, scientific instruments and apparatus for use in physical, chemical and biological laboratories. The Sartorius Werke also specialise in poultry incubators.

Wilhelm Lambrecht

Göttingen

(3)

This firm are believed to be the leading German makers of meteorological instruments.

R. Winkel G.m. b.H.

Göttingen

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Chemicals

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lextiles,

Miler

(3)

This firm make microscopes, surveying and high-precision grinding and polishing machines.

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# GREIFFENBERG (Silesia)

51° N. 15° 30' E:

690 miles

(4,500)

Greiffenberg is approximately 20 miles South East of Gerlitz on the main line through Hirschberg to Upper Silesia. It is within 10 miles of the former Czechoslovakian frontier. The industry is mainly textile and the largest factory is mentioned below.

## Textiles, Rayon, Pulp and Paper

Greiffwerke, A.G. Winkler

Greiffenberg

(-)

This firm, formerly the Greiffwerke A.G., is now owned by the Gustav Winkler K.G. of Berlin. In 1939 it specialised in the manufacture of overalls and workmen's clothing, and employed There is a branch factory some 1,600 workers. at Frankfort/Oder.

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## GREIFSWALD (Pomerania)

54° 5' N. 13° 25' E:

590 miles:

(34,000)

Greifswald is a small University town 20 miles South East of Stralsund and close to the Baltic, with which it is connected by a canal. There is a small shipbuilding industry and a few engineering works, none of which is of outstanding importance. A report has been received that there is now a factory outside the town making aero-engines, but confirmation or further details are lacking.

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### GREIZ (Thuringia)

500 40' N. 120 10' E:

540 miles:

(40,000)

Greiz is 12 miles North of Plauen in the small principality of Reuss. It has a considerable textile industry made up of a number of small factories, several minor engineering firms, and the chemical factory mentioned below.

## Engineering and Armaments

Oskar Schleicher

Greiz

(-)

This firm, which has its own iron foundry formerly specialised in the making of textile machinery. Its present activities are not known.

## Chemicals and Explosives

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Zschimmer & Schwarz

Dölau

(-)

These chemical works are in the suburb of Dolau one mile South of Greiz. They produce formic acid, aluminium and barium compounds, textile dressings and various industrial chemicals, and pharmaceuticals. In 1939 the firm employed some 400 workers.

## Textiles, Rayon, Pulp and Paper

Müller & Kramer

Admiral Scheer Str. (-)

In 1938 this firm employed some 400 workers. It is one of the several small weaving mills in Greiz.

Georg Schleber

Greiz

(-)

The Farbereien & Appreturanstalten Georg Schleber A.G. are dyers and textile finishers. At their two factories in Greiz and in Reichenbach (Saxony) a town 5 miles East of Greiz, they employed some 1,200 workers in 1938.

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# GREVENBROICH (Rhineland)

51° 5' N. 6° 35' E:

295miles:

(12,000)

Grevenbroich is approximately 12 miles South West of Düsseldorf and is a railway junction where the line from Neuss to Düren crosses that from Köln to München-Gladbach. The chief industry is the important aluminium works mentioned below. are, in addition, several foundries and engineering works and some textile factories, none of which is individually of note.

### Non-Ferrous Metal Manufacture and Fabrication

Erftwerk

Grevenbroich

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The Erftwerk which belongs to the Vereinigte Aluminium Werke A.G., is an important aluminium reduction plant with a pre-war capacity of 25,000 tons of aluminium per annum. 4,000 workers are believed to be employed. According workers are believed to be employed. to estimates as per September 1943 the capacity of this plant has remained at its pre-war level.

Blattmetall A.G.

Grevenbroich

(3)

The Rheinische Blattmetall A.G., which also belongs to the VAWAG, specialises in the manufacture of aluminium foil.

G. Schottler

Grevenbroich

(-)

The Armaturenfabrik & Metallgiesserei G. Schottler are metal founders and makers of non-ferrous armatures.

## Engineering and Armaments

Maschinenfabrik Grevenbroich A. G.

Grevenbroich

(-)

The Maschinenfabrik Grevenbroich A.H. belongs to the R. Wolf concern of Magdeburg-Buckau and is a factory making brewing vats and other enamelled metal containers for industrial use.

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# GRONAU (Westphalia)

52° 15' N. 7° E: 310 miles: (20,000)

Gronau is 30 miles north-west of Munster and close to the Dutch border. It is on one of the main railway lines leading from N.W. Germany into Holland. Cotton spinning is the chief industry of this town.

### Transportation

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Railway Repair Shops

Gronau

(3)

These are medium sized works which undertake the repair of goods wagons, and which in 1937 employed some 750 workers.

## Textiles, Rayon, Pulp and Paper

Gronau A.G.

Losserstr.

(-)

The Baumwollspinnerei Gronau A.G. is the largest of several spinning mills in Gronau. This factory has 40,000 spindles and in 1937 employed approximately 1,000 workers.

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#### GROSS KAYNA.

#### See under Weissenfels.

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# GRUNBERG (Silesia)

51° 55' N. 15° 30' E: 670 miles: (26,000)

Grimberg is in the northernmost part of Silesia and is on the main railway line leading from Stettin to Glogau and Breslau. It is a junction for two small branch lines. Textiles are the main industry of the town there are a number of small brown coal deposits in the neighbourhood. Grimberg is also the centre of a small winegrowing district and has several distilleries. There are a few brick factories and an unimportant engineering works.

#### Transportation

Railway Repair Shops

Grünberg

(3)

These are medium sized repair shops which carry out the repair of goods wagons. In 1937 some 750 workers were employed.

#### Solid Fuels

Grünberger Gruben

Grünberg

(-)

The Consolidierte Grünberger Gruben exploit the small brown coal deposits near Grünberg and have a briquette factory. 80% of the shares are owned by the textile works mentioned below.

## Textiles, Rayon, Pulp and Paper

Deutsche Wollenwaren

Breslauerstr.

(3)

The Deutsche Wollenwaren Manufaktur A.G. is the

principal textile factory of Gronau. main products are heavy textile materials such as uniform cloth. There are 480 weaving stools and a spinning mill with 24,000 spindles. Some 2,000 workers were employed in 1939.

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## GUBEN (Brandenburg)

51° 55' N. 14° 40' E: 640 miles: (44,000)

Guben is 25 miles South of Frankfort/Oder on one of the main lines leading from North Germany to Breslau. Textiles are the chief industry. There are a number of cloth factories and Guben is an important centre of the hat-making industry. In addition to the new factory mentioned below, there are a number of minor engineering works.

### Transportation

Railway Junction.

(3) Guben

Important branches leave the main line at Guben leading to Cottbus in the South West and through Crossen Eastwards to Posen.

### Engineering and Armaments

Borsig A.G.

Guben

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The Rheinmetall Borsig A.G. have built a new factory during the war at Guben, which is believed to have been completed in March 1943. These works are reported to employ 800 workers but it is not known what is being produced.

### Textiles, Rayon, Pulp and Paper

Hutfabrik A.G.

Guben

(-)

The Berlin-Gubener Hutfabrik A.G. are among the leading German manufacturers of felt and cloth Prior to the war they did a large export Some 3,000 workers were employed in 1939. trade. The present activities of this large works are not

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## GUMBINNEN (East Prussia)

54° 35' N. 22° 10' E: 950 miles: (25,000)

Gumbinnen is on the main line from Königsberg to Kowno and It is 25 miles from the former Lithuanian frontier and was It is an important market centre for the agriculture a garrison town. of East Prussia.

#### Engineering and Armaments

Maschinenfabrik A.G.

Königstr.

(3)

The Vereinigte Maschinenfabrik A.G. Gumbinnen is an old-established firm manufacturing agricultural machinery. Among their products are small Diesel and crude oil engines. In 1939 the works were employing some 400 workers. Reports suggest that a large part of the works is now engaged on the manufacture of tools and components for the motor-vehicle industry and that 1,000 workers were employed in 1942.

### Food Stuffs

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Gumbinnen

(-)

These flour mills have a daily milling capacity of 200 tons and large grain-storage facilities. There are also several smaller flour mills in Gumbinnen with a total milling capacity of approximately 150 tons per day.

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## GUMMERSBACH (Rhineland)

51° 5' N. 7° 35' E: 335 miles: (21,000)

Gummersbach is 25 miles E. of Koln in the hilly country known as the Bergisch-Land. To the North and East of the town are numerous small river valleys where artificial reservoirs have been formed as part of the water supply system for the Wuppertal and Solingen districts. Gummersbach is the administrative centre for many of these water supply undertakings. There are also numerous quarries in the vicinity. The principal industry of the town is the important boiler works described below.

#### Transportation

Railway Repair Shops

Gummersbach

(3)

These are medium-sized repair shops carrying out the repair of goods wagons.

#### Engineering and Armaments

L. & S. Steinmüller

(2) Gummersbach

These large works are among the leading German makers of boilers, mechanical stokers, and general industrial plant. They are believed to be important builders of locomotive boilers. The works cover a large area in the western quarter of the town and several thousand workers are employed. Ground reports suggest that as from 1941 Steinmüller was working to full

Arms Factory

(-) Gummersbach

It has been reported that a large new arms factory has been opened at Gummersbach where some 8,000 workers are employed. The workshops are said to have been built largely underground. No confirmation or details of the products of this factory have been received.

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# G # S T R O W (Mecklenburg)

53° 50' N. 12° 10' E: 540 miles:

Gustrow is 20 miles S. of Rostock and is on the main lines from Berlin to Rostock and Warnemunde and from Berlin to Lubeck, which diverge two miles W. of the town. There are a number of small engineering works in addition to that mentioned below, but the main activities of the town are connected with agriculture.

## Engineering and Armaments

Vantongel

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The Vantongelsche Stahlwerke G.m.b.H. specialise in steel mould castings. In 1938 the factory employed about 350 workers.

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# GÜTERSLOH (Westphalia)

51° 55' N. 8° 20' E: 370 miles: (30,000)

Gütersloh is on the main railway line between Bielefeld and Hamm. Textiles are the chief industry. There are a number of cotton and rayon weaving mills, none of which is individually of note, and several small engineering works in addition to the larger one which is mentioned below.

#### Transportation

Railway Repair Shops

Gütersloh

(3)

These are medium sized repair shops engaged on the repair of goods wagons.

#### Engineering and Armaments

Mielewerk A.G.

Gütersloh

(3)

These works employed some 2,500 workers in 1939 and produced dairy machinery, washing and wringing machines, refrigerators, small electric motors and bicycle lamps and components. In 1942 they were reported to be fully active.

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## HAGEN and DISTRICT (Westphalia)

51° 20' N. 7° 30' E.: 325 miles: (234,000)

The district of Hagen covers a stretch of the valleys of the rivers Ennepe, Volme and Lenne. It has a total area of approximately 100 sq. miles, and includes the following main towns, suburbs and neighbouring villages:-

Hagen w	ith a p	opulation	of	155,000	includes Boele, Delstern, Hengstey, Kabel, Haspe, Holthausen and Vorhalle.
Gevelsberg.	11	11	11	23,000	
Schwelm		n	#	24,000	
Hasslinghauser	. "	H	"	12,000	includes Asbeck, Hiddinghausen, Grundschüttel & Volmarstein.
Milspe	- n	- "	11	11,700	includes Mühlinghausen.
Voerde	"	n	"	8,600	includes all surrounding villages.

The city of Hagen lies at the confluence of the River Volme, a tributary of the Ruhr, and the River Ennepe, 10 miles due South of Dortmund at the South-East end of the Ruhr area. It is one of the most flourishing commercial cities in Westphalia, possessing extensive iron and steel works, manufacturers of iron and steel goods, accumulators, leather, paper and tobacco as well as textile mills, breweries, distillaries, and other industrial establishments.

Transportation facilities at Hagen play an important part in the commercial traffic network of the Ruhr and Western Germany. There are extensive marshalling yards, goods stations and repair workshops.

TYPE AND DESCRIPTION OF OBJECTIVES.	LOCATION	PRIORITY RATING
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#### Transportation.

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> (2) 1 Hagen Railway sidings & marshalling yards.

These sidings and marshalling yards have two roundhouses. They are situated to the North of the city and just N.N.W. of the main passenger An extensive factory area surrounds these station. yards.

(3) Hagen. Railway Repair Shops.

These repair shops, with two roundhouses, lie directly North, North East of the marshalling yards mentioned above. They are reported to be engaged on the repair of goods waggons.

Hagen-Railway Marshalling Yards. (3) Vorhalle

To the North West of Hagen city, practically on the southern bank of the River Ruhr are the Vorhalle marshalling yards with 2 locomotive sheds

and 2 turntables and a pre-war capacity of 3,800 waggons per 24 hours.

### Railway Marshalling Yards

Hagen-Hengstey

(3)

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These yards are situated in the northernmost suburb of Hagen, and stretch along the southern bank of the Riber Ruhr. They had a pre-war capacity of 2,350 waggons per 24 hours.

## Public Utility

For Hengstey, Herdecke, and Harkort reservoirs and power stations see under WITTEN.

Kraftwerk

Hagen-Haspe

(3)

This thermal power-station is owned by the Klöckner Werke A. G. and has a capacity of 40 MW.

Kraftwerk

Gevelsberg

(3)

This municipal plant is a thermal power station with a capacity of 36 MW.

Gaswerke

Hagen

(3)

In 1936 the Hagen municipal gasworks purchased 60 million cubic feet of gas and sold 380 million cubic feet.

Gaswerke

Hagen-Gevelsberg (3)

In 1936 the Gevelsberg municipal gasworks purchased and sold 209 million cubic feet

#### Iron and Steel and Ferro-Alloys.

Klöckner-Werke A. G.

Hagen-Haspe

(2)

(3)

This is a branch plant of the main works at Duisburg. It covers a fairly large site at Haspe, a South West suburb of Hagen, and lies between the Hagen-Barmen and the Hagen-Gevelsberg railway lines. The engineering section of the plant lies in the North East part of the site and details of it are given below in the Engineering section. The blast furnaces and electric furnaces lie in the South West end of the site. Annual capacity is estimated at 450,000 tons of pig-iron and 600,000 tons of crude steel. Thomas, open-hearth and electric steel is made. The plant is estimated electric steel is made. The plant is estimated to employ some 8,000 workers.

### Non-Ferrous Metals

Erkenzweig u. Schwemann Hagen This is a copper fabricating plant of relatively minor importance.

### Engineering and Armaments

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tations

elsberg []

Klöckner-Werke A. G.

Hagen-Haspe

(2)

The engineering section of this works lies in N.E. part of the site. It is engaged mainly in the production of sheets, bars, hoops, plates, joints and wire. See also under "Iron and Steel".

Gusstahlwerk Wittmann A. G.

Hagen-Haspe

(3)

In 1938, the plant of this firm consisted of a steel foundry, machine and fitting shops. Some 1,300 workers were them employed. A 1942 report gives the number of workers as 3,000.

Stahlwerk Brüninghaus A. G.

Hagen-Vorhalle (3)

The suburb of Vorhalle lies to the N.W. of Hagen just south of the River Ruhr. The Brininghaus plant, owned by Vereinigte Stahlwerke A.G., is situated directly north of the Vorhalle station within a triangle formed by these main railway lines. It has rolling mills and produces, bars, sheets, steel rods and girders and other products.

Stahlwerke Harkort-Eicken G.m.b. H.

Hagen

(3)

Owned by Hoesch A.G., this plant is situated between the East bank of the River Volme and the Hagen main railway station. It has rolling mills and produces, rods, bars, sheets, plates and wire. In 1939, its workers numbered 2,200.

Schmiedag A. G.

Hagen

(2)

Owned by Hoesch A.G. this plant lies on both banks of the River Volme to the N.W. of the railway marshalling yards. Besides making orankshafts, forgings for mines, machinery and dredges, fittings for locomotives, boilers, and drums, this works is reported to be producing 155 mm cannon, bombs, axles for Ford cars and it is also believed to be engaged in the partial assembly of tanks. Some 2,500 workers are reported to be employed.

W. Krefft A.G.

(3) Gevelsberg

Prior to the war, these works were important makers of domestic ovens, heating apparatus and associated products. In 1939 they employed some 1,400 workers. They are now reported to be making small arms components.

Schwelmer Eisenwerk Miller & Co.

Schwelm

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Covering an area of approx. 150,000 sq. metres on a site of some 200,000 sq. metres, this plant is engaged in the production of tank waggons, oil and other storage tanks, and benzine drums. According to ground reports some 1,500 workers were employed in 1942 but it is believed that this number has since decreased.

Hagener Gusstahlwerke Remy & Co. G.m.b.H. Hagen

(3)

This steel processing plant occupies a fairly extensive site directly North North East of the main marshalling yards in the suburb of Eckesey. Adjoining the northern section of the plant is the municipal cleaning-vehicle depot. The plant has rolling mills, and produces sheets, plate bars and rods.

Milspe Eisenwerke vormals Rudolf Rentrop & Co.

Gevelsberg-Milspe

(3)

This plant, built on a site of 24,000 square metres consists of a foundry smelting ovens, tempering ovens and workshops covering an area of 7,000 square metres. Producers of agricultural machinery before the war, this firm, together with the smaller firm of Stockey & Smith lying on the other side of the railway bridge linking Gevelsberg to Milspe, is said to be making jigs and fixtures for the arms industry and the two firms are reported to employ some 1,000 workers.

Heinrich Herring und Sohn

Milspe

(-)

This is a small firm making foundry moulding machines.

Dorken A. G.

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Gevelsberg

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Owned by Hoesch A.G., this plant specialises in M.V. components, components for railway trucks and waggons. These components include plates, bolts and malleable castings. In 1939 some 400 workers were employed.

Accumulatoren-Fabrik A. G. (A. F. A.) Werk Hagen

Hagen

(1)

This is the Hagen plant of the Accumulatoren Fabrik, A.G. Berlin (A. F. A.). It stretches along the northern bank of the River Ennepe to the west of Hagen in the suburb of Wehringhausen and is the largest plant of its kind in Germany. Ships' accumulators, particularly for submarines (these latter constituting 50% of Germany's total requirements), of all sizes, fire-control instruments, electric firing mechanisms, lead and alkali-nickel-iron accumulators, Edison pattern, and accumulators for power and radio installations are made. The plant has its own power station linked to the municipal station and is estimated to employ more than 5,000 workers.

Stahlwerk Kabel C. Pouplier jun.

Hagen-Kabel

(3)

Situated N. of Hagen in the suburb of Kabel just south of the Hengstey marshalling yards, this plant produces semi-finished steel components for aircraft and tanks.

Wippermann junior A. G.

Hagen-Delstern (3)

This works, which before the war made components for motor vehicles, is now reported to be one of the largest makers of components for caterpillar tracks in Germany and also stated to be making sparking plugs.

Maschinen und Werkzeugfabrik Kabel, Vogel & Schemmann, A.G.

Hagen-Kabel

(-)

This company are manufacturers of foundry machines, precision instruments, particularly spiral borers, sand-blast equipment, and fettling shop equipment.

H. Breitenbach vorm. Heitman & Co. Gevelsberg ) (-) Elektrolytische Verzinkereien G.m.b.H. Gevelsberg Breibach'sche Verzinkerei Hagen Elektrolytische Verzinkereien Hermann Schulze Hagen Spritzverzinkerei W. Schaft K. G. Hagen Thünken & Co. K. G. Hagen

The aforementioned galvanizing works are the largest of a considerable number of works of this kind in the Hagen region. None is of individual importance.

### Chemicals

(-) I. G. Farbenindustrie A. G. Hagen-Haspe

This plant is reported to have been dismantled. It had a capacity of 5-10,000 tons of 100% sulphuric acid per annum.

Beyenburg-Bergische-Sprengstoff und Zunderwerke A. G. near Schwelm (-)

Fuses and Detonators are made by this firm on a small scale. In 1938 some 250 workers were employed.

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## HAINICHEN (Saxony)

51° N. 13° 10' E:

570 miles:

(8,200)

Hainichen is 15 miles N.E. of Chemnitz. Apart from the motor works described below its industry is mainly concerned with textiles, embracing upholstery, bandages, and cotton-wool. None of the factories is individually of importance.

TYPE AND DESCRIPTION OF OBJECTIVES

LOCATION

PRIORITY RATING

Engineering and Armaments.

berg | [.]

(-)

Framo Werke G.m. b. H.

Hainichen

(3)

Before the war this firm made small three- and four-wheeled vehicles of the delivery-van type, the largest type being a one-ton truck. Their products now include small troop carriers suitable for cross country work.

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### HALBERSTADT

51° 55° N. 11° E:

480 miles:

(55,000)

Halberstadt is 25 miles to the S.W. of Magdeburg on the plain immediately to the N. of the Hartz Mountains. It is on a main East to West railway line connecting it directly with Aschersleben and Bernburg which are approximately 25 miles and 40 miles respectively to the East of Halberstadt. The normal peace-time industries of the town included glove making, the manufacture of sausages, and the preserving of meat, but the war-time industry is centred on the important Junkers aircraft works described below.

TYPE AND DESCRIPTION OF OBJECTIVES

LOCATION PRIORITY

## Transportation

Railway Junction

Halberstadt (3)

Immediately to the W. of the main railway station a branch line leaves the main East to West track and leads to Magdeburg; East of the main station another branch diverges, leading into the Hartz district.

Marshalling Yards

Halberstadt (3)

These lie to the North East of the town and had, in 1938, a capacity of 2,200 wagons per 24 hours.

Public Utility Services.

Stadtisches Gaswerk

Halberstadt

(3)

In 1936 the municipal gasworks of Halberstadt made 174 million cubic feet of gas.

Aircraft/

HALBERSTADT (Contd) TYPE AND DESCRIPTION OF OBJECTIVES

PRIORITY LOCATION

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## Aircraft and Aero-Engines

(2) Halberstadt Junkers Flugzeug & Motorenwerks A.G.

The Junkers concern has important works in Halberstadt which have been greatly enlarged during the war and are now reported to be employing up to 10.000 workers. The original factory is reported to be concentrated almost entirely on Ju.88 wings which are sent for assembly to Bernburg. In 1943 they were turning out 21 sets of these weekly, fuselages for these planes being produced at the same rate in Aschersleben.

Junkers Flugzeug & Motoren werke A.G.

Halberstadt (3)

It is reported that during the war a large aero-engine factory has been developed by Junkers in Halberstadt. The premises of an existing machine factory (The Halberstädter Maschinenfabrik) were taken over and the plant has been modernised and greatly extended. This has not been confirmed.

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# HALLE (Province Saxony)

51° 30' N. 12° E: 520 miles: (210,000)

Halle is a railway centre of great importance. It is on the main line from Berlin to Frankfort/Main and together with Leipzig which is 20 miles to the S.E. it forms the focal point of the railway system of industrial Saxony. Apart from the railway workshops and the aeroplane factory described below, the industry of Halle is mostly in the hands of small firms and includes engineering works, metal foundries, printing and furniture making. To the North and South of the town are large brown-coal deposits and the firms exploiting these have their head offices in Halle.

Halle is a compact and densely populated town. A large proportion of the population work in or in connection with the outlying districts. There are two highly important works, within 10 miles of and to the South of Halle: the Leuna works at Merseburg and the Buna works at Schkopau. At Teutschenthal 10 miles to the West there is a notable non-ferrous metal works. All these are dealt with under their separate headings. The small suburb of Ammendorf, 1 mile to the South of Halle, is not inside the administrative area, and is dealt with separately.

Transportation/

HALLE (Contd)

TYPE AND DESCRIPTION OF OBJECTIVES

LOCATION PRICRITY

Transportation

Railway Junction

(1) Halle

The main Berlin-Frankfort line approaches Halle from the East and 1 mile before reaching the town is joined by important branches leading respectively from Magdeburg and from Torgau. Immediately before the main Halle station it is joined by a further branch leading from Halberstadt and Aschersleben. The track curves andruns roughly North to South along the Western edge of the town. South of the main station the lines again diverge, one important branch leading Southeast to Leipzig and a second West to Eisleben. A small local branch line also leads from the main station across the town and the river Saale and Westwards via Hettstedt to Eisleben.

Marshalling Yards

Halle

(2)

The goods station and the extensive marshalling yards are adjacent to and North of the main station. The traffic is important not only because of the many brown-coal mines surrounding Halle but also because of the town's proximity to the large Leuna works at Merseburg and the Buna plant at Schkopau. In 1938 these yards had a capacity of 4,800 wagons per 24 hours.

Railway Repair Shops

Halle

(2)

These are important railway repair shops and are South of and close to the main station. They repair locomotives and rolling stock and are believed to employ some 3,000 workers.

Public Utility Services

Power Station

Halle

(2)

This municipal thermal power station, planned to have an ultimate capacity of 80 MW, was only half built in 1938. contains 4 generators with an installed capacity of 42 MW. No information is available regarding the possible further development of this plant.

Werke der Stadt Halle A.G.

Halle

(2)

In 1936 this gas works made 490 million cubic feet of gas and drew 20 million cu.ft. from the municipal sewage-purification plant.

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## Aircraft and Aero Engines

(1) Halle Siebel

The Siebel Flugzeugwerk Halle is a large aircraft plant situated on the airfield North of the town. At the outbreak of war they were engaged on their own type of two-engine plane, but they are now assembling mainly Ju. 88's. Wings and control surfaces are made at the Halle works to meet their own requirements but this type of aircraft component is also supplied to the Siebel works at Schkeuditz. Fuselage components are imported from the Opel works at Components are also Russelsheim. received from and supplied to the Henschel works at Berlin and the A. T.G. works at Leipzig.

## Engineering and Armaments

Weise Sohne

Weise & Monski Merseburg erstr.

These two associated firms are makers of pumps and turbines. Weise & Monski is an old-established firm specialising in slowmoving piston pumps. Weise Sohne have a more modern plant and manufacture highspeed centrifugal pumps and domestic pumping plants. They employ some 800 workers before the war.

### Rohrenwerke A. G.

Bollbergerweg (3)

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The Hallesche Röhrenwerke A. G., which employed 300 workers in 1939, manufacture pipes from sheet steel for ventilators and air ducts. They are also pipe benders and makers of ribbed pipes for refrigeration purposes. The firm belongs to the Neunkirchener Eisenwerk A. G.

#### Lange & Geilen

Raffineriestr. (3)

This firm are important makers of planing and shaping machines and particularly of tool-room shapes.

#### F. Pampe

Artilleriestr. (-)

This firm specialises in distilling apparatus for the chemical industry and synthetic-alcohol manufacture. About 150 workers were employed in 1939.

Wegelin/

HALLE (Contd)

TYPE AND DESCRIPTION OF OBJECTIVES

LOCATION PRIORITY RATING

Engineering and Armaments (Contd)

Wegelin & Hübner A.G.

Merseburger- (3)

This firm makes filter presses, hydraulic presses, distilling plants, vacuum pumps and compressors, and complete installations for the chemical and rayon industry. The works include an iron foundry. Approximately 1,000 workers were employed in 1939, the company having increased its activity considerably during the previous three years.

Hallesche Maschinenfabrik

Merseburger- (3)

The Hallesche Maschinenfabrik & Eisengiesserei A.G. specialise in complete plants for sugar refineries. They also make pumps, filter presses and refrigerating machines. Some 700 workers were employed in 1939.

Chemicals and Explosives.

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Theo.Goldschmidt A.G.

Halle (3)

This chemical factory, which was formerly known as the Chemische Fabrik Buckau, is an electro-chemical works producing caustic soda and potash, chlorine and chlorine derivatives. The works are on a large scale and are equipped with the most modern types of galvanic tanks and chlorine liquefying plants. The parent works of this firm are in Essen. There is a third large chemical works belonging to the same concern at Mannheim.

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#### HAMBURG

(including ALTONA and HARBURG-WILHELMSBURG)

53° 35' N. 10° E: 450 miles

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Goods

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Hamburg has, for a considerable time, held the first place among the ports of Continental Europe, and has risen to be the third largest shipping centre in the world. This development is due not only to the vast extensions and the modernisations of its Free Port, but also to the exceptional facilities offered for storing and manipulating goods in bond - notably colonial produce and oil.

Hamburg's sea-going merchant fleet counted, on January 1st 1937, 1,538 ships, with an aggregate of 2,275,000 G.R.T.

During 1938, the port's incoming and outgoing traffic each amounted to  $20\frac{1}{2}$  million tons net, while imports of goods reached 18 million tons, and exports  $7\frac{1}{4}$  million tons.

The old port was confined to the northern side of the River Elbe, but the really important and modern port has developed entirely along the river's southern bank. This main port area falls roughly into two sections (a) centred on the HANSA-HAFEN and (b) on the ODER-HAFEN, which provide accommodation for the chief overseas liners.

In the new port too are the big shipbuilding yards, and numerous engineering and armament works.

Besides plants connected with shipbuilding, the port area accommodates other big engineering works and roughly half of Hamburg's very important oil-storage installations (total pre-war capacity over 1,300,000 tons), oil-crushing mills, nonferrous metal works, several aircraft and aircraft component factories including important airscrew works, as well as grain, and other foodstuff factories and storage centres.

Next in importance to the port proper comes the Harburg-Wilhelmsburg district, to the South, where big vegetable-oil plants, other foodprocessing factories, the huge grain and produce warehouses, chemical works and a well-known rubbertyre factory are located.

Altona, on the northern bank of the Elbe, specialises more in light metal industries, including castings for aero-engines, but has also several other important industries and foodstorage installations. In the inner port (Binnenhafen-Sandtorhafen), also on the Altona side of the port, lies the very congested chief warehouse area. A net of railway tracks connects this area with the Main Station of Hamburg.

One of the striking features of the central residential and commercial area of the city proper is the Alster Lake (actually a widened arm of the River Elbe). The major(northern) portion of this lake is known as the Aussen-Alster (outer Alster), and the much smaller and narrower southern tip is called the Binnen-Alster (inner Alster). Crossing this portion is the Lombard bridge, which forms (or formed) the sole connecting link between the business district of the city and the large residential district to the West. The whole of the Binnen-Alster is now camouflaged.

Apart from the industries and warehouses located in the port area, Altona, and Harburg-Wilhelmsburg, there are numerous works, storage installations, etc. scattered about other districts of greater Hamburg.

The railway system includes nine major complexes of goods stations, marshalling yards, and sidings. Of these, five are situated in, or adjacent to, the port area. A sixth lies to the South of the Suder-Elbe (outside the port proper) stretching for about 7 km., roughly North to South, along the southern outskirts of Harburg, between the Gutmoor and the Wilstorf-Ronneburg district.

The remaining three goods yards etc. are in the Altona, Stellingen, and Barmbeck areas. All are connected with the Hamburg Central Station.

At the end of 1936 the railway-net measured 138 km., the tramway system 232 km.

## Transportation

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Goods and Marshalling Yards Harburg-Wilhelmsburg (3)

The capacity of this yard is 4,800 waggons per 24 hours. This network runs North-South and lies West of Wilhelmsburg town and station. The lines leading out of the yards to the North connect with the Veddel Zollhafen and the Spree-Hafen. To the South the yards go a little below Wilhelmsburg station.

Goods and Marshalling Yards Rothenburgsort (3)
(Billwarder Ausschlag)

The capacity of this yard is 3,300 waggons per 24 hours. The lines run from Billbrack in a southeasterly direction as far as Tiefstack station (a distance of about 2½ km.).

## Transportation (cont)

Goods Yard

Hamburg-Sud, (3) Kleiner Grasbrook

Public Ut.

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Starting a little East of the Kaiser Wilhelm Hafen, the yard stretches almost due West to East for a distance of about 12 km. ending in the Southern part of the Hansa Hafen.

Goods Yard

Oberhafen, Hamburg-Altstadt

About  $l^{\frac{1}{2}}$  km. in length (East to West) North of the Baken Hafen, this goods yard connects, by a bridge over the Bill Hafen, with the Rothenburgsort goods yard.

Marshalling Yards, Railway Workshops, and Sidings

Hamburg-Gutmoor (2)

These yards consist of a stretch of about 7 km. of sidings, goods yards, etc. from Marckelfeld, in the South, to just short of the Süder-Elbe, in the North (between the Gutmoor and Rönneburg districts).

Junction, Goods Yard, and Rolling-stock sheds

Altona (3)

These are situated in the Northwest of Altona; they consist of a cross-shaped net of lines; those going North connect with the Stellingen-Langenfelde goods yards.

Goods Yard

Stellingen-Langenfelde (3)

(3)

This yard lies North-West of Altona and West of the suburbs of Stellingen and Langenfelde. It is nearly 2 km. in length.

Goods Yards and Sheds of Barmbeck the elevated railway This is a small yard situated between the Winterhude town park and the suburb of Barmbeck, Northwest of the Alster.

#### Public Utility Services

Elektrizitätswerke

Tiefstack (2)

Owned by the Hamburgische Elektricitats-Werke A.G., this thermal power station is one of the two main generating stations supplying the city of Hamburg. It is situated in

## Public Utility Services

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(2)

Elektrizitätswerke (cont)

Tiefstack (2)

the docks area to the East of the town where the Elbe-Bille and the Moorflether canals join the Holzhafen. Built in 1915, it has recently been extended by the addition of very high-pressure boilers and superimposed turbines. The station supplies steam to a districtheating system mainly for the surrounding area of Bille. It has an installed capacity of 129 MW. There are no long-distance supplies but there is a substation for 25 kV and 30 kV 3-phase A.C. and also for D.C. Supplies are given to the tramway system, to parts of the inner towns, to the elevated railways, and the local State railways. There are 25 kV underground cables connecting to Bille, Barmbeck, and Carolinenstrasse; and 30 kV lines connecting to Bergedorf and to Lübeck via Bargeteheide. The station is also connected to the Neuhof generating station.

# Elektrizitätswerke

Neuhof

(2)

This thermal power station, also owned by the Hamburgische Elek-tricitäts-Werke A.G. is the second main power station supplying the city of Hamburg. It is situated in the Neuhofer Canal adjacent to the railway sidings south of the Oderhafen. It has an installed capacity of 130 MW.

The station was opened in 1926 and was designed to have an ultimate capacity of 300 MW. The last known extension was in 1931 and brought the capacity of the station to 130 MW. It is thought probable that some further increase in capacity has been made since that date. A transformer and switching house is attached to the machine house.

The station is connected to the Hamburg city supply network and the other local generating stations by medium- and lowvoltage cables. So far as is known, no high voltage overhead lines are connected.

# Public Utility Services (cont)

Elektrizitatswerk Unterelbe A.G.

Schulan (2)

Public U

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When in 1927/28 the capacity of the existing 26 MW Neumuhlen power station became too small to supply the area North and North-West of Altona and Altona proper, a western suburb of Hamburg, this company built a power station at Schulan which was planned for an ultimate capacity of 160 MW. Its present installed capacity is 80 MW. The station is situated just East of the town of Schulan, 10 miles West of Altona and 13 miles West of Hamburg.

Elektrizitätswerke

Altona (Ruckertstrasse) (3)

Owned by the State Railways this plant is on the railway line which runs North out of the Altona Junction, and it supplies Altona and district. Its capacity is estimated at 30 MW.

Hochbahn Power Station

Barmbeck (3)

The plant lies in the Hellbrookerstrasse, and supplies Hamburg's elevated railway. Its capacity is estimated at 30 MW.

Neumuhlen Power Station

Neumühlen

On the Northern shore of the Unter Elbe just East of the Fischerei-Hafen, Altona, this station is used only for peak load. Capacity is estimated at 26 MW.

Elektrizitätswerke

Harburg-Wilhelmsburg (-)

This station is located on the central basin of the three docks on the Southern shore of the Suder-Elbe, opposite Hoheshaf. The capacity is estimated at 12 MW.

Preussen-Elektra Switching Station Harburg-Gutmoor (3)

This station lies on the Easternmost railway line of the Harburg-Gutmoor Marshalling yards, at a point about 1 mile South-east of the Harburg-Phoenix Rubber factory. No further details are available.

Altonaer Gas- u. Wasserwerke G.m.b.H.

Altona (3)

In 1936 the main gasworks in Altona/Bahrenfeld made 880 million cubic feet of gas. In addition, 150 million cubic feet of gas were purchased from

# Public Utility Services (cont)

Altonaer Gas- u. Wasserwerke G.m.b.H. (cont)

Altona (3)

the Hamburger Gaswerke. The company was taken over by the Hamburger Gaswerke in 1938.

## Hamburger Gaswerke G.m.b.H.

In 1936 the company's three gasworks, which are listed below, made 6,800 million cu.ft. of gas and purchased a further 510 million cu. ft. from the Norddentsche Kohlen- und Coks-Werke A.G. coking plant. In 1939 long-distance gas supplies were being made to 53 places outside Hamburg proper, including the formerly independent works at Bergedorf.

Gasworks

Barmbeck (3)

(Osterbeckstr.)
The Barmbeck works of the Hamburger
Gaswerke lies in the Osterbeckstr.,
South of the Osterbeck Canal.

Gasworks

Grasbrook (3)

The Grasbrook plant of this company is situated by the Grasbrook Hafen, where the Baken Hafen joins the Norder Elbe.

Gasworks

Tiefstack (3)

The Tiefstack plant lies at a point where the Elbe Canal joins the Holz Hafen (East of Rothenburgsort).

\* Hamburger Wasserwerke G.m.b.H Billwarder Ausschlag (-)

These water-purification works have 6 pumping engines, pumping 30,000 cbm. of water per day into 4 storage containers.

The figures relating to the waterworks at Hamburg are based on official German publications of 1936. The total sales of the Mamburger Wasserwerke G.m.b.H. and Wasserwerke Hamburg-Ost in 1936 were over 71 million cu.m.

burg (-)

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# Public Utility Services (cont)

Wasserwerke

Billbrook (Tiefstack) (-)

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These are artesian wells, 250 m. deep, yielding 13 million cbm. per annum equal to 21 per cent. of Hamburg's total pre-war water consumption. Filtering and purification plants also included in the works.

Pumping Station

Curslack (-) (18 Km. S.E. of Hamburg)

This is a large combined pumping station and water-purification plant with a capacity to supply 90,000 cbm. per day. In the catchment area there are 260 separate wells operated in two distinct pumping stages. The purified water is conducted by two mains to the Rothenburgsort pumping station into a collecting basis of 40,000 cbm. capacity. Curslack station, together with the Billbrook plant (see above), meets 75 per cent of the town's requirements.

Pumping Station

Rothenburgsort (-)

This plant has 12 pumps with a maximum capacity of 23,000 cbm., pumping straight into town mains.

Pumping Station

Cuxhaven

This station has a capacity to supply one million cbm. per annum plus a further 85,000 cbm. which is supplied to shipping.

#### Solid Fuels

efstack) (-)

of Hanburg

(-)

Norddeutsche Kohlen- und Cokeswerke

Hamburg-Peute (3)

This coking plant is situated opposite the Norddeutsche Affinerie. In 1938 it had 80 coke ovens and a maximum rated dry coal capacity of 249,000 tons per annum. Nearly all the surplus gas produced here was sold to the Hamburger Gaswerke.

### Non-Ferrous Metal Manufacture and Fabrication

Norddeutsche Affinerie

Peute

(1)

This is the most important copper smelting and refining unit in Germany. Its smelting and blast furnaces treat imported ores, matte, and concentrates, as well as imported scrap. The refineries treat blister copper and imported high-grade scrap. In 1938, the plant had an estimated capacity for electrolytic refining of 90,000 tons per annum and a capacity for fire refining of 30,000 tons per annum.

Before the war, an appreciable quantity of nickel was recovered from fire-refined and electrolytic copper produced by other German refineries and, by means of the process of recovery employed at Norddeutsche Affinerie, some 350 tons of metallic nickel were produced annually before 1938 from these sources.

This refinery was also engaged in recovering metal from the increased nickel coinage minted in 1933 when the coinage was recalled in 1939. Since there is no great reservoir of nickel scrap to be drawn upon in Germany, it is probable that present production of recovered nickel amounts to only 50% of capacity, which is estimated at 500 tons of metal per annum. Some nickel may also be produced direct from Petsamo ores, in a small smelter which formerly treated Moroccan nickel-cobalt ores.

These works also include a lead refining plant which had an annual capacity of 36,000 tons before the war. Other installations are a small cobalt refinery and sulphuric acid plant. The latter is estimated to have had a capacity of 40,000 tons per annum in 1938.

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Non-Ferrous Metal Manufacture and Fabrication (	Contd)	
Zinnwerke Wilhelmsburg G.m.b.H.	Wilhelmsburg	(2)
This plant is believed to be fully equipped to deal with all types of copper, including scrap alloys. Its pre-war capacity was 20,000 tons of copper produced by the electrolytic refining process and 40,000 tons produced by the fire-refining process.		
Metallwalzwerk Georg Dittman	Hamburg *	(3)
This copper refining plant employs the fire-refining process. It is engaged mainly on the treatment of plant scrap. Its pre-war capacity was 10,000 tons per annum. Included in the works is a small fabricating plant.		
Norddeutsche Leichtmetall & Kolbenwerke, G. m. b. H.	Altona	(3)
This firm of light-metal alloy fabricators is reported to be engaged on the manufacture of joints, sections, etc. and reports suggest that one of these departments manufactures aero-engine pistons.		
Hamburger Bleiwerk A. G.	Hamburg (Suderstrasse)	(3)
These are lead rolling mills also producing finished and semifinished articles.		
H. Sieg (vorm. Sieg & Henningsen )	Altona (Oeversee Stras	(-) sse)
This small firm is believed to be engaged on the manufacture of aluminium castings.		
Kupferhütte Ertel Bieber, A. C.	Reiherstieg	(-)
This small copper foundry treats pyrites cinders for production of copper sulphate. No details are available regarding its capacity.		

Liquid/

### Liquid Fuels

Imshurg (1

see Strass

Rhenania-Ossag Mineraloelwerke A.G.

Harburg (1)

This is the largest and most important oil refinery in Germany. Its estimated capacity is 550,000 tons per annum. In 1939, a polymerisation plant was installed for the production of high-grade aviation lubricating oils. Adjacent to the refinery, and forming part of the factory site, are a large number of storage tanks which are believed to have a total storage capacity of 272,000 tons.

Rhenania-Ossag Mineraloelwerke A. G.

Grasbrook (2)

This refinery includes a grease plant, solvent de-waxing plant, and installations for the blending of aviation lubricating oils. It serves as a complementary plant to the Rhenania-Ossag Works at Harburg, from which it receives distillates.

The refining capacity of this plant is estimated to be 130,000 tons per annum. Adjacent to the plant are storage facilities believed to be capable of holding 121,000 tons.

Europäische Tanklager & Transport A.G. ("Eurotank") Petroleum Hafen

(3)

Prior to the war, this refinery had a capacity of 400,000 tons per annum. Reliable intelligence tends to show that the refinery is now inactive, but it is believed that the storage installations, which have an estimated capacity of 100,000 tons, are in use.

Ebano Asphaltwerke A. G.

Harburg (-)

This plant is believed to be inactive. Its prewar capacity was 400,000 tons per annum. It operated primarily for asphalt, but could also carry out primary distillation at a rate of 400,000 tons per annum. The site includes storage facilities which are estimated at 100,000 tons and are also believed to be inactive.

Deutsche Petroleum A. G.

Wilhelmsburg (3)

The capacity of this refinery is believed to be of the order of 70,000 tons per annum. The storage facilities have a capacity of approximately 95,000 tons.

Ernst/

## Liquid Fuels (Contd)

Ernst Schliemann's Oelwerke

Grasbrook (3) Draeger W

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This is a lubricating-oil plant producing white oils as well'as ordinary lubricants. Its capacity is not definitely known, but is believed to be relatively small. works include storage facilities for 40,000 tons.

Julius Schindler Oelwerke G.m.b.H.

Wilhelmsburg

This is primarily a lubricating-oil plant, but is believed to include also a small distillation plant. The total capacity is estimated to be 40,000 tons per annum and equivalent storage facilities are situated within the factory site.

Deutsche Vacuum Oel A.G.

Schulau (near Wedel 15 km. W.N.W. of Hamburg) (2)

This plant includes facilities for re-running, blending, and grease compounding. It supplies a large proportion of all high-grade greases used in Germany and is therefore of greater importance than is indicated by its size. The total capacity of this plant is estimated to be 35,000 tons per annum.

Deutsch-Amerikanische Petroleum Ges.

Schulau

(-)

This is a small re-running plant, but there is no firm evidence that it is active. Its prewar capacity was 10,000 tons per annum and there are storage facilities of 50,000 tons capacity.

Mineraloel & Asphaltwerke A.G. (M.A.W.A.G.) Ostermoor

(-)

This plant, which, prior to the war, operated mainly for asphalt, is believed to be inactive. Its prewar capacity was 150,000 tons p.a.

Note:

Prior to the war Hamburg was of great importance as an oil-storage centre. The principal concentration of storage facilities are installed at the Oelhafen. Hamburg's total storage facilities amounted to 1,600,000 tons, which figure includes the storage capacities mentioned under the individual refineries listed above. It is not known to what extent any of the storage facilities in the Hamburg area are being utilized and there is reason to believe that many of the storage plants not directly connected with the refineries are inactive.

Draeger Werke/

Draeger Werke

(3)

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Wandsbeck (3)

Draeger Werke of Lübeck purchased a plant in Wandsbeck for the manufacture of submarine cleaning apparatus in 1938. In 1941 it was reported to employ about 200 workers.

Hansa-Motorenfabrik Gustav Altmann

Altona (3) (Krupýstr.)

This firm specialises in the manufacture of electric motors and wireless generators for submarines.

Conz. Elektrizitäts G. m. b. H.

Bahrenfeld (3) (Gasstr.)

Echo sounding gear for submarines and similar devices are made by this firm which is also engaged on the repair and maintenance of this type of equipment.

Note: There is under "Higineering" an additional number of firms partly engaged on the manufacture of finished or semi-finished products for the Naval and Mercantile shipbuilding industry.

Werke

### Shipbuilding

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This is the most important shipbuilding yard in Germany, and is engaged on the construction of warships of all types, including submarines, as well as motor vessels and cargo steamers. Incorporated within the site of this shipyard are large general-engineering works, primarily engaged on the building of Diesel engines, steam engines, and boilers. The yards have 8 slips of 250 to 926 ft., 7 floating docks (three of which were sunk in the course of the R.A.F. raids in July 1943), and a 1,000 ft. graving dock. The graving dock is still under construction, and when completed will be the only one of its kind in Hamburg. It is estimated that in 1943 this plant (i.e. shipbuilding yards and engineering works combined) employed between 15,000 and 17,000 workers.

Deutsche Werft A. G.

Finkenwärder (2)

These shipbuilding yards consist of 6 slips of 600 ft., which are extendable up to 750 ft. There is also one floating dock. During the war these yards have specialised in the construction of 740-ton type sub-' marines. Other types of vessels constructed here on a fairly large scale are tankers, and the yards are also well known for their motor-vessel output.

Deutsche Werft A. G.

Reiherstieg '(2)

These yards specialise on the construction of escort vessels, minesweepers, freighters, tankers, and other craft. As from 1941 on they were partly engaged on the construction of tank landing craft, but it is believed that this activity has now ceased. Another . important activity at this yard is the repair of vessels of similar types to those constructed here. The yards have two slips of 330 to 500 ft. and 4 floating docks. In 1941 some 3,000 workers were employed.

Howaldtswerke, A. G.

Vulcan Yard (2)

Prior to the war this yard specialised in the building of large passenger vessels and motor vessels. In the course of the war the construction of submarines, mainly of the 500-ton type, was taken up on a considerable scale. The yards consist of three slips of 650 ft. and four floating docks. Also within the site of these yards are Diesel engine construction and general machine shops. The Diesel engines built here are of the M. A. N. type. It is believed that in 1943 some 6,000 workers were employed.

Norderwerft/

Shipbuilding (Contd)

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Norderwerft, A.G.

Reiherstieg (3)

Prior to the war these yards were engaged on the construction of small motor vessels of various types, fishing vessels, and trawlers. In the course of the war auxiliary war vessels, particularly aircraft salvage ships, have been built. The yards consist of 4 slips up to 250 ft. and one broadside slip, as well as one floating dock. In addition there are 2 patent slips of 25 and 100 tons respectively, which are employed for the building of trawlers. In 1939 some 700 workers were employed at these yards. Reports suggest that this number increased to a little over 1,000 in the course of the war.

H.C.Stälcken & Sohn

Steinwärder (3)

Since 1940 this yard has concentrated mainly on the building of 500-ton type submarines, as well as 600-ton minesweepers. Prior to the war small freighters were the principal type of craft built here, but it is believed that this activity ceased early in 1940. The yard consists of three slips of 300 ft. and 4 floating docks. Early on in the war some 1,500 workers were employed. It is believed that this figure has not been considerably increased.

Hamburgische Schiffbau Versuchsanstalt Hellbrook near Barmbeck

This is a small research and design establishment, engaged on work in - connection with merchant vessels on behalf of the Hamburg shipbuilding industry. It is believed that the establishment is small and of relatively minor importance.

Schnelldampfer Co. of Berliner Lloyd

Billhafen (N.E. of Billwarder Ausschlag)

This company operates approximately 30 river vessels, chiefly on the Elbe River, between Hamburg and Dresden. This Hamburg plant is mainly engaged on the repair of ships' engines, boilers, and other equipment. Prior to the war some 300 workers were employed.

Aircraft

Blohm & Voss

Finkenwarder (2)

H.Ma

B.M.

This plant is believed to be engaged on the manufacture of air-frame components and the assembly of B.V.-type seaplanes. It is reported that these works were formerly in-installed at the Osthalle shipbuilding yard.

Blohm & Voss

Steinwarder (3)

The manufacture of components for B.V. -type seaplanes is believed to be undertaken by this plant on a small scale.

Blohm & Voss

Worthdamm

This plant is reported to be engaged on the manufacture and assembly of major components for Dornier-type aircraft, which are said to be supplied to the works at Wentzendorf (see below).

Aircraft Assembly & Components Factory

Wentzendorf (-)

It is reported that a new aircraft assembly . plant has been erected at Wentzendorf, and is also engaged on the manufacture of minor aircraft components. Reports also suggest that components are received from the B.V. works at Worthdamm. There is no confirmation of these reports.

Vereinigte Deutsche Metallwerke A.G. (V.D.M.) Altona/Bahrenfeld (2) and

Gross Borstel

The Bahrenfeld works of this company are situated in two former cigarette factories. which have been extended since they were acquired by the V.D.M.

The Gross-Borstel plant has been erected in the course of the war. Both plants are engaged on the manufacture of air-screw blades, hubs, propeller shafts, and sundry accessories; and assemble complete propellers. They are credited with a high proportion of the total German propeller output.

Humboldt-Deutz-Motoren Reparaturwerk G.m.b.H. Moorfleth (2)

This plant is believed to be engaged on the repair of radial air-cooled engines, as well as on the manufacture and complete assembly of engines. The works is equipped with 10 aero-engine test beds, and is believed to have a relatively small serial production of B.M.W. 801-type aero-engines which are supplied to the Tutow and Aschersleben aircraft-assembly

(This works has also been referred to as the Klöckner Flugmotorenbau G.m. b.H.)

H. Maihak/

H. Maihak, A. G.

Hamburg (2)

This small undertaking manufactures fuelfeed pumps and fuel-consumption indicators for aircraft.

B.M.W.

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ndorf (-)

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s Borstel

Hamburg (-) (Larupchaussee)

It has been reported that the B.M.W. company have built a new factory near to the air field at Larupchaussee, which is said to have come into operation in September 1942 and to be engaged exclusively on the repair and maintenance of engines for the Ju.52. The reports are not satisfactorily confirmed.

Leichtmetallbau G.m.b.H.

Hamburg (3)

It is believed that this firm manufactures fuel and oil containers for aircraft, as well as pilots' seats and a variety of other small accessories for aircraft.

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#### Engineering and Armaments

Note: A number of engineering firms specialising on, or exclusively engaged on, equipment and components for the shipbuilding industry are listed in the foregoing section under "Shipbuilding".

Theodor Zeise

Altona
(Spichernstr.)

This firm is believed to be the second largest German manufacturer of ships' screws. They also make

second largest German manufacturer of ships' screws. They also make a variety of other engineering products.

Hanseatisches Kettenwerk, Hamburg-Ochsenzoll (3) (opposite the Hochbahn Station)

Reports suggest that this firm employed some 2,000 workers in 1943 on the manufacture of shell cases and complete shells.

Vidal & Sohn, Tempowerk Bostelbeck (3)

Major components for small types of armoured fighting vehicles are believed to be made by this works.

Vidal & Sohn, Tempowerk Hamburg (3)

A.F.V's of small type are reported to be assembled at this works since 1941.

Vidal & Sohn, Tempowerk Hamburg (3)

(Langenhorn I.)

Tank tracks and other tank parts
are reported to be made here.

C. Plath Rahrenfeld (3)

(Luruper Heerstrasse)
This plant specialises in the
manufacture of components for
magnetic mines, and navigational
instruments such as compasses,
drift indicators, etc.

Bauer & Schaurte Wandsbeck (-)

These are well known makers of precision instruments mainly of the navigational type. Reports suggest that the plant has been transferred to Jägerndorf in Moravia.

# Engineering and Armaments (cont)

Compenotor A.G.

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Bahrenfeld (3) (Gas Strasse)

Electric motors, mainly for submarines, but also small lathe motors and other types are made by this firm.

Heidrenreich & Harbeck

large scale. .

Barmbeck (2

(Wiesendamm)
This firm is believed to make
machine tools, particularly lathes,
gear-cutting machines, automatic
and wood working machines on a

Gebr. Leser, vorm. G. Wittmann Hamburg (3) (Wendenstrasse)

Armatures, special fittings and high-pressure gear for submarines and special ships' fittings are made by this firm.

Moeller, Oehmichen & Co. Stellingen (3) Ver. Barometer Fabriken (Jaguarstieg)

This firm specialises in the manufacture of measuring instruments particularly altitude-recording instruments.

"Messap", Deutsche Messapparate, Hamburg (3)
G.m.b.H. (Garstedterweg)

This firm is reported to be engaged on the manufacture of measuring instruments, particularly aircraft gauges.

Kurbelwellen Werk, G.m.b.H.

Reinbeck (3)

Reports suggest that this small firm makes crankshafts for aero-and other engines.

Hans Still

Billbrook (3) (Liebigstrasse)

Ground intelligence indicates that this firm is an important supplier of electromotor-aggregates to Naval shipyards.

C. H. F. Müller A.G. (Philips-Valvo, G.m.b.H.) Fuhlbüttel (3) (Rontgenstrasse)

This undertaking is registered under both aforementioned names at the given address. It is believed to be engaged on the manufacture of X-ray tubes and equipment, fluorescent tubes, and similar apparatus.

Engineering and Armaments (cont)

Radiorohren Fabrik Valvo G.m.b.H. Lockstedt (3) (Horst Wessel Allee)

It is reported that this is a large supplier of radio valves.

Menck & Hambrock G.m.b.H.

Altona (Gr. Brunnen Strasse)

This company are important manufacturers of excavator shovels, bulldozers, and pile-driving machines, 1,400 workers are said to have been employed in 1941.

Hamburger Motorenfabrik Carl Jastram

(3) Hamburg (Grosse Reichenstr.) No

amphe

Diesel engines and suction-gas motors are made by this firm on a small scale.

Hanseatische Motorengesellschaft m.b.H.

Bergedorf (Kampdeich)

Marine and stationary motors are reported to have been made by this firm in 1942 with a staff of 600.

Hugo Danger

(-) Barmbeck (Maurienstrasse)

It is reported that this firm, formerly employing 190 workers on machine tools, in 1943 employed some 500 workers on a variety of armament components.

Dennert & Pape

Altona (Harpunierstr.)

Measuring instruments and torpedoangling discs are said to be the sole products of this small firm.

Maschinenfabrik R. Lotze

Hamburg (-) (Ausschlägerweg)

This firm formerly made lifting gear and similar appliances. It is now reported to be making underwater mines.

### Chemicals and Explosives

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Chemische Fabrik Dr. Hugo Stoltzenberg Eidelstedt (2)

This firm is believed to be one of the original producers of gases for chemical warfare. It functioned as such during the 1914-18 war when phosgene, mustard and arsenical gases were made. Ground reports suggest that in 1942 and 1943 the firm was again engaged on the production of materials for chemical warfare.

Norddeutsche Chemische Fabrik in Harburg, A.G. Harburg (3)

Sulphuric acid, nitric acid, sodium sulphate and other chemicals are made by this firm.

Guano Werke A.G.

Harburg (3)

Sulphuric acid, fertilizers, etc. are made by this firm on a small scale.

Chemische Fabrik in Billwarder Billbrook (3) (vorm. Hell & Sthamer)

> Inorganic and organic acids, insecticides, fertilizers, raw materials for plastics, tar oils and tardistillate products, as well as tanning materials are produced by this firm which, prior to the war, employed 500 workers.

Wilhelmsburg (-) Chemische Fabrik vorm. J. E. Debrient, A.G. Producers of insecticides, pigments etc.

Kirchenallee (-) Bigot, Scharfe & Co. Chemische Fabrik, G.m.b.H.

Borax, boric acid, borates, borocalcite, etc. are made here on a small scale.

# Rubber and Tyres

Harburger Gummiwarenfabrik Harburg (1) Phoenix

This is one of the principal German tyre manufacturers. The estimated pre-war capacity of this works is 50,000 tyres per month. Estimated current output is 12,000 truck and motor tyres and 1,500 aero tyres per month.

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# Rubber and Tyres (cont)

Tretorn Gummi u. Asbestwerke, A.G. Barmbeck (3)

Rubberised fabric and rubber shoe materials as well as asbestos products are made by this firm on a fairly large scale.

Deutsches Gummi-Regenerier Werk Hamburg (3) Wilhelm Golowndeck & Co.

This is a modern plant erected in 1937. The firm specialises in the production of reclaim for sale to rubber manufacturers and is believed to have a capacity of 7,500 tons per annum.

Gustav Bartsch

(3) Hamburg

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From a plant employing 20 workers in 1935, this plant had grown to one employing 1,000 in 1938. Bartsch is believed to be making solid tyres, rubber soles and heels, etc., mainly from reclaim.

Rubberoid Werke A.G.

Hamburg-Billbrook (3) (and Wasungen Thuringia)

The chief products of this factory are felt and asphalt roofing materials, insulating materials, and proofed tarpaulins for goods trucks. They also make belting, brake linings, and other mechanicals. Their consumption of rubber is insignificant, but they are important producers of this type of proofed material. Early in the war (1940) they employed about 1,000 workers.

Ernst Kah Vulkan-Anstadt

Hamburg/Altona (-)

Government-licensed re-treading concern with capacity to process 450 motor tyres monthly.

Ernst Kahnes Vulkan-Betrieb Hamburg/Wandsbek (-)

Government licensed re-treading concern with capacity to process 500 motor tyres monthly.

Metallgummi G.m.b.H.

Hamburg/Harburg (-)

A producer of rubber-metal bonded parts. This concern is controlled by Harburger G.W.F. Phoenix and the Metallgummi plant is housed in the Phoenix works at Hamburg/Harburg.

### Rubber and Tyres

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(3) Thuringia

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New-York Hamburger Gummi a) Hamburg/Harburg (2) Waaren Compagnie

- and
- b) Hamburg/Barnbeck (3)

The first works is more modern and normally employed about 1,000 workers. It produces footwear, hard rubber medical appliances, electrical insulation materials, and mechanicals. The second works is the older plant, and employed about 400 workers in the manufacture of footwear only.

Norddeutsche Asbest- und Gummiwerke Kurt Weber & Co. G.m.b.H.

Hamburg-Wandleben

Manufacturers of mechanicals, rubberasbestos products, electrical insulation. In 1939 they employed 200 to 300 workers.

F. Panton Dampf-Vulkanstalt

Harburg/Wilhelmsburg

Government-licensed retreading . concern with capacity to process 675 motor tyres monthly.

Reichart & Co.

Hamburg 39 (-)

This small, but well-equipped factory. Produced about 600 tons of reclaim yearly before the war.

#### Food Stuffs

F. Thorl's Vereinigte Harburger Oelfabriken, A.G.

> This is the largest edible-oil pro-. ducing firm in Germany. There are 4 separate plants in production and 3 additional properties; one of the latter appears to serve for storage, another used to house the fat -hardening department, while the purpose of the third is not known. The total seed-crushing and/or extracting capacity of their works in 1939 was 193,000 tons. The built-over land owned by the company covers an area of 119,000 sq. m.

Harburg (Seehafen) This is the largest of the Thorl plants. Its pre-war activities were the pro-duction and refining of high-grade edible oils and fats.

## Food Stuffs (cont)

F. Thorl's Vereinigte Harburger Oelfabriken, A.G. (cont)

> Harburg (3) (Schlossstrasse and Gr. Schippsee)

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Pressing plant, linseed oil refinery, oilcake factory, and varnish works.

> Harburg (Dampfschiffsweg)

Extraction plant and fat-hardening plant.

> Harburg (Zitadelle)

Extraction of fatty acids, distillation, filtering, and lecithin plant.

> Harburg (Lauenbrucker Deich)

"Fabrik Elbe" serves as storage warehouse.

Harburger Oelwerke Brinckmann & Mergell

> This firm has two plants in the Harburg area and is the second largest producer of edible oils and fats in Germany. The total annual capacity of the two plants was 165,000 tons in 1938.

- a) Manufacture and refining Harburg (3) of edible oils and fats.
- b) Hydrogenation of vegetable Harburg (3) oils.

Hansa-Mühle A.G.

Neuhof-Wilhelmsburg (3)

The Hansa-Mühle are producers of edible oils and fats. The plant covers an area of 260,000 sq.m. In 1938 the firm's capacity was 145,000 tons.

## Food Stuffs (cont)

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Schlinck & Cie, A.G. (formerly H. Schlinck & Cie) Harburg-Wilhelmsburg
(Nord) (3)

Schlinck & Cie transferred their Mannheim plant to Wilhelmsburg and enlarged the works considerably in 1930-1932, (especially the margarine plant), adding a modern boiler-house and power plant. The works occupy an area of 165,754 sq.m. with a canal frontage of 550 m. They comprise: copra and oilcake storage, vegetable-oil refinery, vegetable- and cooking-fat refinery, margarine factory, soap factory, and numerous accessory plants. In 1938 the firm's seed-crushing capacity was 46,000 tons p.a.

Toepffers Oelwerke G.m.b.H. Veddel (3)

This concern is a subsidiary of the Stettiner Oelwerke A.G. of Züllchow near Stettin. The plant covers 7,190 sq.m. of built-up ground and is reported to have produced about 80,000 tons of edible oils and fats in 1938.

Noblee & Thorl G.m.b.H. Harburg (3)

This large plant was equipped in 1938 for crushing, extracting, and hardening edible oils and fats at a rate of 128,000 tons per annum.

Norddeutsche Oelmühlenwerke A.G. Altona (3)

This seed-crushing and extracting plant was built with a capacity of 32,000 t.p.a.

Hamburger Freihafen Lagerhaus Gesellschaft

Hamburg (2)

This is the largest group of Hemburg's warehouses for colonial produce and general goods. The undertaking was formed in 1885 following the incorporation of Hamburg in the German Customs area.

The Company's premises consist of the Renting Dept., Storage Dept., and the Quay Dept. The built-over terrain covered 54,919 sq.m. (all 5-6 storey buildings) on the Northern shore of the Elbe, and 55,650 sq.m. on the Southern shore. (1-2 storey buildings).

# Food Stuffs (cont)

Hamburger Freihafen Lagerhaus Gesellschaft (cont.) Hamburg (2)

The quay installations covered a land area of approximately 2 million sq.m. (84 quay sheds in all 20½ km. in length and 11 sheds for river craft - covering 56,000 sq.m.). The whole harbour serving the H.F.L.G. had in all 96 quay sheds 21½ km. in length, with 730,000 sq.m. storage space. 1939 there were 1,200 cranes. course of the war many of these In the installations have been seriously damaged by air attack.

Hamburger Getreide Lagerhaus A.G. Harburg-Wilhelmsburg and

Hamburg (Kuhwarder Reiherdamm)

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The facilities of this company consisted of warehouses especially for grain. The Company's own property in Wilhelmsburg covered 17,718 sq.m. and included a quay, storage sheds with about 8,000 sq.m. space, and a storage capacity of 10,000 tons.

Property on lease in Hamburg covered 4,000 sq.m. built-up, with a storage capacity of 35,000 tons. These installations were fitted with silos, and drying and cleaning installations. Most of these facilities have been damaged in the course of air raids.

There are in Hamburg numerous grain silos and flour mills of which the following are believed to be the largest and most active:-

Hamburger Mühlenbetrieb

Harburg (-)

This is believed to be one of the largest German flour mills. It had a pre-war capacity of 150 tons per day.

A. Plange

Hamburg (-)

This is the largest of the principal Hamburg mills. Its capacity in 1938 was 300 tons per day.

. H. Lange

Hamburg (-)

H. Lange is the second largest flour mill in Hamburg. Its pre-war capacity was 200 tons per day.

Brotfabrik Elbe A.G.

Hamburg (-)

This is by far the largest bakery in the Hamburg area. In 1938 its capacity was reputed to be 100,000 loaves of bread per day. It then had a flour-storage plant with a capacity of 4,000 tons.

# HAMELN (Hanover)

55° 5' N. 9° 20' E: 410 miles: (29,000)

Hameln is on the right bank of the river Weser 20 miles S.W. of Hanover. The Weser is navigable at this point and Hameln has a small inland harbour. It is on the railway line from Hanover to Paderborn and three minor branch lines diverge at Hameln, one leading up the valley of the Weser, the second downstream to Löhne and the third through the Teutoburgerwald to Bielefeld. Hameln has a variety of industries, all on a small scale, such as bricks and tiles, flour milling and soap.

### Transportation

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Railway Repair Shops

Hameln (3)

These are medium-sized repair shops undertaking mainly the repair of goods wagons.

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# TYPE AND DESCRIPTION OF OBJECTIVES

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### Engineering and Armaments

Concordia G.m.b.H.

Marientalerstr.

The Eisen & Hartgusswerk Concordia G.m.b.H. are iron founders and specialise in chilled-iron rolls and casting moulds for metal rolling and also for the paper and rubber industries.

Kaminski G.m. b.H.

(-) Werftstr.

The Frank Kaminski G.m.b.H. manufacture iron and steel couplings.

# Textiles Rayon Pulp and Paper

Seidenweberei

Hameln

(-)

The Mechanische Seidenweberei are reported to have enlarged their silk eaving plant and to be making parachutes.

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# HAMM (Westphalia)

51° 40' N. 7° 50' E: 340 miles: (56,000)

Hamm is one of the most vital centres for the railway traffic to the Ruhr. It forms a railway entrance from central and eastern Germany to the whole vast network of the Ruhr railway system. The chief activities of the town itself are concerned with the railway, but there are a number of wire and engineering works and a varnish factory, none of which is individually of importance. Hamm is also the centre of a group of important coal mines which feed the long-distance gas-supply system and a number of power plants, one of which is of great importance. These have been included in the list below.

# Transportation

Marshalling Yards

Hamm

(1)

These are the largest and best-equipped marshalling yards in Germany. In 1939 their capacity was 10,000 wagons in 24 hours. The greater part of the rail traffic to and from the heart of the Ruhr and Lower Rhine, Wuppertal, Lennetal, and Kbln districts passes through these yards and is here sorted for the numerous lines serving these most highly industrialised districts of Germany or for despatch to all other parts of the country, except the southern Provinces, and the extreme N.W. corner. It is a vital nerve centre of the German railway system.

Railway Junction

(2)

Hamm is not only the marshalling centre for the goods traffic but is also an important junction for all passenger trains proceeding between Western Germany and Northern and Eastern Germany. Two main lines from the East

- 330 -

HAMM (Westphalia) Contd.

TYPE AND DESCRIPTION OF OBJECTIVES

LOCATION PRIORITY
RATING

# Transportation (Contd)

Railway Junction contd.

meet in Hamm, one coming through Bielefeld from the direction of Hanover and Berlin and the other through Lippstadt from the direction of Central Germany and Saxony. A third important line reaches Hamm from Munster, to the N.E. West of Hamm these lines diverge into various arteries serving the Ruhr and the Rhineland.

Railway Repair Shops

Hamm

(3)

These repair shops, though extensive, are not of the first importance. They carry out mainly the repair of goods wagons.

### Public Utility Services

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Stockum

(1)

THE GERSTEINWERK thermal Power Station of the VEREINIGTE ELEKTRIZITATSWERKE WESTFALEN A.G. (V.E.W.) is located in the centre of the Company's supply system, and is the largest of their plants, with an installed capacity of 120 MW. It is situated on the R.Lippe at Stockum, 4 miles west of Hamm, at the N.E. end of the Ruhr industrial area, and is one of the four main power stations supplying that area.

The station is operated as a base-load station, and is planned for an ultimate capacity of 200 MW. The plant contains two boiler-houses, a machine house containing 6 and possibly 7 turbo-generator sets, (one having probably been recently added), an indoor substation, and a large open-air transformer and switching station.

4 double-circuit 110 kV. lines connect to Munster, Recklinghausen, Gütersloh, and Unna.

Two 50 kV. lines connect to Selm and Radbod and there is believed to be a line to Lünen. There are no important local supplies, and the planned connection to the 220 kV. line from Herdecke to Lehrte has not yet been made.

Coal is supplied from the pits mentioned below.

Gas Supply/Municipal Gasworks

Hamm

(3)

The long-distance gas-supply network of the Ruhrgas A.G. receives gas from all three of the coking plants mentioned under "Solid Fuels", and in addition there are the municipal gasworks which, in 1936 purchased and sold 168 million cubic feet of gas.

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#### HAMM (Westphalia) Contd.

# TYPE AND DESCRIPTION OF OBJECTIVES LOCATION PRICE PARTIES

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### Solid Fuels

De Wendel & Cie (Heinrich Robert plant) Hamm (3)

The coal pits and coking plant belonging to this firm are roughly to the S.W. of Hamm near the village of Herringen. There are four pitheads. The output of coal in 1937 was 800,000 tons per annum. The coking plant attached to this mine has 200 ovens and an annual dry coal capacity of 448,000 tons. Gas is supplied to the Westphalian gas network. A power station with a capacity of 23 MW. is adjacent to the coking plant and supplies power for the De Wendel pits.

Hoesch A.G. Collieries and Coking Plant Radbod (3)

The Radbod coal mines of the Hoesch A.G. Dortmund are situated 2 miles to the W.N.W. of Hamm. There are five pitheads. The output in 1937 was 1,000,000 tons of coal. There is a coking plant attached to this mine with 132 ovens and an annual dry coal capacity of 440,000 tons. Gas is supplied to the Westphalian gas network. A power station with a capacity of 13 MW supplies power for these coal pits.

Sachsen Collieries & Coking Plant Heessen (3)

The Gewerkschaft Sachsen belongs to the Mansfeld A.G. für Bergbau und Hüttenbetrieb in Eisleben and is situated in Heessen, a small town two miles N.E. of Hamm. There are two pitheads. The output before the war was 900,000 tons of coal per annum. There is a coking plant attached to this mine with 95 ovens and an annual dry coal capacity of 530,000 tons. Gas is supplied to the Westphalian gas network. A Power station with a capacity of 11 MW supplies power to these pits.

### ------

### HANAU (Hesse Nassau)

50° 10' N. 8° 55' E: 410 miles: (41,000)

Hanau is on the right bank of the Main 10 miles East of Frankfort. The main lines to Frankfort from Berlin and from Munich join at Hanau before entering the Frankfort area. Hanau specialises in the working of precious metals and in diamond polishing. There is also a large tyre works. The industries, though few in number, are of high relative value to the German war effort. In addition to those mentioned below, there are a number of smaller engineering works of no great importance.

### Public Utility Services

Municipal Gasworks

Hanau (3)

In 1936 the works made 162 million cubic feet of gas.

Non/

HANAU (Hesse Nassau) (Contd)

TYPE AND DESCRIPTION OF OBJECTIVES

LOCATION

Non-Ferrous Metal Manufacture and Fabrication

W.C. Heraeus G. m. b.H.

(1) Grünerweg.

The Heraeus works are leading specialists in the production and fabrication of platinum and other precious metals. Components for industrial apparatus, crucibles, electrodes, sheet platinum, platinum wire, and nets for catalyst nitricacid plants are among their products. They are makers of high-temperature ovens for laboratories and industrial use, electric contacts and rhodiumcoated mirrors for searchlights. experimental side of this firm's activities in connection with precious metal alloys gives it a unique position. Both as a laboratory for secret research and as a production centre it is of the highest importance. It is now owned by Siemens & Halske.

Heraeus Quarzglas G.m.b.H.,

Grunerweg

(2)

These are the leading German quartz glass blowers and makers of lamps and other quartz glass products. They also produce a substance known as rotosil which claimed to be an efficient substitute for quartz glass. The works are situated close to and West of the railway on the Eastern side of the town.

This factory site also includes the works of Heraeus Vacuumschmelze the present activities of which are not known.

G.Siebert G.m.b.H.

(3)

This firm, on a smaller scale, manufactures platinum products on the same lines as Heraeus. The works are near to the Heraeus factory. The muricipal gas works lie between the two plants.

Engineering and Armaments

G.D. Bracker

Hanau

(-)

The G.D. Bracker Sohne Maschinenbau A.G. are makers of lifts, hydraulic machinery, and machinery for the paper-making industry. They employed some 200 workers in 1939.

Pelissier Nachf.

Hindenburg Anlage

(-)

The Maschinenfabrik A. Pelissier Nachf.G.m.b.H. are makers of hydraulic presses, pumps and accumulators.

Wilhelm Schwahn

Wilhelmstr.

This firm manufactures cog-wheels and driving gears,

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HANAU (Hesse Nassau) (Contd)

TYPE AND DESCRIPTION OF OBJECTIVES.

PRIORITY LOCATION RATING

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Engineering and Armaments

Drahtwerk Hanau G.m.b.H.

Hanau Hanau

Darmstadt & Günther

The above are two of several plants manufacturing wire and wire-netting.

Munitionswerk

A large ammunition filling factory is situated at Wolfgang, a small village one mile S.E. of Hanau.

### Rubber and Tyres

Dunlop

(1) Hanau

The Deutsche Dunlop Gummi Compagnie A.G. have a large factory in the South-eastern corner of the town. In 1939 these works employed 3,500 workers and their daily output was 15,000 cycle, 500 motor-cycle, 1,000 lorry and 2,500 motorcar tyres, with the equivalent number of tubes. Their reclaim plant produced up to 35 tons per week. Expansion of the works was already planned in 1938 and reports show that this factory has been greatly enlarged during the war. The estimated current output of this works is 10,000 truck and motor tyres and 9,000 aero tyres per month.

Gummischuhfabrik

(2) Hanau

The Hanauer Gummischuhfabrik, Westheimer & Co. are makers of rubber boots and equipment of natural and synthetic rubber. They were employing some 1,200 workers at the outbreak of war but are reported to have been much enlarged and to be fully active.

\_\_\_\_000\_\_\_\_

# HANOVER (Hanover)

52 25' N. 9 55' E: 425 miles: (450,000)

Hanover is on the trunk railway line from Berlin to the Rhineland, Ruhr, Holland, Belgium and Northern France. It is a junction for an important branch leading from Central Germany, and has direct rail connections with Hamburg and Bremen. The Mittelland Kanal, one of the principal arteries of the North German waterways system, passes through the Northern outskirts of the town.

Hanover, which was formerly the capital of the Kingdom of Hanover, is a highly industrialised city and one of the chief commercial and administrative centres of Northern Germany. The main industries are engineering, rubber tyres, and armaments. The Continental rubber works are estimated to supply 80 per cent of Germany's aero tyre requirements, and the Hanomag factories are of outstanding importance in the manufacture of A.F.V.'s, gun carriages, tractors, and military transport. There are a number of other largescale industrial works, the products of which include wire and cables, A.A. and field guns, non-ferrous metal fabrication, accumulators, chemicals, and textiles. The industries are mainly grouped to the North West and West of the town. The area that extends from Brink (North of Hanover) Westwards along the Mittelland Kanal to Nordhafen and Stocken has been selected for the development of several of Germany's new armaments plants. The Hackethal cable works, a large new accumulator factory, and new works of Continental and Hanomag, are included in this area. To the West of Hanover, in the suburbs of Leinhausen and Linden, are the parent works of Continental and Hanomag, and a number of other engineering works which are described below. In Misburg, and outlying suburb three miles to the East of the city centre, is an important oil refinery, which has been built on the Western edge of an extensive oil field. Misburg has also been selected as the site for a recently-constructed ordnance factory. A small coalfield lies in the region of Barsinghausen, 8 miles to the South

West of the town.

TYPE AND DESCRIPTION OF OBJECTIVES

Transportation

LOCATION PRIORITY
RATING

Marshalling Yards Seelze (2)

The largest and most important marshalling yards lie some 5 miles West of the town near the outlying suburb of Seelze. They had a capacity of 5,000 wagons per 24 hours in 1938.

Marshalling Yards Hainholz (3)

The marshalling yards in the North Western suburb of Hainholz can handle up to 2,100 wagons per 24 hours.

Goods Station Hanover (3)

The main goods station is in the Northern part of Hanover. The area contains many large warehouses and storage depots.

Marshalling Yards Lehrte (2)

These important marshalling yards had a capacity of 4,000 wagons per 24 hours in 1938.

Marshalling Yards Linden (3)

In 1938 these yards had a capacity to handle 2,000 wagons per 24 hours.

Railway/

# TYPE AND DESCRIPTION OF OBJECTIVES

LOCATION

BUILDINES

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Transportation (Contd)

Railway Repair Shops

Leinhausen (3)

These large railway workshops are situated in the North Western suburb of Leinhausen. They undertake the repairs of all types of rolling stock and specialise in the repair and maintenance of passenger coaches.

# Public Utility Services

Power Station

Ahlem

(2)

The thermal power station at Ahlem, 3 miles West of Hanover, is owned by the Preussische Elektrizitats A.G. (Preussenelektra). It has an installed capacity of 54 MW. and is operated for peak load purposes.

The plant is situated on a branch of the Mittelland Canal. It includes a large boiler house, the machine house containing 4 turbo-generator sets, the switch house, and a substation.

A long-distance 100 kV line leads to the Company's important substation at Lehrte, thus linking up with the 220 kV grid.

Local supplies are given at 6 kV, 45 kV, and 60 kV.

Power Station

Herrenhausen (2)

The thermal power station owned by the Hanover Corporation is situated in the new suburb of Herrenhausen and has an installed capacity of 50 MW.

A small hydro-electric power station, situated 4 miles to the S.E. on a stretch of water connecting the Seine and Ihme rivers, has an installed capacity of 3 km, bringing the total capacity to 53 MW. The main plant contains two boiler houses, 5 turbo-generator sets, and a substation.

Electricity is distributed locally at 30 kV and 5 kV via the substation. This station and the Ahlem generating station are directly connected and it is linked to the high-voltage grid via the Ahlem substation.

Stadtisches Gaswerk

Hanover

(3)

In 1936 the municipal gasworks purchased 1,500 million cubic feet of gas from the Ruhrgas A.G. for local re-sale.

Solid/

# TYPE AND DESCRIPTION OF OBJECTIMES

LOCATION PRIORITY

#### Solid Fuels

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(2)

113en (2)

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Steinkohlenbergwerk

Barsinghausen (-)

The coal-mine of the Steinkohlenbergwerk Barsinghausen G.m.b.H., a subsidiary of the Preuszische Bergwerks - und Httten-A.G., is near the small town of Barsinghausen some 8 miles South West of Hanover. In 1937 this colliery had an output of 250,000 tons. There is a mediumtemperature coking plant with 40 ovens of an estimated annual dry coal capacity of 185,000 tons, producing chiefly household fuel. Some 1,200 workers were employed in 1937.

## Liquid Fuels

Deurag

Misburg (1)

The Gewerkschaft Deutsche Erdöl Raffinerie A.G. is a subsidiary company of Wintershall A.G. Berlin, and its works are situated in the village of Misburg, which lies some 3 miles East of Hanover. This is an important refining concern which was formed to exploit the Hanover oilfield. The oilfield extends some 20 miles Eastwards from Misburg in the direction of Dollbergen. The refinery is estimated to have an annual capacity of 300,000 tons of oil, including high and low-grade lubricating oils.

There is another oil refinery at Dollbergen which is dealt with under the heading Peine.

### Iron and Steel

Edelstahlwerke

Linden

(3)

The parent works of the Deutsche Edelstahlwerke A.G. are in Krefeld. The Hanover branch is situated in the South Western suburb of Linden and specialises in the production of high-grade alloy steels for the aircraft industry.

### Non-Ferrous Metal Manufacture and Fabrication

Leichtmetallwerke

Linden

(2)

Leichtmetallwerke

Laatzen

(2)

The headquarters of the important Vereinigte Leichtmetallwerke, which were formerly in Bonn, have now been transferred to Hanover. There are two factories of this concern in Hanover. The first is in Linden, the second in the Southern suburb of Laatzen. Each plant is reported to employ 2,000 workers on the manufacture of bomb components, including/

# TYPE AND DESCRIPTION OF OBJECTIVES

LOCATION

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# Non-Ferroud Metal Manufacture and Fabrication (Contd)

Leichtmetallwerke

including fuses and incendiary-bomb casings, and light-alloy sections and tubes for the aircraft industry. The Linden factory has an estimated monthly output of 900 tons of aluminium products. The works at Laatzen are believed to produce 650 tons of rolled aluminium per month.

### Aircraft and Aero-Engines

Eisenwerke

Brink

(2)

The Brinker Eisenwerke Max H.Müller is situated in the Northern suburb of Brink. It is an important aircraft repair depot and is reported to employ some 2,000 workers on the repair and maintenance of fighter aircraft.

### Engineering and Armaments

Hanomag

Linden

(1)

Hanomag

Brink

(2)

The Hannoversche Maschinenbau A.G. vorm.Georg Egerstoff (Hanomag) is an old-established engineering firm which formerly manufactured main-line and narrow-gauge locomotives and steam engines, but which since 1930 has concentrated on their own type of motorcar and tractors and agricultural machinery. In recent years they have become highly-important builders of tanks, and heavy military vehicles. In addition to the various heavy transport vehicles, Hanomag are also important producers of a variety of other heavy armaments products. They are reported to employ a total of at least 20,000 workers.

The parent works occupy a large area on either side of the Hamelnerstr. in the South Western suburh of Linden. The Linden works have been developed into one of the major units of the German armaments industry, and they supply a large proportion of the requirements of tanks, armoured cars, gun carriages, artillery tractors and military transport of all kinds. In July 1942 this plant is said to have produced a total of 321 tanks, including 196 light and 125 medium tanks.

A second large factory has been recently completed in Brink to the North West of the city, and although reports indicate that the new works is entirely operated by the Hanomag concern the probability remains that at least parts of it are a Reichswehr ordnance depot. The/

TYPE AND DESCRIPTION OF OBJECTIVE

LOCATION PRIORITY
RATING

Engineering and Armaments (Contd)

Hanomag Contd.

The factory at Brink, which it is believed was originally intended as a locomotive works, the manufacture of which had ceased at the Linden works in favour of heavy military transport has now probably the same range of products as the Linden works.

The shares of the Hanomag concern are mainly controlled by the Ver.Stahl-werke A.G. of Dasseldorf.

Hackethal A.G.

Brink

(3)

The Hackethal Draht & Kabelwerke A.G. is situated in the North Western suburb of Brink on the Northern side of the Mittelland Kanal. The company, which has a branch factory in Nurnberg, manufactures all types of wire and cable products, and before the war employed a total of some 1,250 workers. It is estimated that the factory has a wire and cable output of approximately 15,000 tons per annum.

Akkumulatoren Fabrik

Stöcken

(1)

The Hanover Stöcken Akkumulatoren
Fabrik is situated in the outlying
suburb of Stöcken some 4 miles North
West of the town. The plant, which
is of considerable importance, has
been constructed since the war, and
lies on the Southern bank of the
Mittelland Kanal about one mile West
of Nordhafen. The factory manufactures
accumulators for submarines, of which
it is reported to supply 40 per cent
of the total German requirements.
Reports suggest that in April 1943
120 large and 75 small batteries were
being produced daily. More than 1,000
workers are reported to be employed.

Dreyer, Rosenkranz & Droop A.G.

Leisewitz (3)

Before the war this firm employed some 450 workers on the manufacture of all types of valves and pressure gauges.

Gunther Wagner

Podbiel- (3) skistr.

The firm of Gunther Wagner were formerly well-known makers of fountain pens, duplicating machinery, and all types of office equipment. They are now reported to be employing some 800 workers on the manufacture of plastic products.

Westinghaus/

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# PRICRITY TYPE AND DESCRIPTION OF OBJECTIVE LOCATION

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# Engineering and Armaments (Contd)

Leinhausen (3) Westinghaus-Bremsen Gesellschaft m.b.H.

This firm specialises in the manufacture of railway brakes and associated products.

(3) Linden Körting A.G.

The Korting Maschinen & Apparatebau A.G. is believed to employ some 600 workers on the manufacture of radio sets mainly of the domestic type and intended for export purposes.

Empelde (3) Lindener A.G.

The Lindener Zündhütchen & Patronen Fabrik A.G. have a large factory in the South Western suburb of Empelde, which produces cartridges and detonators. A recent report suggests that an additional plant belonging to this firm has been built underground near to the Empelde factory.

(2) Eisenwerk Wülfel Wülfel

The Eisenwerk Walfel is in the Southern quarter of Hanover. It is an important concern reported to employ some 2,500 workers on the manufacture of reduction gears and other transmission and gear components for tanks and A.F.V.'s.

(-) Misburg Ordnance Factory

A recent report indicates that a large Ordnance Factory has been erected in Misburg on the Mittelland Kanal. The products are said to include A.A. guns and guns for tanks. The latter are delivered to the Hanomag factory for assembly. Considerable numbers of foreign workers are recently reported to have arrived in the Hanover area and the majority are said to have been drafted to this plant.

Berstoff G.m. b.H. Buchholzerstr. (-)

The Hermann Berstoff Maschinenbau-Anstalt G.m.b.H. are makers of machinery for the rubber, cable, and plastics industries. They employed 300 workers in 1939.

Geldschrankfabriken A.G.

Engelbosteler (-) Damm

The Bode-Panzer Geldschrankfabriken A.G. employ some 600 workers on the production of all types of safes and strong rooms.

Prometheus/

TYPE AND DESCRIPTION OF OBJECTIVE

LOCATION PRIORITY
RATING

Engineering and Armaments (Contd)

Prometheus-Werke G.m. b.H.

Herrenhausen (-)

This firm, which is situated in the North Western suburb of Herrenhausen, in 1938 employed some 250 workers on the manufacture of boilers, containers, and other storage-tank installations.

H. Wahlenberg K.G.

(3)

(3)

(2)

tr. (-)

Brinkerhafen (3)

In 1938 this firm employed some 600 workers on the manufacture of machine tools.

Chemicals and Explosives

Egerstoff A.G.

Linden

(-)

Egerstoff A.G.

Badenstadt

(-)

The A.G. Georg Egerstoff Salzwerke & Chemische Fabriken is a subsidiary company of the Kali-Chemie concern. The firm has two branches in the Hanover area, one in the South Western suburb of Linden, the other further West in Badenstedt. They manufacture sulphuric acid, caustic soda, and a variety of tar products.

Meyer & Riemann A.G.

Linden

(-)

This is a subsidiary company of the Westfälisch-Anhaltische Sprengstoff A.G.Chemische Fabriken of Berlin. It is believed to employ about 150 workers on the manufacture of sulphuric acid, of which it has an estimated annual capacity of 5,000 tons, and other miscellaneous chemicals.

Textiles, Rayon, Pulp and Paper

Wollkämmerei A.G.

Döhren

(3)

The works of the Woll-Wäscherei & Kämmerei A.G. are in the Southern suburb of Dühren. Their woolcombing plant is reported to have been the second largest in Germany before the war and to have employed some 2,200 workers. No information is available regarding its present activity. The plant has been severely damaged by the R.A.F.

Rubber and Tyres

Continental Gummiwerke A.G.

Hanover- (1) Vahrenwalder

Continental Gummiwerke A.G.

Nordhafen (1)

Strasse

Continental Gummiwerke A.G.

Limmer (1)

Continental/

TYPE AND DESCRIPTION OF OBJECTIVE

LOCATION PRIORITY

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Rubber and Tyres (Contd)

Continental Gummiwerke A.G.

Marienwerder (1)

This highly important rubber concern, which has its headquarters in Hanover, holds the foremost place in the Axis production of rubber and synthetic-rubber tyres. The parent factory of the company is in the Vahrenwalder Strasse close to the main railway goods yards and in the built-up area of the North West corner of the town. The Nordhafen plant is situated west of the railway bridge over the Mittelland Kanal at Vinnhorst and on the South bank of the Nordhafen.

On the South bank of the Mittelland Kanal to the West of the Stöcken Akkumulatoren Fabrik and near the village of Marienwerder is a new factory (the largest in this area) belonging to the Continental concern. The fourth plant of the Continental is the former Excelsior Werke in Limmer in the Western quarter of Hanover.

The number of workers in the Continental plants is probably at least 25,000. The Nordhafen works alone are believed to employ 15,000 and one report states that a further 7,000 are employed at the new Marienwerder factory.

Productive capacities of the different works are believed to be as follows: -

#### Vahrenwalder Str.

The estimated total pre-war capacity of this works (excluding bicycle and motor-cycle tyres) is believed to have been 350,000 per month.

Estimated current output is 51,000 truck and motor tyres and 27,000 aero tyres per month.

#### Nordhafen.

This is believed to be a mixing plant for synthetic rubber compound supplying the ready-compounded stock to Continental's other factories in the Vehrenwalder Strasse and at Marienwerder.

#### Limmer.

This is Continental's reclaim plany. It is also engaged on the production of cycle tyres and mechanical rubber goods.

Marienwerder/

- 342 -

HANOVER (Contd)

TYPE AND DESCRIPTION OF OBJECTIVE

LOCATION PRIORITY
RATING

Rubber and Tyres (Contd)

Continental Gummiwerke Contd.

#### Marienwerder

This plant has been built since the outbreak of war. It is believed to be one of the principal German tyre factories and is estimated to have a capacity of 75,000 truck and motor tyres per month. Most other types and pneumatic tyres, solid tyres, certain specialized products, and a variety of general rubber goods are also believed to be made here on an important scale.

Note: Two further plants possibly belonging to the Continental concern are at Hanover-Seelze and Hanover-Linden, Stärke Strasse. The Seelze plant is new and is probably not yet complete. It could be an alternative site for a reclaim plant, or may be simply for storage purposes. The Linden plant was formerly known as the Mitteland Gummiwerke A.G. liquidated in 1940 and believed taken over by Continental. Before the war the factory was engaged on the manufacture of mechanical rubber goods.

Hansens Gummi & Packungswerke

Wülfel (3)

This firm makes mechanical rubber goods, electrical insulation hose, belting etc. Prior to the war some 600 to 700 workers were employed. It is believed that since the war certain departments of the works have been converted to the manufacture of military and civilian gas masks.

#### HASSLINGHAUSEN (Westphalia)

See under Hagen

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### HATTINGEN (Westphalia)

See under Bochum

----000----

### HAUSERN (BADEN)

See under Waldshut

----000----

erder/

# HEIDELBERG (Baden)

49° 25' N. 8° 50' E: 415 miles: (85,000)

Heidelberg, though chiefly known as a University town, has several industries. In addition to those mentioned below there are a number of smaller engineering works, makers of surgical and scientific instruments, cement works, and chemical factories. Heidelberg lies in the narrow valley of the Neckar immediately before it leaves the hills and flows through the plain to join

the Rhine at Mannheim 12 miles to the N.W. TYPE AND DESCRIPTION OF OBJECTIVES Engineering and Armaments

LOCATION PRIORITY RATING

H. Fuchs

Rohrbach (3)

The H.Fuchs Waggon Fabrik A.G. are makers of wagons of all kinds, especially tank and refrigerator railway wagons. They are reported to be the sole makers of a new type which is being much used on the German railways and which dispenses with longitudinal girders by rivetting the containers directly on to the bogies. Two-axle tankers of this type can hold 300 hectolitres and the fouraxle type 600 hectolitres. Fuchs employed several hundred workers in 1939. Their works are in the suburb of Rohrbach, one mile south of Heidelberg.

Stotz

Heidelberg (-)

The Stotz Kontakt G.m.b.H., makers of electrical fittings, were reported in 1943 to be in process of transferring from Mannheim-Neckarau to Heidelberg.

Vereinigte Westdeutsche Waggonfabrik A.G.

Heidelberg (3)

This firm is engaged on the manufacture of tank wagons and railway trucks.

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# HEIDENAU (Saxony)

51° 58' N. 13° 53' E. 606 miles: (17,200)

Heidenau lies on the West bank of the Elbe 8 miles S.E. of Dresden and is on the main line from Dresden to Pirna. It is a small town of no industrial importance.

TYPE AND DESCRIPTION OF OBJECTIVES

LOCATION PRIORITY RATING

### Public Utility

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rbach (3)

elberg (-)

elberg ()

Gasworks

Heidenau (3)

The Gasversorgung Ostsachsen A.G., made in 1936, 420 million cubic feet of gas, which was supplied to no less than 107 localities.

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# HEIDENHEIM (Wurttemberg)

48° 40' N. 10° 10' E: 495 miles (28,000)

Heidenheim is on the main line from Nurnberg to Ulm, 20 miles N.E. of Ulm. The chief industries are textiles and machinery and it is the market town for the surrounding agricultural district.

### Engineering and Armaments

J.M. Voith

Heidenheim (2)

Before the war these works specialised in machinery for the paper and pulp-making industries and in water turbines. They are also designers and makers of a special marine propulsion device, which is universally known as the "Voith-Schneider" system. Several thousand workers are reported to be employed here, including a large proportion of foreigners. The firm is believed to have a research department which is engaged on perfecting combustion engines of small volume.

J.Erhard

(3) Heidenheim

The Stddeutsche Armaturenfabrik Bronce und Eisengiesserei Johannes Erhard, makers of valves and fittings, including slide-valves, and flow meters and indicators were reported in 1943 to be employing some 700 foreign labourers. There were 800 workers in this factory in 1939.

Max Ziegler

Heidenheim (3)

This firm is reported to be angaged on the manufacture of agricultural machinery and to employ 1,200 workers.

Piltz/

# HEIDENHEIM (Württemberg) (Contd.)

# TYPE AND DESCRIPTION OF OBJECTIVES

PRIORITY LOCATION RATING

# Engineering and Armaments (Contd.)

Piltz & Sohn

Friedrichstr.

F. Piltz & Sohn K. G. are makers of equipment for thread grinding and grinding attachments.

## Textiles and Rubber

Hartmann A. G.

Heidenheim

(-)

The Paul Hartmann A. G. manufacture cotton wool, woven bandages, and surgical dressings. They employed some 800 workers in 1939.

Cattunmanufactur A. G.

Heidenheim

(3)

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The Wirttembergische Cattunmanufactur A.G. are bleachers, dyers, and fabricators of silk, rayon, wool and cotton products. They employed some 1,800 workers in 1938 and are now reported to be engaged entirely on Government contracts, including the manufacture of parachutes.

Becker A. G.

Heidenheim

(3)

The Gummiwerke Becker A. G. are normally makers of rubber rollers and coverings for use in the paper and textile industry. They were reported in 1942 to be employing some 1,800 workers and to be concentrating on the production of gas masks.

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### HEILBRONN (Wirttemberg)

49° 10' N. 9° 15' E; 445 miles: (73,000)

Heilbronn, the third largest city of Württemberg, is on the right bank of the Neckar 30 miles North of Stuttgart. It is of It is on the main railway line from Würzburg to Stuttgart and is a railway junction of some importance. The Neckar has been canalised for large barges as far as Heilbronn and the inland harbour is one of the main stations for this traffic. Heilbronn is the centre of a salt-mining area. In addition to several engineering works the industries include furniture and papermaking. The neighbouring town of Neckarsulm, 4 mil North, is included with Heilbronn in the list below. The neighbouring town of Neckarsulm, 4 miles to the

Transportation/

# HEILBRONN (Warttemberg) (Contd.)

TYPE AND DESCRIPTION OF ABJECTIVE LOCATION PRIORITY
RATING

#### Transportation

Inland Harbour Heilbronn (3)

The docks on the Neckar are mainly in the West of the town, but two large new docks have been built at the northern end close to Neckarsulm. The project connecting the Neckar with the Danube at Ulm has not yet been fully carried out but between Mannheim and Heilbronn this canal system is in full operation and a large traffic is handled.

#### Railway Junction

Heilbronn (3)

The main line from North to South is joined inside the town area by an important branch line from Bürnberg via Crailsheim. The main railway station is on the right bank of the river close to the inland harbour. The railway to Stuttgart crosses the river Neckar immediately W. of the main station, and a branch line diverging at this point leads to Eppingen and Karlsruhe.

#### Marshalling Yards

Heilbronn (3)

In 1939 the Heilbronn Marshalling Yards had a capacity to handle 2,000 wagons per 24 hours.

### Public Utility Services

Municipal Gasworks

Heilbronn (-)

This works made 240 million cubic feet of gas in 1936, of which 27 million cu. ft. was sold to Neckarsulm.

### Non-Ferrous Metal Manufacture and Fabrication

Karl Schmidt G. m. b. H.

Neckarsulm (3)

This firm is among the leading German makers of aluminium pistons. Other products are aluminium alloys and coatings and gas and oil burning furnaces.

# Engineering and Armaments

N. S. U. Werke A. G.

Neckarsulm (2)

These large works increased their activity very rapidly in the years preceding the war. Their chief products are motorcycles and light military transport. In 1942 they were reported to employ some 4,000 workers.

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HEILBRONN (Wirttemberg) (Contd)		
TYPE AND DESCRIPTION OF OBJECTIVE	LOCATION	PRIORITY RATING
Engineering & Armaments (Contd)		
F.C.Weipert	Weipertstr.	(3)
The firm of Ferdinand C. Weipert employed, in 1938, some 400 workers and made lathes, planing machines and machine tools.		
Maschinenbaugesellschaft	Badstr.	(-)
This firm makes agricultural machinery, steam ploughs, oil burning motors for agricultural tractors and steam rollers.		
Krayl & Gross	Salzstr.	(-)
J. Weipert & Sbhne	Salzstr.	
Both these firms are makers of agricultural machinery such as threshing machines, chaff and beet cutters, wine-presses, and ploughshares.		
Weisser & Co.	Salzstr.	(-)
The Eugen Weisser & Co. K.G. make lathes, planing and boring machines, cylinder borers, and other machine tools.	3	
Wolff & Co.	Heilbronn	(-)
The Jul.Wolff & Co.G.m.b.H. are makers of cranes, lifts, windin gear, and rollers. They employ some 200 workers in 1938.	ng	
Klipper Asbestoc Co.	Heilbronn	(-)
The Klipper Asbestos Co., manufacturers of gaskets and sparking plug washers, are reported to have a factory in Heilbronn. They belong to the Robert Bosch concern.		
Chemicals and Explosives		
Kali Chemie A.G.	Heilbronn	(3)
These are among the larger chemical works of the Kali Chemie concern. They produce soda ash and ammonium carbonate. They exploit the large salt and brine deposits in the neighbourhood of Heilbr and have their own brine well Bockingen on the left bank of Neckar opposite Heilbronn. The have a railway goods yard and on the Neckar. It is estimate in 1941 this works produced 20 of soda ash per day (or 5% of	in the ne works quays d that 00 tons the total	Koepff/
production of Germany proper)		and a second

# HEILBRONN (Warttemberg) (Contd)

# TYPE AND DESCRIPTION OF OBJECTIVE

# LOCATION

### Chemicals and Explosives (Contd)

#### Koepff Sthne

Heilbronn

This firm is one of the leading German makers of gelatine for photographic films and plates.

Salzwerk Heilbronn A.G.

Heilbronn (-)

This is a company formed by the city of Heilbronn to work the salt mines belonging to the Municipality. Some 500 workers were employed in 1939.

#### Food Stuffs

(-)

(-)

(-)

C.H. Knorr A.B.

Heilbronn (-)

This firm, whose chief works are at Heilbronn, is a well-known maker of patented foods and milk preparations for infant and invalid diet. Oatmeal, soup cubes, and macaroni are among their other products.

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### HEINRICHBURG (Westphalia)

(See under Castrop-Rauxel)

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## HELMSTEDT (Brunswick)

52° 15' N. 11° E: 480 miles: (18,000)

Helmstedt is 20 miles E. of the town of Brunswick on the main line to Magdeburg. There are large brown-coal deposits in the neighbourhood. Helmstedt has various engineering works which make chiefly machinery for the soap industry, and other small factories of which none individuall of note. Three miles S.E. of Helmstadt near the village of Harbke is one of the principal power stations in Western Germany.

Public/

HELMSTEDT (Brunswick) Contd)
TYPE AND DESCRIPTION OF OBJECTIVE Public Utility Services

LOCATION PRIORITY RATING

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Power Station

(1) Harbke

The important plant which comprises the power station at Harbke and the two transformer and switching stations Harbke I and II is situated about 3 miles S.E. of Helmstedt and midway between Brunswick and Magdeburg. With an installed capacity of 136 MW, this is one of the principal power stations in Western Germany. The Braunschweigische Kohlen Bergwerke A.G. (BKB), the owning company, represents the interests of the Elektrowerke A.G. (EWAG) and Preussische Elektrizitats A.G. (PEA). The station provides power for the main distribution networks of both companies. It also gives supplies to the Elektrizitätswerk Sachsen-Anhalt (ESAG) and the Überland-zentrale Helmstedt A.G., in addition to B.K.B.'s mines and briquetting plants. The main plant includes 3 boilerhouses, the generator house containing 4 turbo generator sets, and an open-air transformer and switching substation for 220 kV and 110 kV which is known as Harbke I substation.

Harbke II transformer station, 12 miles west of the main plant, is part of the main grid and can be brought into use as a standby for Harbke I. substation in the event of damage. This station contains plant for 220 kV and lower voltages in duplication to Harbke I. Harbke II is in process of construction and Harbke I is being extended. On account of its connection to several supply systems the Harbke complex occupies an important strategic position in the general network of the country. To the N. it is the main eastern connecting point of EWAG and the western connection of PEA. On 220 kV long distance lines it connects to the E. with Magdeburg, to the S. with the 56 MW station at Gross Kayna, and to the W. with the switching station of Lehrte.

There is a 110 kV line to Krottdorf, and local supplies are given at 50 kV and 15 kV.

Brown coal is supplied from nearby mines (see under Solid Fuels).

Solid/

PRICE

HELMSTEDT (Brunswick) Contd)

TYPE AND DESCRIPTION OF OBJECTIVE

LOCATION PRIORITY
RATING

Solid Fuels

Kohlen-Bergwerke

Helmstedt

(-)

The Braunschweigische Kohlen-Bergwerke in Helmstedt is the most important of the companies exploiting the brown-coal deposits North and South of Helmstedt. This company's mines, briquetting plants, and the large power station mentioned above lie in the district South of the town. In 1937 5,760,000 tons of brown coal and 1,760,000 tons of briquettes were produced.

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HEMFURTH

See under Waldeck

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HERBORN (Hesse Nassau)

50° 41' N. 8° 19' E: 370 miles: (6,000)

This is a small industrial town on the Dortmund-Siegen-Frankfurt railway line, 12 miles N.W. of Wetzlar and 20 miles S.E. of Siegen.

Iron and Steel and Ferro-Alloys

Konigszug Grube

Eibach

(-)

Owned by the Buderus'sche Eisenwerke A.G., Wetzlar, this iron-ore mine is situated Eibach, a small mining village of 800 inhabitants 6 miles N.W. of Herborn and 16 m. N.W. of Wetzlar. The mine is on the important Lahn-Dill iron-ore deposit south of Siegen.

Engineering and Armaments

Berkenhoff & Drebes A.G. Wetzlar. Herborn

(3)

The branch works at Herborn belonging to this company have a wire-drawing plant and a foundry, and are manufacturers of wire cables and machinery for cable railways; they also make diamond dies and machinery connected with cabinet-making and joinery.

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HERFORD/

# HERFORD (Westphalia)

52° N. 8° 40' E: 380 miles: (40,000)

Herford is 8 miles N.E. of Bielefeld on the main line from Berlin and Hanover to Hamm and the Rhineland. It is the junction for a branch line leading from Detmold. Furniture making is the chief industry of the town and is in the hands of a number of small firms. There are several minor engineering works and an iron foundry.

PRIORITY LOCATION TYPE AND DESCRIPTION OF OBJECTIVE RATING Transportation (3) Herford Railway Repair Shops

> These are medium sized shops repairing mainly goods wagons.

# Engineering and Armaments

(3) Herford Motorenfabrik Herford

The Motorenfabrik Herford G.m.b.H. are believed to employ some 500 workers and are makers of gas producers and small diesel engines.

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HERNE Westphalia)/

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# HERNE (Westphalia)

51° 35' N. 7° 15' E.: 315 miles: (96,000)

Herne is situated in the industrial area of the eastern end of the Ruhr, and lies between Bochum to the south, Recklinghausen to the north, Castrop Rauxel to the east, and Wanne Eickel to the west. Its industry centres around the nearby coal-mines and associated coking and chemical plants. The most important collieries, coking plants, and chemical works are listed below. In addition, transport facilities at Herne are good; the Rhine-Herne Canal flows immediately to the north of the town, and the East-West railway route from Castrop-Rauxel and Dortmund to Gelsenkirchen passes through it.

TYPE AND DESCRIPTION OF OBJECTIVES.	LOCATION	PRIORITY
Transportation		
Railway marshalling yards	Herne	(3)
These yards are situated to the North-East of Herne main railway station. In 1938 they had a capacity of 2,400 wagons per 24 hours.		
Canal locks	Herne	(3)
These are the sixth set of twin locks on the Rhein-Herne canal.		
Canal locks	Herne	(3)
These are the seventh set of twin locks on the Rhein-Herne canal.		

# Public Utilities

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#### Power stations

Power at Herne is obtained chiefly from the RWE grid, to which are connected several generating stations belonging to companies operating coking plants and collieries in the neighbourhood of the town (see under Solid Fuels).

The largest of these are given below:-

1. BERGMANNSGLÜCK Power Station - 14	Mw.
2. MONT CENIS POWER STATION - 20	MW. (3)
3. GRAF BISMARCK power station - 23	MW.
L. CONSOLIDATION power station - 34	MV.

Gasworks/

Chemical Mont

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Enginee

	LOCATION	PRIORITY RATING
Gasworks	Herne	(3)
The municipal gasworks are situated within the built- up area of the town. In 1936 230 million cubic feet of gas were purchased from the Bergbau A.G. Lothringen coking plant at Hiltrop.		
Solid Fuels		
Bergwerksgesellschaft Hibernia A.G. Coking plant.	Herne	(3)
Known as Shamrock I/II, this coking plant is situated $3\frac{1}{2}$ mile N. of Bochum-Nord station. It has 120 ovens and an annual dry coal capacity of 420,000 tons.	es	
Harpener Bergbau A. G.	Herne/ Sodingen	(3)
This coking plant adjoins the synthetic-ammonia plant (see under Chemicals and Explosives) and is known as Mont Cens I/II/III. It lies 44 N.N.E. of Bochum-Nord station and has 185 ovens with an annual dry coal capacity of 376,000 tons.		
Harpener Bergbau A. G.	Herne	(-)
Situated 1 mile West of Herne main station, this coking plant is situated at the Julia pit. It has 60 ovens and an annual dry coal capacity of 150,000 ton 1,400 workers were employed in 1937.	s,	
Friedrich der Grosse coking plant	Herne- Bönnig	(3)
Owned by Gewerkschaft des Steinkohlenbergwerks Friedrich der Grosse and situated at Bönnig 2 miles N.N.E. of Herne, this coking plant has 60 ovens and an annual dry coal capacity of 395,000 tons.		
Friedrich der Grosse Colliery	35nnig	(-)
Adjacent to the above-mentioned coking plant, this colliery had an output of 1,220 million tons of hard coal in 1937 2,400 workers are reported to be employed in both the collie and the coking plant.		

Chemicals/

#### Chemicals and Explosives

(3)

(3)

(3)

Mont Cenis Ammonia plant

Herne/ (2) Sodingen

PRIORITY

LOCATION

Owned by the Harpener Bergbau A.G., this is the largest of the Mont Cenis type synthetic ammonia plants in Germany.

Ammonia, nitric and sulphuric acids, ammonium sulphate and nitrate, and sodium nitrate are the chief products.

(Details of coke and coal production and power are to be found under "Solid Fuels" and "Public Utilities" respectively.)

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# HERSFELD (Hesse Nassau)

50° 50' N. 9° 40' E: 430 miles: (14,000)

Hersfeld is 20 miles North of Fulda and is on the main Berlin-Frankfort railway line. Apart from the engineering works mentioned below, spinning and cloth manufacture are the chief industries of this town.

### Engineering and Armaments

Benno Schilde

Hersfeld (3)

The Benno Schilde Maschinenbau A.G. are important makers of industrial furnaces and heating and drying plants of all kinds. They specialise in large gasheated plant. They doubled their number of workers during the three years before the war and in 1939 were employing some 1,400 people. Benno Schilde are also one of the leading German makers of mining ventilation equipment.

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HETTSTEDT (Saxony)

See under Eisleben

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HEYDEBRECK/

(-)

# HEYDEBRECK (Silesia)

50° 20' N. 18° 15' E: 800 miles: (6,500)

Heydebreck is a small town situated to the east of Kosel and the west of Blechhammer. Its railway marshalling yards and repair shops, listed below, are of importance as they serve the two large oil plants at Blechhammer North and South. There is little industry in Heydebreck and none of individual importance.

TYPE AND DESCRIPTION OF OBJECTIVE

LOCATION PRIORITY

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#### Transportation

Marshalling Yards, Railway Workshops and Junction

(2) Heydebreck

The marshalling yards lie northwest of the Blechhammer South synthetic oil plant and to the south-east of Kosel. They are believed to have a capacity of 2,500 wagons per 24 hours. The North-South railway line from Breslau to Bogumin, the line from Gleiwitz and the Upper Silesian industrial region to the east, and the line from Neustadt to the West, form a junction at the northern end of the marshalling yards.

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# HILDEN (Rhineland)

51° 10' N. 6° 55' E: 305 miles: (22,000)

Hilden is 7 miles S.E. of Düsseldorf. Apart from the works mentioned below there are no industries of importance.

#### Engineering and Armaments

Deutsche Röhrenwerke

(3) Hilden

The Deutsche Röhrenwerke A.G. (Poensgenwerk) whose main works are in Düsseldorf-Lierenfeld, have a branch factory in Hilden engaged on the manufacture of tubes and fittings.

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#### HILDESHEIM (Hanover)

52° 10' N. 10° E: 435 miles: (65,000)

Hildesheim is 20 miles S.E. of Hanover and is a railway junction of some importance. The town centre is largely built of half-timbered houses and has preserved its mediaeval character. There are various industries, mostly in the hands of small undertakings. In addition to the works mentioned below the town's activities include the manufacture of agricultural machinery and a sugar refinery.

Transportation/

# TYPE AND DESCRIPTION OF OBJECTIVE

LOCATION PRIORITY RATING

#### Transportation

(2)

Railway Junction

Hildesheim (3)

Hildesheim is on the main line from Berlin via Magdeburg to West Germany. This is an alternative to the Berlin-Hanover route which runs roughly parallel further to the

Two branch lines lead North from Hildesheim to Hanover and Lehrte where they join the Berlin-Hanover line. A third branch connects Hildesheim with the Brunswick-Hanover line. To the South a branch line leads to Goslar and the Harz district. Hildesheim has a goods station and large marshalling yards close to the main railway station in the northern quarter of the town.

# Engineering and Armaments

Senkingwerk

Senkingstr. (3)

The Senkingwerk Ahlborn A.G. specialised in peace time in the manufacture of ovens for domestic and industrial use, complete bakery installations, laundry machinery, and heating apparatus. They employed some 3,000 workers before the war. This is believed to be still their main business, but they now also specialise in field kitchens, field bakeries and laundries, ships galleys, etc.

Ahlborn

(3) Luntzelstr.

The Eduard Ahlborn A.G. are makers of dairy machinery and cooling apparatus. They employed 1,200 workers before the war. The works are now believed to be engaged on armament production.

#### Rubber and Tyres

Wetzel Gummiwerke

(3) Hildesheim

The Wetzel Gummiwerke A.G. employed 400 workers in 1939 and manufactured surgical gloves, tennis balls, and various technical rubber goods. They are now believed to be making anti-gas clothing.

Asbest & Gummi G.m.b.H. Paul Reipert Pfeiffer & Co.

Hildesheim (3)

These three firms have the same range of products as the Wetzel A.G. mentioned above, but are believed to employ less

than 200 workers each.

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#### HINDENBURG (Silesia)

50° 20' N. 18° 45' E:

830 miles: (130,000)

Hindenburg is the central of the 3 adjacent mining towns in the extreme S. Eastern corner of Upper Silesia, the others being Gleiwitz and Beuthen. The former Polish frontier runs within 2 miles of the Southern and S. Eastern borders of the town. Seven of the large Upper Silesian coal mines lie to the N. and S. of the town, one of these being within the Northern part of the built-up area and adjacent to the large steel works of the VOHAG.

# Transportation

Marshalling Yards

Hindenburg

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N. E. of the town and close to the Hedwigswunsch coal mine, there are important goods and marshalling yards.

Railway Repair Shops

Hindenburg

(2)

These workshops are believed to employ some 2,500 workers and to undertake the repair of locomotives in addition to other rolling atock.

#### Public Utility Services

Gas Works

Haldenstr.

The gas works of the Verbandsgaswerk Beuthen-Hindenburg G.m. b. H. are immediately N. of the railway on the Eastern side of the town, and in 1936, made 130 and purchased a further 290 million cubic feet of gas from the Borsig Kokswerke and the Preussag.

Power Station

Zaborze

(1)

The Zaborze or "Hindenburg" thermal power station is owned by the Schlesische Elektrizitäts-/u. Gas A. G. (O. E. W.) Gleiwitz, and has an installed capacity of 146 MW.

It is situated 1 mile S. of Hindenburg and adjacent to the Königen-Luise hard-coal mine (see under SOLID FUELS). Built in 1898, and several times rebuilt and extended, the capacity is reported to have recently been doubled, but this has not yet been confirmed.

The plant has 4 boilerhouses, a machine house, a transformer and switch house, and a substation for 60 12 V. and possibly 20 kV lines.

Long distance 60 kV lines connect with Zawadski, Cosel, Beuthen, Preussengrube and Gleiwitz.

#### HINDENBURG (continued)

6 kV underground cables, and possibly 20 kV overhead transmission lines, connect locally.

A power station of similar capacity, at Chorzow, immediately across the frontier, is owned by a subsidiary company of O.E.W. These two stations are often referred to as the Upper Silesian Power Stations (Oberschlesische Elektrizitätswerke).

#### Solid Fuels

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Delbräck Coking Plant S. of Hindenburg (3)

Owned by the Preussische Bergwerks-/ und Hätten- A.G., this coking plant lies adjacent to the Delbräck Colliery, two miles South of Hindenburg station. In 1943 it was estimated that this plant had 176 ovens and a dry coal capacity of 675,000 tons p.a.

Borsigwerk coking plant N.E. of Hindenburg (3)

This coking plant lies 3 miles N.E. of Hindenburg station and is owned by the Borsig-Kokswerke A.G. It has 56 ovens and an estimated dry coal capacity of 355,000 tons per annum.

Skalley coking plant S. of Hindenburg (3)

Also belonging to the Borsig-Kokswerke A.G., this coking plant lies 11/4 miles S. of Hindenburg station. It has 60 ovens and an estimated dry coal capacity of 345,000 tons per annum.

Königin Luise-Ostfeld u. S.E. of Hindenburg (3)
Westfeld and Delbräck Collieries

Belonging to Preussische Bergwerks-und-Hütten A.G., these mines, in 1937, produced 4,375,000 tons of coal.

Hedwigswunsch Colliery N.E. of Hindenburg (3)

Owned by the Borsig-Kokswekke A.G. this Colliery lies to the East of the Borsigwerk coking plant. Its output of coal in 1937 was 1,815,000 tons. HINDENBURG (continued)

Ludwigsblück Colliery

N. of Hindenburg (3)

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This colliery is also owned by the Borsig-Kokswerke A.G. and in 1937 had an output of 1,670,000 tons of coal.

Castellengo Colliery

N. E. of Hindenburg (3)

Owned by the Gewerkschaft Castellengo Abwehr, and situated near the Borsigwerk station, this colliery had an output of 2,345,000 tons of coal in 1937.

Abwehr Colliery

N. of Hindenburg (3)

Situated at Mikultschutz to the N. of Hindenburg and owned by the Gewerkshaft Castellengo Abwahr, this colliery had an output of 1,260,000 tons of coal in 1937.

Iron Steel & Ferro Alloys/

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HINDENBURG (contd.)

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# Iron Steel & Ferro Alloys

# VOHAG Donnersmarckhütte

Hindenburg (2)

The Donnersmarckhatte steel works of the Vereinigte Oberschlesische Hittenwerke A.G. are in the northern quarter of Hindenburg and comprise foundries and rolling mills. There are 4 blast and 3 open hearth furnaces with a capacity of 100,000 tons of crude steel per annum. Among the products of the works are tubes, boilers and large metal containers, steel girders and frames, and machine tools. (For further particulars of the VOHAG concern see under GLEIWITZ.)

# Engineering and Armaments

A. Deichsel A.G.

Adolf Deichsel (3)

The Adolf Deichsel Drahtwerk u. Seilfabriken A.G. are manufacturers of wire and wire ropes. They employed some 1,200 workers in 1938.

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# HIRSCHBERG (Silesia)

50° 55' N. 15° 45' E:

690 miles:

Hirschberg is in the Southern part of Lower Silesia and is on the railway line from Görlitz to Glatz. It is a tourist centre for visitors to the Riesengebirge. Apart from those mentioned below Hirschberg has no important industries.

# Public Utility Services

Gas Works

Hirschberg (3)

This works is owned by the A.G. für Gas und Elektrizität Kölln, Berlin, and in 1936 purchased 159 million cubic feet of gas from the Ferngas Schlesien A.G., for resale.

# Engineering and Armaments

Carl Zeiss

Hirschberg

A new branch factory of Carl Zeiss, Jena is reported to have been erected during the war in Hirschberg and to have begun production in the autumn of 1942, at which time 500 workers were employed. This number is now believed to have been increased up to 2,000. A wide range of optical instruments is sais to be produced. The plant is said to work in conjunction with the new Zeiss factory at Görlitz. Definite evidence of the existence of this plant has not yet been obtained.

Textiles, Rayon, Pulp and Paper/

# Textiles, Rayon, Pulp and Paper

Ewald Schoeller & Co.

Zellwolle A. G.

Hirschberg

Public

Textil

The Schlesische Zellwolle A. G. are makers of viscose staple fibre and prior to the war employed some 900 workers. Their output was then approximately 70 tons per day.

> (-) Kummersdorf

(3)

These paper and cellulose manufacturers (formerly the Schlesische Cellulose and Papier Fabriken A.G.) are in Kummersdorf, a Southwestern suburb of Hirschberg. Approximately 600 workers were employed in 1939. This firm has several branch factories and saw-mills in Silesia,

#### Leather

Heinrich Knoch

Hirschberg

(3)

The Lederfabrik Heinrich Knoch A. G. are important tanners and manufacturers of sole and upper leather. Approximately 1,500 workers were employed at this plant in 1937.

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# HIRSCHFELDE (Saxony)

See under ZITTAU

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# HÖCHST/MAIN (Hesse Nassau)

See under Frankfort/Main

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# HOF (Bavaria)

50° 20' N. 12° 25' E:

550 miles: (44,000)

Hof is in the extreme Northeastern quarter of Bavaria close to the Southern border of Thuringia. It is on one of the main railway lines from North to South Germany through the Thüringer Wald. Textiles form the chief industry and there are several spinning and weaving mills in addition to the example mentioned below. Hof has a number of sausage factories and large-scale breweries.

#### Transportation

Railway Repair Shops

Hof

(3)

These are medium-sized repair shops undertaking the repair of goods wagons.

/Public Utility Services

#### Public Utility Services

Gas Works

(3)

(3)

(44,000)

Bavaria n one of hrough ry and there the perfection Hof

(3)

In 1936, this municipal works made 136 million cubic feet of gas.

# Textiles, Rayon, Pulp and Paper

Neue Spinnerei

Hof

(3)

The Neue Baumwoll-Spinnerei und Weberei Hof A.G. is a large spinning and weaving factory which has two separate works in Hof. In 1938 Werk I had 175,000 spindles and 1,400 weaving looms; Werk II, a spinning mill only, had 20,000 spindles. Approximately 2,000 workers were employed.

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# HOHENLIMBURG (Westphalia)

See under Lethmathe

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# HOHENSTEIN-ERNSTTHAL (Saxony)

50° 45' N. 12° 45' E: (18,000)560 miles:

Hohenstein-Ernstthal is 10 miles East of Chemnitz on the main line to Dresden. Its industry is chiefly textiles, in particular knitted goods, braids and trimmings. None of the factories is individually of importance.

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#### HOMBERG (RHEINPROVINZ)

51° 30' N. 6° 40' E: 292 miles: (27,000)

Homberg lies on left bank of the Rhine opposite Duisburg-Ruhrort. Industry in the area is concerned mainly with coke coal and synthetic oil and the plants connected with these are all owned by the various Rheinpreussen companies.

# Solid Fuels

Homberg coking plant

Owned by Gewerkschaft Steinkohlenbergwerk Rheinpreussen, the plant is situated  $3\frac{1}{2}$  miles N.W. of Homberg station and just N.E. of Mors at Rheinpreussen Pit 5. in 3 batteries. There are 355 coke ovens having an estimated annual dry coal capacity of 654,000 tons. Gas is supplied to the Ruhr gas grid.

Pattberg coking plant

Owned by Gewerkschaft Rheinland, the plant is situated 4 miles N.W. of Mbrs station or Pattberg pit 1/2. There are 40 coke ovens working which have an estimated annual dry coal capacity of 287,000 tons. 40 additional coke ovens were still under construction at the end of 1943. This plant operates in conjunction with the synthetic oil plant (see under "Liquid Fuels").

Rheinpreussen colliery

The Rheinpreussen colliery, which includes the Rheinland colliery, is owned by Gewerkschaft Steinkohlenbergwerk "Rheinpreussen". The pits are situated S.W. and West of Homberg station. In 1937 the output of hard coal amounted to 3,445,000 tons.

### Liquid fuels and substitutes

Rheinpreussen synthetic oil plant

This Fischer-Tropsch synthetic oil plant is owned by Treibstoff A.G. Rheinpreussen and is situated 32 miles N.W. of Homberg station. The plant operates in conjunction with the adjoining coking plant (see under "Solid Fuels"). The output of the plant is estimated at 190,000 tons of oil products per annum.

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N.W. of Mors (3)

S.W. & W. of (3) Homberg

(2) Homberg

# HOMBURG (Saar)

49° 20' N. 7° 20' E: 370 miles: (26,000)

Homburg is situated in the extreme East of the Saar, 6 miles North of Zweibrücken. It is a railway junction of some local importance. There are various engineering works, mostly on a small scale.

#### Transportation

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Railway Junction Homburg (3)

Two railway lines coming from the direction of Mainz and Mannheim respectively meet in Homburg. In a westerly direction three lines diverge from the town and lead to Neunkirchen, Sasrbrucken and Zweibrucken.

#### Public Utility Services

Power Station Homburg (3)

This thermal power station belongs to the Pfalzwerke A.G. and is situated in Homburg proper. It has an installed capacity of 60 MW. Two long-distance 100 kV lines connect to Mannheim, one via Kaiserslautern and one via Landau.

# Engineering and Armaments

Klein Pumpen A.G. Industriegelände (-)

The Klein Pumpen A.G. belong to the Klein Schanzlin und Becker A.G. of Frankenthal. They are makers of centrifugal and piston pumps and employed some 150 workers in 1939.

Schwinn A.G. Burgenlandstr. (-)

This firm belongs to the Hoesch A.G. and employed some 200 workers in 1939. They are makers of armatures, chains and all kinds of swaged forgings.

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# HOPPECKE (Westphalia)

51° 24' N. 8° 38' E. 380 miles: (700)

Hoppecke is a small town 25 miles south of Paderborn. It has several small light engineering works, and in addition the important accumulator factory mentioned below.

#### Engineering & Armaments

Hoppecke Accumulatoren Fabrik A.G. Hoppecke (2)

These works manufacture accumulators of all types including submarine accumulators. They are believed to employ about 600 workers.

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# HORSELGAU (Thuringia)

50° 55' N. 10° 35' E:

470 miles:

(1,100)

This is a small town  $5\frac{1}{2}$  miles west of Gotha. It has no industry of importance other than the rubber works listed below.

#### Rubber and Tyres

Vereinigte Gothania Werke A. G.

Hörselgau

(3)

This firm manufactures hose of all types, mechanicals and soles and heels. They employed about 400 workers before the war.

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# HOXTER (Westphalia)

51° 46' N. 9° 25' E:

410 miles:

(8,400)

This small town lies on the River Weser approximately 30 miles east of Paderborn. It has no industries of importance other than the manufacture of rubber thread, mainly in the hands of the one firm listed below.

# Rubber and Tyres

Höxtersche Gummifädenfabrik Emil Amtz. K.G. Höxter

(-)

This firm is a manufacturer of mechanicals, especially rubber thread. It normally employed 100 workers, and produced over 15% of German thread for the domestic market and also exported to some extent.

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# H ÜR T H (Rhineland)

See under Köln (Cologne)

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# HÜLS (Westphalia)

See under MARL.

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# IBBENBÜREN (Westphalia)

52° 15' N. 7° 45' E: 340 miles: (11,000)

Tobenbüren is approximately halfway between Osnabrück and Rheine on the main railway from Berlin via Hanover to Holland. It is the centre of a small coalfield at the Western end of the Teutoburger Wald. The principal mining company, and an electric power station at Ibbenbüren, are mentioned below. There are no other industries of importance.

#### Public Utility Services

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(3)

Electric Power Station Ibbenbüren (2)

This thermal station was built before 1920. Owned by the Niedersächsische Kraftwerks A.G., it is situated about 15 miles West of Osnabrück on the State-owned Ibbenbüren mines. The station has recently been considerably increased in capacity and it may be intended to make it a base-load plant. At present its installed capacity is believed to be 65 MW.

Associated with the generating station is a sub-station, to which 220 kV, 100 kV, and 50 kV transmission lines of the R.W.E. grid are connected.

#### Solid Fuels

Preussische Berwerks A. G. Ibbenburen

(3)

The Preussische Bergwerks & Hütten A. G. are the largest coal-mining undertaking in this area. They own seven pits in the vicinity of Ibbenbüren, which in 1936 had a total output of 800,000 tons of coal. Some 2,500 workers were employed.

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IDAR-OBERSTEIN (Rhineland)
49° 40' N. 7° 20' E: 350 miles: (23,000)

This town is on the river Nahe and the main line which runs from Bingen up the Nahe valley to the Saar territory. It has developed a highly specialised industry in the cutting, polishing and preparation of precious and semi-precious stones for jewellery and for technical purposes. Various synthetic substitutes for these stones are produced and Idar-Oberstein is one of the main centres of research in this direction. The industry is in the hands of a great number of individually small firms and workshops and that mentioned below serves only as an example. There are also several makers of watch chains, clockwork, and similar small metal products.

Engineering and Armaments./

#### Engineering and Armaments

Hermann Wild

Idar-Oberstein (-)

The Deutsche Edelsteingesellschaft vorm. Hermann Wild A.G. are makers of jewellery and similar articles and claim to have a variety of patents for synthetic stones suitable for industrial purposes.

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# ILMENAU (Thuringia)

50° 40' N. 10° 55' E:

485 miles:

Ilmenau is 25 miles to the South of Erfurt and is in the midst of the Thuringer Wald. It is one of the tourist resorts of this region but has also several specialised industries such as thermometers and glass instruments, porcelain, and colours for the printing industry

#### Engineering and Armaments

Alt, Eberhardt & Jäger

(-) Ilmenau

The Thüringische Glas-Instrumenten Fabrik Alt, Everhardt & Jager A.G. are makers of thermometers, glass instruments for laboratory use, and other similar hollow glass-ware.

Sophienhütte

Ilmenau

(-)

The Glasfabrik Sophienhätte make a wide range of glassware for laboratory and medical use and are also specialists in vacuum flasks.

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#### ILSENBURG (Province Saxony)

51° 55' N. 10° 20' E:

465 miles:

(10,000)

Disenburg is 15 miles East of Goslar on the Northern edge of the Hartz district. Apart from the two works mentioned below and a margarine factory, there are no industries of importance.

#### Non-Ferrous Metal Manufacture and Fabrication

Kupferwerk Ilsenburg

Dsenburg

(3)

The Kupferwerk Ilsenburg A.G. are producers of electrolytic copper and of all kinds of rolled, pressed, and forged copper and brass. They specialise in copper components for locomotives. Some 400 workers were employed before the war.

Stollberg Hatte

Ilsenburg

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smelting works which formerly belonged to the Magdeburger Werkzeugmaschinenfabrik, makers of machine tools.

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#### INGOLSTADT (Bavaria)

48° 45' N. 11° 25' E:

550 miles

(32,000)

Ingolstadt is on the Danube 45 miles North of Munich on the main line to Numberg. A branch line from Regensburg to Augsburg crosses the main track at this point. Apart from the important railway repair shops there are few industries of note.

#### Transportation

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Railway Repair Shops

Ingolstadt

(2)

These works are believed to employ some 3,000 workers and undertake the repair of steam and electric locomotives as well as other rolling stock.

#### Engineering and Armaments

Spinnerei Maschinen A.G.

Ingolstadt

(3)

The Deutsche Spinnerei Maschinen A.G. are makers of spinning and all types of textile machinery including plant for rayon works. They were increasing the number of their workers before the war employed some 2,000 in 1939. The company belongs to Schubert und Salzer of Chemnitz. The firm's present activity is not known but reports suggest armaments components are made.

#### Ferdinand Krauss

Münchenerstr.

(-)

The Kraumath .erk, Ferdinand Krauss spedialises in the making of planing, sawing and other wood-working machinery.

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#### INSTERBURG (East Prussia)

54° 40' N. 21° 50' E:

940 miles:

(44,000)

Insterburg is a highly important railway centre and focal point for the lines between Germany and the Northern part of the Eastern front. The industries of the town are mostly on a minor scale and are connected with the surrounding agricultural district.

#### Transportation

Railway Junction

Insterburg

(2)

Seven railway lines radiate from Insterburg. The main line through Tilsit to Riga and Leningrad runs northward from the town and

and also serves the port of Memel for which the branch diverges near Tilsit. Due eastward from Insterburg is a main line to Kowno, Wilna and Minsk, A subsidiary branch also in a northerly direction connects Insterburg with the Baltic at From the West the two main Karkeln. lines from Konigsberg and from Posen converge at Insterburg. Two further branch lines leading South from the town serve the South Eastern area of East Prussia. There are extensive goods and marshalling yards.

#### Railway Repair Shops

Insterburg

(2)

These large repair snops are believed to employ several thousand workers and to undertake the repair of locomotives and rolling stock.

#### Engineering and Armaments

Preuss & Saemann

Insterburg

miles No refinery

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Ingineer

Textiles

The Maschinenfabrik Preuss & Saemann are makers of agricultural implements and machinery.

#### Chemicals and Explosives

Dreugwitz

Insterburg

(-)

(-)

The Chemische Fabrik Gustav Dreugwitz are manufacturers of roofing felt, tar and rosin products, oils and soaps. They employed some 150 workers before the war.

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#### ISERLOHN (Westphalia)

51° 20' N. 7º 40' E:

340 miles: (36,000)

Iserlohm is 12 miles East of Hagen and has an engineering industry of some consequence. This is in the hands of a number of small firms and workshops, making wire, iron and brass castings, metal fittings and armatures and a variety of light metal goods. No individual firm is of sufficient size to warrant special mention but together they make Iserlohn a town of importance to this industry. Iserlohn is two miles East of the river Lenne, along the valley of which there are several other towns, such as Hohenlimburg, Altena and Finnentrop, where similar groups of engineering firms are established.

Engineering and Armaments/

#### Engineering and Armaments

Dalhaus & Co. Gruner Weg

Echtermann Kettenstr ) (3)

Mengeringhausen Baarstr.

The above are three examples of a large number of engineering works, brass founders, and metal-fitting manufacturers in Iserlohm.

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# ITZEHOE (Schleswig Holstein)

53° 55' N. 9° 30' E: 440 miles: (21,000)

Itzehoe is in the Southern area of Schleswig Holstein 30 miles North West of Hamburg. It is a market town and has a sugar refinery. Apart from the firms mentioned below Itzehoe has no industries of note.

# Engineering and Armaments

Siemens & Huisch Lindenstr. (-)

This firm manufactures a variety of pumps and compressors on a small scale.

#### Textiles, Rayon, Pulp and Paper

Netzfabrik und Weberei Itzehoe (-)

The Mechanische Netzfabrik und Weberei A.G. employed some 500 workers before the war. They have a spinning mill with 19,000 spindles and specialise in net manufacture.

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# JAUER (Silesia)

51° 5' N. 16° 10' E:

705 miles:

(15,000)

Jauer is 10 miles South of Liegnitz in Lower Silesia. Its activities are mainly concerned with the surrounding agricultural district and apart from the firm mentioned below there are no industries of importance.

#### Engineering and Armaments

Carl Wolf

Jauer

(-)

Engineer

Carl

This firm makes agricultural machinery and implements, axles, springs and farm wagons. Some 800 workers were employed in 1938. Its present activities are not known.

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# J E N A (Thuringia)

50° 55' N. 11° 35' E:

510 miles:

(69,000)

Jena is on the river Saale in the hilly district of Thuringia and is on one of the main railway routes from North to South Germany, through the Thuringer Wald. It is the seat of a University. Its industry centres around the highly important works of Carl Zeiss, the leading makers of optical instruments and the famous optical-glass producers Schott und Genossen.

There are various other makers of optical instruments and laboratory implements, the more noteworthy of which are mentioned below.

#### Transportation

Railway Junction

Jena

(3)

From the North two main lines coming from Weimar and Halle respectively converge at Jena. The main line to the South follows the sourse of the river Saale and leads through the mountains to Hof and Bavaria. A fourth important branch line runs East from ena to Gera.

Railway Repair Shops

(3)

There are large railway shops immediately to the North of the main railway station (known as the Saale Bahnhof) in the North Eastern quarter of the town.

# Public Utilities

Electric Power Station

Jena

(3)

Schot

This plant which is believed to have a capacity of 24 MW, is owned by Carl Zeiss. It is situated within the built up area of the town.

# Engineering and Armaments

Carl Zeiss

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Carl Zeiss Str. (1)

The works of this world-famous concern are in the centre of the town and are housed in a group of buildings several storeys high including one skyscraper building of 17 storeys. Several thousand workers are employed. The great majority of the work requires a high degree of specialised skill and there is an elaborate system of training schools for apprentices. It is believed that no foreign labour is employed in Jena and because of the nature of the work, there is a probably unique concentration of highly skilled labour in this town. Zeiss have now three and possibly four large associated factories in Dresden, (Zeiss Ikon Werke A.G.) and branch factories are known to have been established in Hirschberg and Gorlitz in Silesia. Zeiss controlled affiliated companies are at Stuttgart, Berlin, Rathenow and Vienna. Jena remains, however, the chief training centre for the concern and is by far the largest of the Zeiss works. It turns out the whole range of precision optical instruments required by the armed forces. These instruments are made in their entirety by the Zeiss works, of which one section is devoted to the casting, grinding and polishing of the lenses, while another section deals with the complete manufacture of the precision metal parts of the instruments. The apprentice schools mentioned above, train workers for each of these two sections of the industry. It is worth noting that the Zeiss works at Jena are not an ordinary commercial concern, but since 1891 have been in the hands of a trust. The profits belong to the workers on a copartnership basis and to the Jena University. It is believed that the Jena Works of Zeiss alone employ some 12,000. workers.

The Zeiss company have their own private power station in Jena; it is believed to have a capacity of 24 MW. (See under "Public Utilities").

Schott & Genossen

Otto Schott Str. (1)

The Jenaer Glaswerke Schott & Genossen is situated in the Southern part of the town close to the West-Bahnhof. These large works were taken over in 1919 by the Carl Zeiss Trust and can be regarded as a second factory of the Zeiss concern in Jena.

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(3)

The Schott works concentrate mainly on the smelting and casting of optical glass but they are also equipped to grind, polish, and complete the production of lenses.

Franz Hering	Am Marktplatz	(3)
Gerhard Heydrich	Jena	(3)
Steigerwald & Uthardt	Lobstedt	(3)
Erich Köllner	Urbanstr.	(3)

The above are four of a number of smaller factories in Jena making instruments for laboratory use.

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#### KACHLET (Bavaria) 48° 35' N. 13° 25' E: 635 miles:

(2)

The Kachlet dam and power station are situated on the river Danube, 21 miles west of Passau and close to the Austro-German The power station is the largest of the 35 hydro-electric frontier. power stations planned by the Rhein-Main-Donau A. G. for their dual scheme of providing for navigation between the rivers Rhine and Danube via the river Main, and for the production of electricity.

The dam creates a deep-water channel in the river above Passau, enabling normal Danube shipping to navigate up as far as Regensburg without trans-shipment.

The power station has an installed capacity of 56 MW. and is designed for an ultimate capacity of 70 MW. The plant consists of the dam, the power house and 2 ship locks.

A transformer station is situated on the left bank of the river, north-east of the power station, and is owned by Bayernwerk A.G. Current at 20 kV is given to local consumers of the Ostbayrische Stromversorgungs A. G.

A 110 kV double-circuit line connects to Numberg via Regensburg, and a further line connects with the Austrian transmission system,

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# KAISERSLAUTERN (Palatinate)

49° 30' N. 7° 45' E: 375 miles:

(70,000)

Kaiserslautern is in the centre of the Bavarian Palatinate of which it is, next to Ludwigshafen, the largest town. It has a considerable industry which includes several engineering works and foundries. There are a number of textile works specialising particularly in wound dressings and bandages. Kaiserslautern is an important railway junction for the Palatinate and for the traffic to and from the Saar.

#### Transportation

Railway Junction

Kaiserslautern

(3)

Two lines coming from the Upper Rhine district join at Kaiserslautern close to the main railway station, which is on the Southern edge of the town. To the East the main line leads to Neumkirchen and the Saar territory and two branch lines diverge Southwards to Pirmasens and Northwards to Mainz. are large marshalling yards immediately to the Southwest of the main station.

Marshalling Yard & Railway Workshops Kaiserslautern (3)

The important Railway Workshops and the Einsiedlerhof Marshalling yard lie west of the town. The workshops, equipped to repair both locomotives and wagons, were reported to employ 2,500 workers in 1943.

(3)

(3)

The Marshalling Yard and sorting sidings lie west of the workshops; the yard is long and narrow, extending 5,500 yards in a ENE-WSW direction, and has a capacity for 3,500 wagons per 24 hours. It deals with the heavy traffic which flows in a west-easterly direction, between Saarbrücken and Neunkirchen in the west to Ludwigshafen, Mannheim, and central and eastern Germany.

#### Engineering and Armaments

#### G. M. Pfaff A.G.

# Wittelsbacherstr.

These works are normally makers of a well-known sewing machine. They occupy a large area of ground in the South-Western quarter of the town close to the main railway line. In 1939 they employed 5,000 workers and are now believed to be making small arms and small-arms components. Reports suggest that some 6-7,000 workers were employed in 1942.

The Eisenwerk Kaiserslautern A.G. employed

approximately 1,000 workers in 1939 and are iron

and of all kinds of heating and air-conditioning apparatus. Their works cover a large area alongside the railway in the South Eastern quarter

and steel founders, bridge constructors, and makers of enamelled baths and metal containers

#### Eisenwerk Kaiserslautern

# Barbarossastr.

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#### Gebrüder Pfeiffer

of the town.

# Barbarossastr.

This firm specialises in grinding and other machinery and apparatus for the cement, chalk, and chemical industries. They employed 300 workers in 1939. Their works adjoin those of the Eisenwerk mentioned above.

#### Guss & Armaturwerk

#### Pirmasenserstr.

(3)

The Guss & Armaturwerk Kaiserslautern are iron founders and makers of iron piping for drainage purposes, fittings and cast-iron pumps for agricultural purposes and sewage works. They employed some 1,200 workers in 1939. The works are in the South Western quarter of the town. Reports suggest that a part of the works is now engaged on shell cases.

### Zschocke Werke A.G.

#### Mainserstr.

(3)

The Zschocke Werke A.G. are makers of waterand gas-cooling installations. They specialise also in wooden apparatus, steel and wood furniture, milk separators, and butter churns. they employed some 600 workers.

# Textiles, Rayon, Pulp and Paper

#### Kammgarnspinnerei

Schonstr.

The Kammgarnspinnerei Kaiserslautern A.G. are wool combers and spinners. Their factory, which had 130,000 spindles in 1938 is in the North-Western quarter of the town. In 1938 some 200 workers were employed.

#### Emil Bender

Kaiserslautern (-)

The Kaiserslauterer Verband-Stoff Fabrik Emil Bender G.m.b.H. are specialists in wound dressings, elastic plasters, and bandages.

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# KAMP-LINTFORT (Rhineland)

51° 30' N. 6° 35' E:

290 miles:

(23,000)

Kamp-Lintfort is a municipality recently formed by amalgamating the villages of Kamp, Horstgen, and Lintfort which are situated 10 miles East of Celdern in the Lower Rhine district. The industry centres round the important coal mine mentioned below.

# Solid Fuels

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#### Friedrich Heinrich

Kamp-Lintfort

(3)

This coal mine, which belongs to the Steinkohlenbergwerk Friedrich Heinrich A.G., has two pitheads and in 1938 produced 2, 250,000 tons of hard coal. There is also a coking plant with 260 ovens and an annual rated dry coal capacity of 600,000 tons. 4,500 works were employed in 1938.

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# KARLSRUHE (Baden)

49° 05' N. 8° 25' E: 415 miles: (190,000)

Although Karlsruhe is the capital and the administrative centre of Baden, industrially it is by no means as important as Mannheim, the largest city in the province.

Situated on the main line from Western Germany to Italy via Switzerland, Karlsruhe is today of considerable importance as a transport centre. It is on this route that the bulk of coal supplies from the Ruhr to Italy is transported.

Karlsruhe is also of some importance for waterway's traffic as its fairly modern harbour, connected with the Rhine by the Stich Canal, has extensive installations for reloading coal. Industrially Karlsruhe is not of great importance. Its main industry is engineering connected with armaments and it is situated mainly in the castern and Western outskirts of the town.

There are two main target areas: -

"A" The inland port connected with the Rhine by the Stich Canal and the industrial area Grunwinkel, between which the town's power station is situated. (An important sector of the railway passes through this industrial area).

"B". To the East of the main railway station, the marshalling yard, large railway workshops and the town gas works. Adjacent to the gas works is the important junction of the railway lines to Frankfort on Main and Stuttgart.

In the centre of the built-up area of Karlsruhe, between Vorholz Strasse and Garten Strasse is the important small arms ammunition works of the former Deutsche Waffen & Munitions-fabriken A.G. Because of the unfavourable situation of Karlsruhe close to the French frontier this works was partly closed down during the early stages of the war but is now believed to be working again at full capacity employing several thousand workers.

## Public Utility Services

Städtisches Elektrizitäts Werk

Karlsruhe

(2)

type & de:

Public Ul:

Sub-

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Rail

Mara

The Karlsruhe municipal thermal power station is situated in the centre of the town. The estimated capacity is 50 MW. In 1933 there were 2 generating sets of a total capacity of 21 MW installed. In 1940 Brown Boveri of Mannheim supplied one 32 MW set. The station is connected to the R.W.E. grid by a 100-150 kV line via the Karlsruhe sub-station at Scheibenhardt.

- 378 -Type & description of target Location Priority rating Public Utility Services (cont) Sub-station Scheibenhardt rative (2) rtant as This sub-station on the R.W.E. grid is situated roughly 3 miles to the South West of Karlsruhe. 100-150 kV lines connect it with the municipal Italy ortance power station at Karlsruhe and with lk of Mannheim, Marbach, Forbach and Offenburg. Gas Works Karlsruhe (3) s traffic by the The main municipal gas works of coal, Karlsruhe is situated within the built-up area of the town adjacent to the main rest of the railway shops. A subsidiary gas works is situated in the suburb Durlach. Transportation Inland Harbour Karlsruhe (2) Karlsruhe is an important trans-shipment centre for the Rhine traffic, the chief commodities being coal and timber. The inland harbour, which has five basins, is entered from the Rhine through the Stichkanal which is one mile in length. The harbour area was severely damaged by the R.A.F. and lost much of its storage capacity and other facilities. A considerable amount of repair work has been carried out and the port is now again an important trans-shipment centre. iween ll arms (2) ons-Karlsruhe Railway junction Karlsruh ed dom The main line to Basle which passes through Karlsruhe is one of the chief trunk routes to be nd workers,

from Germany to Switzerland and Italy. A second main line leads Eastwards from Karlsruhe through Pforzheim to Stuttgart and Southern Germany. Five miles from Karlsruhe a branch diverges from this second main line and leads North East to Bruchsal and Heidelberg. A further branch to the West crosses the Rhine one mile North of the Stichkanal and joins the railway following the left bank of the Rhine.

(3)Karlsruhe Marshalling Yards

There are large marshalling yards adjacent to the main station on the Southern outskirts of the town.

the

# Type & description of target

Location

Priority rating

# (2)

# Railway Repair Works

Karlsruhe

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Type & de

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A large railway repair shop is situated in Karlsruhe proper and is believed to employ some 2,000 workers on repair and maintenance of passenger coaches and goods wagons.

The Karlsruhe railway repair works forms one link in a chain of three works together carrying out all types of railway repair work as follows:-

=

Offenburg = Durlach =

Karlsruhe

Locomotives Tenders

Passenger coaches and goods wagons

#### Engineering and Armaments

Deutsche Waffen

Gartenstr. (2)

The Karlsruhe plant is the parent works of the Deutsche Waffen und Munitions Werke A.G. They are one of the largest German makers of S.A.A. (including tracer and incendiary bullets) and are also makers of machinery for munitions factories. The Karlsruhe works were damaged by bombing and in 1942 their activities had been considerably reduced. Later reports indicate that new shops had been erected and large electrically driven presses and electric furnaces are mentioned as being among the products. The works are in the centre of the town.

Carl Metz

List Str.

(3)

This firm was one of the two leading German makers of fire fighting equipment, the other being Magirus of Ulm. The works Karlsruhe were partly destroyed by bombing and it is not believed that they have been restored to more than a small proportion of their prewar output.

Genschow & Co.

Durlach and Wolfartsweier

(3)

The Gustav Genschow & Co. were in peace-time specialists in the manufacture of sporting ammunition and were employing approximately 1,000 workers. The Durlach works are chiefly for the manufacture of small shot but at Wolfartsweier, a village 1 mile south of Durlach, they have a factory for the complete manufacture of sporting ammunition and percussion caps. Ground reports suggest that more than 2,000 workers were employed by Genschow in 1942.

- 380 -		
Type & description of target	Location	Priority rating
Engineering and Armaments (cont)		
Gritzner Kayser A.G.	Durlach	(2)
This company was an important of sewing machines and bicycle now believed to be employing s workers and to be manufacturin arms and components. Their wo a considerable area to the Sou railway station.	s and is ome 3,000 g small rks occupy	
Junker & Ruh A.G.	Siemens Str.	(3)
This firm employed some 1,400 the war on domestic gas and el and similar household apparatu believed that they are fully a manufacture of components for Waffen and Munitions Werke A.G.	ectric ovens s. It is ctive on the the Deutsche	
Nähmaschinenfabrik	Karl Wilhelms	tr. (3)
The Nähmaschinenfabrik Karlsrudhaid und Neu employed some 800 the war and in addition to sew manufactured refrigerators for They are now believed to be enganufacture of small arms.	workers before ing machines household use.	
Schaerer Werke	Hansastr.	(3)
These works employed some 400 to 1939 and specialised in lathes machines.	workers in and drilling	
Sebold	Durlach	(3)
The Badische Maschinenfabrik un Vorm. G. Sebold, are makers of especially for the match industry make all kinds of equipment refoundries. Their works are East railway station and close to the Kayser, mentioned above. Sebol 800 workers before the war.	machinery, try. They also quired for iron st of the Durlach nose of Gritzner	

Rubber and Tyres

NIVERSITÄTS BIBLIOTHEK MAINZ

(2)

Deutsche Michelin

Vogesenstr. (3)

The Deutsche Michelin Pneumatik A.G. belong to the French Michelin concern. The production at these works was closed down in 1938 and the machinery removed to France. The premises were commandeered by the German Government and at the outbreak of war they were in use as food storage. In one of the early raids on Karlsruhe the Michelin plant was severely damaged. The fact that it was rapidly repaired, camouflaged and even extended suggests that it is used for something more important than storage purposes but the real use to which it is being put has not yet been ascertained.

#### KASSEL (Hesse Nassau)

51° 20° N. 9° 30° E: 420 miles: (216,000)

Next to Frankfurt on Main Kassel is the chief town of the province of Hesse Nassau. Among the town's industries the Henschel locomotive works and the Fieseler aircraft works are of major importance to the German war production. There are two large textile factories and a number of engineering works. Kassel is one of the main railway junctions of Central Germany. The town is built mainly on the left or Western bank of the Fulda and the Henschel works are in the Northern half of the built-up area. South-east of the town and East of the river is the suburb of Bettenhausen where there is another group of industries.

#### Transportation

Railway Centre Kassel (3)

The main station of Kassel is in the centre of the

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town and is a terminal station. Three main lines lead from Kassel to the Ruhr, to Northern and Eastern Germany, and to Frankfort on Main respectively.

Two further branch lines lead to the East and West.

Marshalling Yards Kassel (3)

These marshalling yards, which have a capacity of 2,300 wagons per 24 hours, are in Rothenditmold, the North-western section of the town. Adjacent to the marshalling yards is a goods station with extensive storage facilities.

Railway Repair Shops Kassel (3)

These are large repair shops which undertake the repair and maintenance of locomotives and rolling stock. They are at the Northern end of the marshalling yards.

# Public Utility Services

Power Station Kassel (3)

The municipal power station is East of the town in the suburb of Bettenhausen. It has an installed capacity of 37 MW.

Gasworks Kassel (-)

In 1936 the Kassel municipal gasworks made 560 million cu. ft. of gas.

Preussag Power Station/

Preussag Power Station

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Borken

(1)

The thermal power station at Borken is owned by the Preussische Elektrizitäts A.G. and has an installed capacity of 168 MW. It is situated about 20 miles South-west of Kassel near the brown-coal mine from which it is supplied with fuel. It is a base-load station. There is an indoor sub-station for 110 kV, 60 kV, and lower voltages, and adjoining is a large open-air transformer and switching station which probably contains plant for 220 kV and 100 kV. The output is mainly supplied to the Hesse area and to Hanover, and off-peak supplies are given to the Bringhausen pumped-storage station of the Waldeck hydro scheme, also owned by the same company. The station is connected to the company's 220 kV grid.

# Aircraft and Aero-Engines

Fieseler	Bettenhausen (	2)
Fieseler	Waldau (	(2)
Fieseler	Waldau (	2)

The Fieseler Flugzeugbau G.m.b.H. have three separate plants in the vicinity of Kassel, of which one is immediately South of the Bettenhausen railway station and two are at Waldau, approximately one mile South of Bettenhausen. The assembly of the aircraft takes place at the two Waldau plants which are situated South West and South East of the village of Waldau. The plant to the South West of Waldau is adjacent to an airfield. The two Waldau works were reported in October 1943 to be completing the assembly of 30
FW 190's and 50 Fi 156 (light transport aircraft) per month. The Fieseler works are believed to have been allotted a high quota for FW 190 production in the 1944 programme. The Bettenhausen works manufacture major components for the Waldau factories. Engines are imported from the BMW works at Eisenach.

#### Henschel Altenbauna (2)

The Henschel Flugzeugmotorenbau G.m.b.H. has been erected during the war near the village of Altenbauma six miles South West of Kassel. It is engaged on the production of D.8.-type aero-engines and is believed to have an output of approximately 115 per month. Aero-engine repair work is also carried out on a fairly large scale. Several thousand workers are engaged, including a large proportion of foreigners, half of whom are women.

Henschel & Sohn/

#### Engineering and Armaments

Henshel & Sohn G.m. b. H.

Henschels are the leading German locomotives works and in peacetime were capable of building 200 main-line locomotives per annum in addition to a large number of smaller types. Their works were continually enlarged during the first years of the war and with the adoption of standard locomotive types their capacity increased to many times the above figure.

One of the most important manufacturers of trucks in Germany before the war, this firm was also of great importance in supplying German requirements for heavy transport vehicles, which were largely used with trailers. production was of relatively small importance in relation to the activities of this firm in other branches of engineering, although in connection with heavy road transport it was an important contribution to the German Their manufactures include requirements. municipal-type vehicles, such as road sweeping, washing and sprinkling machines, and refuse collecting vehicles; and also the "Finkbeiner" producer-gas unit which is one of the 12 types standardised by Germany.

It is belived that even before the war at least one section of the parent works (WerkI) was engaged on the design and construction of medium and heavy tank prototypes and it is probable that during the war certain serial production of tanks took place at the Henschel works in co-operation with Wegmann & Co. (see below).

Henschel

(1) Henschelstr.

The parent factory of Henschel is immediately North of the town centre. factory is the main locomotive-assembly works but is also reported to be important in the production of tanks, both of the heavy and the medium types.

/Henschel

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Rothenditmold (1)

Werk II., is situated just North-west of the main railway station and was greatly extended in 1938-39. It is primarily engaged on the construction of boilers, and other major components and castings for locomotives, which are supplied to Werk I. for assembly.

Henschel

Mittelfeld (1)

These works which are known as Werk III, are now believed to be the largest of the three Henschel plants. They are in the North-western suburb of Mittelfeld and are less than one mile to the North of Werk II. They have been greatly extended since the outbreak of war. A.F.V!s and all kinds of heavy military vehicles are produced. Locomotive cylinders, chassis, gears and other engine components for supply to the main assembly plant are made at these works, which also include enginetesting workshops as well as research laboratories, apprentice-training schools, and repair shops.

Wegmann & Co.

Bettenhausen (2)

This firm of railway wagon builders employed 600 workers before the war. They are now working in cooperation with Henschel on the assembly of medium and heavy tanks. Reports suggest that Wegmann now employ more than 2,000 workers.

Schmidt'sche Heissdampf G.m.b.H.

Kassel (3)

This firm are makers of a variety of locomotive components but specialise in superheaters, which they supply to almost the whole of the German locomotive industry.

Gebr. Crede & Co.

Aueweg (3)

The Gebruder Crede & Co. are makers of railway wagons and rolling stock. Their works are in the suburb of Niederzwehren. Some 800 workers were employed before the war.

Beck & Henkel

Wolfhagerstr. (-)

The Maschinenbau A.G. vorm. Beck & Henkel employed some 300 workers in 1939 and specialised in cranes, lifts, and lifting gear.

A. Bitter & Co. G.m.b.H.

Fiedlerstr. (-)

This firm specialises in electric motors. Their works are in the Northern quarter of the town.

Ammunition Factory/

nelstr

Ammunition Factory

Bettenhausen (-)

An ammunition factory is reported to have been opened in 1941 in the suburb of Bettenhausen and to be employing 2,800 workers. The works are said to be well camouflaged and to be built partly underground.

# Textiles, Rayon, Pulp and Paper

Spinnfaser A. G.

Wohnstr.

(3)

This spinning mill, which produces yarns from staple fibre, is adjacent to the Fieseler aircraft factory in Bettenhausen. Before the war the works had been repeatedly enlarged and was considered to be the largest mill of its kind in Europe. Some 4,000 workers were employed in 1938 when the capacity of the works was 133,000 Kg. of staple fibre per day. The works capacity is believed to have increased to 150,000 Kg. per day during the early part of the war.

Jute Spinnerei

Zierenbergerstr. (-)

The Jute Spinnerei u. Weberei Kassel A. G. are sack manufacturers and employed some 800 workers before the war. Their works are adjacent to the Henschel Werk II.

Salzmann & Comp.

Sandershäuserstr. (3)

The weaving mills of this firm are in Bettenhausen immediately North of the railway station. They are makers of sail and tentcloth, wagon covers, and uniform material, and are important suppliers to the armed forces.

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# K E H L/Rhine (Baden)

48° 35° N. 7° 50° B:

410 miles

(12,200)

Kehl is a frontier town on the right bank of the river Rhine. It is connected to Strassburg (France) by rail and road bridges over the river. Industrially Kehl is of no particular importance but its state owned harbour, which has been considerably extended during the past six years, is important.

In this area the prevailing traffic is in transit goods from and to France. Kehl was built in 1896 to compete with Strassburg harbours. In 1938 the total turnover of traffic in Kehl was 1,995,000 tons. In the pre-war period. Strassburg handled a greater volume of traffic than any other inland port of France. Rhine traffic at Strassburg harbour 1929-1937 increased from 4.8 million tons to 5.4 million

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tons and canal traffic for the same period increased from 1.6 to 2.4 million tons.

The harbour installations of Kehl consist of three basins 3,500 m., 1,700 m. and 505 m. long respectively, having an average width of 80 m. There are electric cranes, loading bridges, numerous coal dressing plants and extensive storage yards. Over half the inward traffic is from the Lower Rhine and outward traffic is scarcely 3 of the inward. Commodities exported are wood, grain, potash, soda, clay, lignite and chemicals. Goods coming from France are potash, iron ore, basic slag, soda, salt, grain, bran and finished products such as shaped iron, chemicals and large quantities of coal via the Saar Canal and Rhine-Main Canal.

#### Transportation

80n (-)

rstr. (\*)

rstr. (j)

Inland Port

Strassburg (2)

(For details see above)

Railway Traffic centre

Strassburg (3)

This traffic centre consists of marshalling and goods yards serving the pert and of a junction of main lines leading across the Rhine to France

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## KEISTERBACH Main (Hesse)

See under Frankfort/Main.

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# KEMPTEN (Bavaria)

47° 45° No 10° 20° E:

435 miles:

(28,000)

Kempten is the chief town of the Bavarian Allgau and is principally a market town and a centre for the important Allgau dairy industry. There are textile mills and an offset printing works, but apart from the chemical works mentioned below, none of the town's industries is individually of note.

#### Chemicals and Explosives.

Elektroschmelswerk

Kempten (3)

These works, which produce silicon carbide, are reported to have been considerably expanded during the war. In 1939 they were employing some 200 workers.

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#### KLAUSTHAL

See under CLAUSTHAL.

## KTEL (Schleswig Holstein)

54° 20' N. 10° 10' E:

470 miles::

(260,000)

Public

Sta

Stad

Kiel, the capital of Schleswig Holstein, is situated at the Southern end of the Kieler Förde (Hafen). This bay, about 11 miles long and a quarter to  $4\frac{1}{2}$  miles broad, is considered one of the best havens in Europe. On its Western side is the mouth of the famous Kaiser Wilhelm (or Kiel) Canal, and on the Eastern side, the mouth of the river Schwentiene.

Kiel is the principal base of the German Navy and in all respects entirely a naval town, with dockyards, victualling and fuel stores, shipbuilding, engineering and armaments works. The harbour provides anchorage for a large fleet and quick access to the North Sea through the Kiel Canal, which joins the river Elbe at Brunsbuttelkog.

Thanks to the canal, Kiel is also safely connected by water with Hamburg, Emden and the Dutch ports. The Canal's total length from Kiel (Holtemau) to Brunsbüttelkog on the Elbe is 53 nautical miles and its depth 37,07 feet.

The double lock gates of the Canal are at its Eastern (Holtenau) end and so are the two Easternmost bridges over the Canal, the Levensau bridge and the Prinz Heinrich bridge. Both bridges carry roads, and the local railway line between Kiel and Flensburg passes over the Levensau bridge.

There are two principal target areas in Kiel:-

- a) Stretching from Gaarden to Monckeberg along the Eastern side of the Kieler Hafen. In this area are the three great shipbuilding yards, the big underground oil-storage plant and ammunition stores, and, in the centre of the area, the largest Naval arsenal in Germany. Of outstanding importance is the construction of U-boats in this area.
- b) Immediately at and partly to the West of the Mouth of the Kiel Canal, in the Holtenau-Wick district is a group of less important targets. These targets consist of the Canal lock gates and bridges, the power station, oil-storage depots, and some Naval equipment works.

A third series of outlying targets includes a plant producing thin shell and air leads, as well as assembling torpedoes, and other plants manufacturing torpedo components, aeronautical instruments, signalling apparatus, and light-metal products.

Fifteen miles Northwest of Kiel at Eckenforde there is believed to be a new and important torpedo factory.

### Transportation

Lock gates of Kiel Canal

Holtenau

(3)

These lock gates at the entrance of the Canal, in the Holtenau area, are 1,082 feet long, 147 feet wide and 49,9 feet high. (Lock gates of the same dimensions are also at the other end of the Canal, at Brunsbuttelkog in the Elbe).

Road and rail bridge over Kiel Canal

Kiel-Suchsdorf (3)

There are two bridges over the Eastern end of the Canal; only one of these, the Levensau bridge, carries both road and rail.

Public/

#### Public Utilities

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#### Stadtisches Elektrizitatswerk

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(2)

Owned by the "Stadtische Licht u. Wasserwerke, Kiel, but operated by the "Vereinigte Grosskraftwerke Schleswig - Holstein G. m. b. H. " Rendsburg, an operating company owned by the corporations of Kiel, Flensburg and Neumunster, the Kiel municipal thermal power station is situated on the Southern bank of the Kaiser Wilhelm canal in the Northern suburb of Kiel. The station has an installed capacity of There are two 60 kV lines connecting it to Rendsburg and Neumanster respectively, and several 6 kV and lower voltage lines connecting it, it is believed, the small 6 MW power station on the Humboldtatrane, to 2 other small hydro stations, and to the power stations of the "Germania" and "Deutsche Werft" shipbuilding yards. These two latter power stations are under contract to supply

#### Stadtische Gaswerke

W-11-

(2)

The Kiel municipal gasworks are adjacent to the power station on the Southern bank of the Kaiser Wilhelm canal. In 1936, this works made 1,150 million cubic feet of gas.

substation with 3 or 4 6/60 kV transformers.

electricity to the city network, Adjoining this power station is a small

#### Liquid Fuels and Substitutes

Commercial Storage

Wik

(-)

This oil storage depot is operated by a number of firms. Its capacity is 65,000 tons, and it is located on the Southern shore of the Ganal just West of the lock gates. It is not known to what extent the storage capacity is being utilized.

Underground Storage/

Underground Storage

Monkeberg (-)

Shipbu

It is estimated that the storage capacity of this depot is in the neighbourhood of 180,000 tons. There are a total of 24 tanks, and space within the site for a further 50 tanks.

Underground Storage

Vossbrook (near(-) Seeflug Hafen)

The capacity of this underground depot is not known but satisfactory ground intelligence indicates that naval fuel and motor spirit were in storage in large quantities in 1942.

Underground Naval Fuel Dumps

Flembruder (-) see (11 Km. West of Kiel.

Constructed im 938 this Naval fuel depot consists of 25 subterranean fuel tanks, each with a capacity of 10,000 cbm. The dump is located on the Western bank of the Flembruder See, 11 m. West of Kiel and about half a kilometre South of the Kiel Canal.

Submarine Refuelling Base

Acterwehr- (3)
Flemhude
(West of Kiel)

Between Achterwehr and Fleminde (Quarnbeck) and the Kiel canal is a side-branch of the latter which, having become shallow, has now been dug out and transformed into an important fuelling station for submarines. The station comprises a large pumping station, a power plant, a small refinery with numerous sheds, workshops, etc., and a considerable number of large and small tanks spread over the area of several kilometres, partly underground and camouflaged.

Shipbuilding/

#### Shipbuilding

ok (near(\*)

Riel.

hr- (3)

r Kiel)

Deutsche Werke Kiel, A.G. (formerly "Kaiserliche Werft")

Kiel (1) (East side of harbour)

This state-owned concern has two works, one on the Eastern side of the harbour and the other on the Western side, in Friedrichsort. The former of the two is known as "Werke Kiel" and is mainly engaged in building ships of every class and size and carrying out repairs on a large scale. Warships, including submarines, are constructed; and, since the last war, output has included the battle-ship "Gneisenau", the pocket battleship "Deutschland", the cruisers "Nürnberg", "Karlsruhe", and "Blücher", and the aircraft-carrier "Graf Zeppelin". The works cover an area of 750,000 sq.metres with 4,700 metres quay frontage. (This firm is also mentioned under Engineering and Armaments.)

Fried. Krupp Germaniawerft A.G.

Gaarden (1)

These large shipbuilding yards are owned by Fried. Krupp A.G. of Essen. They are engaged on the construction of warships of all types, including submarines and also build merchantmen and coastal vessels. The yards which consist of 4 floating docks, 1 dry dock and 8 slips as well as 4 cornered slips are also well equipped to undertake all types of repair works to merchant and naval vessels.

Kriegsmarine Werft (formerly Howaldtswerke) Kiel (North of (1) mouth of Schwentiene)

The shares of the Howaldtswerke were acquired by the Deutsche Werke in Kiel, A.G., in 1937, and Howaldtswerke consequently came under the control of the Reichsmarine) and was renamed Kriegsmarinewerft. The works comprise engineering plants, boiler works, foundries, and shipyards. The shipyards have 9 floating docks (three are covered, and one is a pressure dock for the testing of U-boat hulls) and U-boat shelters. There are six slipways (one 340' x 65', two 450' x 65', and three 470' x 65')

These yards have, since 1940, concentrated on building and repairing U-boats. The output of new U-boats during the period 29.6.40 to 31.7.43, is given as 32 x 500-ton boats plus another 5 seen building, making a total of 37.

Naval Arsenal

Wellingdorf (1)

This is the largest naval arsenal in Germany. It is situated at Wellingdorf between the Kriegsmarine Werft and the Deutsche Werke. The arsenal has been repeatedly extended in the course of the war and it is believed that the assembly of torpedoes is carried out here on a considerable scale.

/Aircraft

#### Aircraft and Aero Engines

#### Kieler Leichtbau

Uhlenkrog

(3)

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workers

The Kieler Leichtbau G. m. b. H. is believed to be engaged on the manufacture of aircraft components and other light metal products. They are reported to be making components for the He. 111, including tail units, and to undertake repairs. The works are in Hassee, a suburb of Kiel lying South West of the city.

The Flugzeugbau Kiel G. m. b. H. are reported to

The plant is in Neumühlen, a suburb to the East

of Kiel, on the Eastern side of the Kiel Fjord.

be making aircraft floats and components.

Flugzeugbau Kiel

Neumählen

(3)

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Engineering and Armaments

Deutsche Werke Kiel, A. G.

Friedrichsort

These works known as "Werk Friedrichsort" are complementary to the shipbuilding works ("Werk Kiel") mentioned above under "Ship-building". The plant consists of engineering works and a foundry, which specialise in serial construction of auxilliary machinery for ships and of ships' pumps, as well as the manufacture of Diesel locomotives and high-speed Diesel engines. These works also manufacture aircraft catapults, ships' boilers and pumps, marine and stationary Diesel engines, gears etc. The works are well equipped with modern machinery and engine test-beds. It is believed that since 1939 at least one large department has been converted to make torpedo components and to assemble complete torpedoes.

Fried, Krupp

Gaarden

(2)

Fried. Krupp Germania Werft are makers of torpedoes, submarine components, ships' boilers, pumps and other naval equipment. They also make steam turbines and signalling apparatus on a fairly large scale.

Elektroakustic

Weddigenring

(2)

The Elektroakustic G.m.b. H. are important makers of hydrophones, listening apparatus, underwater signalling equipment and searchlights. were built in 1938 and went into full production early in 1942. A large section is devoted entirely to the manufacture and assembly of listening apparatus for detecting the approach of aircraft. Another section of the works produces searchlights and the larger searchlight components. All kinds of acoustical instruments and components are manufactured and the works includes an important experimental station. In 1942 at least 3,000

Elektroakustic (contd.)

workers were employed and it is believed that this number and the productive capacity of the works has since been largely increased.

Hagenuk

(3)

(3)

(2)

(2)

(2)

Habsburger Ring

(2)

The Hanseatische Apparatebau Ges. Neufeld & Kuhnke (Hagenuk) were purchased in 1936 by the Th. Goldschmidt concern of Essen. They are makers of electrical signalling apparatus, marine telegraphs, temperature controllers and voltage regulators for submarines, diving suits, and respirators. Other products of these works include bomb components such as fuzes and delayed-action mechanisms, torpedo components, and detonators for mines.

Thomsen & Schwarzkopf

Prozensdorferstr. (

(3)

The products of this firm include torpedo motors and components and mechanisms for magnetic and other mines.

Auschütz & Co.

Neumühlen-Heikendorferweg

(3)

This firm specialises in sextants and navigational instruments and compasses, including gyroscopic compasses.

Torpedo Factory

Eckernforde Pucht

(2)

One mile South South East of the town of Eckenforde, which lies at the inner end of the Baltic Fjord of that name 15 miles to the Northwest of Kiel, there is a new torpedo factory which is now reported to be one of the largest in Germany. The factory buildings, which are on the water front, occupy an area of more than one square kilometre.

Meierei Verbande

Canal docks

(-)

The Schleswig Holsteinische Meierei-Verbände food-storage plant has a storage capacity of 12,000 tons. It is situated on the canal docks to the West of the Prinz Heinrich bridge.

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# KLEVE (Rhineland)

51° 45' N. 6° 10' E: 270 miles: (23,000)

Kleve is close to the Dutch border on the main line West of the Rhine from Holland to Western Germany. It is a junction for two branch lines, one of which crosses the Rhine at Spyk to the North of Kleve. Food Stuffs are the chief industry and Kleve is a centre for the dairy industry of the Lower Rhineland.

#### Transportation

Railway Repair Shops

Kleve

(3)

These are medium-sized repair shops undertaking the repair of goods wagons.

#### Food Stuffs

Van den Bergh

(3)

These works, which formerly belonged to the Unilever concern, include a large margarine factory and vegetable-oil crushing and refining plant.

Bensdorp G.m.b.H.

Kleve

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This is a chocolate and cocoa factory adjacent to the margarine works mentioned above.

## KNAPSACK (Rhineland) (See under Köln)

## KOBLENZ (Rhineland)

50 20' N. 7 35' E: 350 miles: (86,000)

Koblenz is on the main railway line along the left bank of the Rhine and is a junction for the line leading up the Mosel valley. The town is built at the point where the Mosel flows into the Rhine. Koblenz is a centre for the Rhine wine trade and has few other industries. It is mainly important as a traffic centre.

## Transportation

Inland Harbour

Koblenz

(3)

Koblenz is an important loading station for the barge traffic on the Rhine and Mosel. The quays are mainly along the right bank of the Mosel near to its junction with the Rhine and there is a small dock on the opposite bank in the suburb of Lützel.

Railway Junction

Koblenz

(3)

The main line along the left bank of the Rhine crosses the Mosel immediately before entering Koblenz. From the main railway station in the centre of the town an important branch leads up the valley of the Mosel (which it crosses West of the town by a second bridge) to Trier, Luxemburg and France. A second branch diverges at the main station and crosses the Rhine to link with the trunk line of the right bank.

Lützel marshalling yard.

Koblenz (3)

To the North, across the Mosel, the Lützel marshalling yard has a capacity of 2,000 wagons per 24 hours.

Marshalling yara.

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Oberlahnstein

Situated approximately 5 miles south of Koblenz on the right bank of the Rhine, where the running East to Limburg and Wetzlar leaves the main North-South line to Wiesbaden and Frankfort, this yard has a capacity of 2,000 wagons per 24 hours.

Marshalling Yards.

Koblenz (3)

West of the main railway station is the main marshalling yards capable of handling 2,600 wagons per 24 hours. A medium sized railway repair shop is adjacent to the marshalling yards and, in addition to a goods station, there are sidings leading to the coal yards and gas works and to the loading quays along the right bank of the Mosel.

### Public Utility Services

Gasworks

Koblenz (3)

In 1936 the Koblenz gasworks made 180 mill, cu. ft. of gas and bought a further 170 mill. cu. ft. from the Concordiahutte Bendorf i. Engers a. Rhein.

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## KOHLFURT (Saxony)

51° 18' N. 15° 12' E: 660 miles (2,800)

Kohlfurt is an important railway junction 16 miles
North-east of Görlitz. The main line from Liegnitz and the east
divides into three, to the West to Cottbus, to the North west
to Falkenberg and Berlin, and to the North to Frankfort/Oder.
Kohlfurt is on the Silesian group of electrified lines.

## Transportation

Marshalling Yard

Kohlfurt (3)

The marshalling yard has a capacity for handling 2200 wagons per 24 hours.

# KOHISCHEID (Rhineland) See under Eschweiler.

# KOLBERG (Pomerenia) 54° 10' N. 15° 35' E: 680 miles: (37,000)

Kolberg is the only town of any size on that stretch of the Baltic coast which lies between Stettin and Danzig. In peace time it is a well-known coastal health resort and a large part of its activities have been hitherto concerned with the tourist traffic. The town is at the mouth of a river (the Persante) and there are good

good small-scale harbour facilities. In peace time, the port had a turnover of some 150,000 tons annually, the principal trade being in grain and timber. Kolberg has good rail connections. A direct line leads inland to Belgard on the main Stettin-Danzig route and Kolberg itself is on the railway which follows the coast from Köslin to Cammin. It is the most conveniently situated existing centre for activities on this part of the Baltic coast line. Apart from the small chemical works mentioned below there were no peace-time industries worth noting.

## Transportation

Railway Repair Shops

Kolberg

(3)

These are medium sized shops undertaking the repair of goods wagons.

#### Chemicals and Explosives

Exterikultur A.G.

Kolberg

This firm specialised in peace time in ointments and cosmetics and employed some 300 workers.

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township

Transpor

# KOIN AM RHEIN (Cologne) - Rhineland

50° 55' N. 6° 55' E: 310 miles: (912,000)

Cologne is the centre of trade, traffic, and political activity in the Rhine Province. Although it possesses important industrial establishments, its chief significance lies in its situation at the crossing of a number of trade routes.

It is the main railway-centre in the Rhineland, and a very important inland port.

The geographical position of Cologne has been the chief factor in determining the nature of its industry. Its proximity to the Ruhr coalfields and its rail, road, and river transport facilities have caused the growth of firms specialising in light and heavy engineering, chemicals, building, and textiles; in peace-time Cologne was also noted for its luxury products, including chocolate and perfumery.

Since 1939 there has been an expansion of certain engineering works and other factories engaged on war production. These are concentrated mainly in Ehrenfeld, Kalk, and Mülheim to the East of the city on the right bank of the Rhine. Other industrial districts with a fair number of important war factories are Sülz, Bayenthal, Poll, Deutz, Nippes, Riehl, and Niehl. Further important industrial concerns are to be found in the outlying districts of Heumar, Porz, Rondorf, Hürth, Kalscheuren, Knapsack-Goldenberg, Berrenrath, and Brauweiler.

The built-up area of Cologne itself is of no importance from a purely industrial point of view, as it is composed mainly of residential areas with the appropriate shops, offices, and wholesale houses.

The population figure of 912,000 includes the outlying townships mentioned above.

#### Transportation

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1. Köln Hauptbahnhof Domplatz-S.E. side
2. West Bahnhof Venloer Wall
3. Sid Bahnhof Luxemburgerstr.

The above three stations deal only with passenger traffic.

Eifeltor, Rangier Bahnhof South of the City (2)

In 1939 these marshalling yards had a capacity of 6,000 wagons per 24 hours.

Kalk-Nord Marshalling Yard Kalk-Nord (3)

Lying East of the city, this marshalling yard had a capacity of 4,500 wagons per 24 hours in 1939.

Publ

Güter-Bahnhof Nippes	Nippes	(3)
In 1939 the marshalling yards had a capacity to deal with 3 per 24 hours. They are adjace Nippes goods yards.	,500 wagons	
Gereon Bahnhof	Gereon	(3)
Lying North of the city and so Nippes station, the main good and marshalling yards at Gerec capacity of 2,000 wagons per	s station on had a	
Goods stations and Marshalling Yards	Deutz & Gremberg Bonner Wall & Luxemburgerstr.	(3)
There is a large goods station known as the Güter-Bahnhof Demand South-east of the city limarshalling yards: Other good in the Köln area are at Bonne: Luxemburgerstrasse.	utzerfeld, e the Gremberg ds stations	
Reichsbahnausbesserungswerke	Nippes	(2)
This repair depot is reported approximately 3,400 workers or repair and maintenance of locand goods wagons.	n the	
Rheinau Hafen	Right bank of the Rhine	(3)
This is the customs and comme harbour possessing 27 warehou sheds, with about 115,000 squ of covered storage, 56 hydrau electric cranes capable of li to 5 tons in 1939.	ses and are metres lic and	
Mälheimer Hafen	Left bank of the Rhine	(3)
This industrial harbour compr warehouses covering about 23, metres of storage area before	000 square	
Niehler Hafen	Niehl	(3)
This is a large industrial hat extensions, and one warehouse 16,000 square metres of stora	, covering	
Deutzer Industrie-Hafen	Left bank of	(3)

the Rhine

KÖIN AM RHEIN (Cologne) (contd.)

#### Public Utility Services

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Kraftwerk Knapsack-Goldenberg

Härth (5 miles South-West of Köln)

This complex, owned by R.W.E., consists of six generating stations, four briquette works, and a chemical works. The generating plant comprises the:Goldenberg power-station 530 MW of

Goldenberg power-station 530 MW capacity
Knapsack I " " 70 MW "
Knapsack III " " 50 MW "
Knapsack III " " 75 MW "
Knapsack IV " " 75 MW "
Knapsack V " " 20 MW "

The complex covers an area of about onethird of a square mile and is the largest concentration of thermal generating plant in Germany, having a total capacity of 820 MW. Brown coal is obtained from the neighbouring mines "Vereinigte Ville" and Berrenrath. Adjacent to the mines is a carbide plant which in 1936 had a capacity of 50,000 tons per annum.

#### R. W. E. Transformer Station

Brauweiler

(1+)

(1+)

Covering an area of about 100 acres, this is the largest installation of its kind in Europe, and probably the largest sub-station in the world. There are 3 bus-bar systems for 220 kV and 5 for 110 kV. The main switching control of the turbo-generator sets at the Goldenberg generating station is carried out here, and the buildings contain a special generator set for line-testing as well as what was, before the war, the main controlroom of the R.W.E. There are 4 interbus transformers for 220/110 kV, one of which has a capacity of 80 MW., while the other three have individual capacities of 48 MW. The plant also includes smaller transformers for local supply. The station is connected to Koblenz by a double circuit 380/220 kV line, and to Knapsack, Herdecke, Wesel, and possibly Fortuna by 220 kV lines. 110 kV lines run to Knapsack, Osterrath, Wesel, Funlingen, Kuppersteg, Erftwerk and probably to Fortuna. The station therefore controls upwards of  $1\frac{1}{2}$  million kW, a high proportion of the power consumption of the Ruhr. Information received states that connection has been established with the Liege-Bressoux power-station and thereby with the Belgian Grid.

KÖLN AM RHEIN (Cologne) (contd.)

Electricity Power Station

K8ln (3)

This thermal plant has an installed capacity of 23 MW. It also obtains current from the R.W.E. Fortuna station, and supplies Cologne.

Städtische Gaswerke

Ehrenfeld

(3)

KÖLN

Iron 8

Non-Fe

This is the main municipal gas-works which purchases from the Alsdorf section of the Thyssen Grid and from the Ruhrgas A.G. In 1936 sales were 2,400 million cubic feet of gas. Within the Cologne area there are several other small distributing works, including such as those at Nippes, Kalk and Mülheim.

Rhein. Energie A.G.

Deutz

(3)

This gasworks purchases from Cologne and in 1936 sold 130 million cubic feet of gas.

## Liquid Fuels

. Kölner Benzin Raffinerie

Braunsfold

(-)

In 1938 this oil refinery had a capacity of 4,000 tons per annum.

Fritz Wihl (Mineralölwerke vorm. M.Loeb)

Braunsfeld

(-)

The refinery and lubricating-oil plant owned by this firm had a capacity of 6,000 tons per annum in 1938.

Rhenania-Ossag Mineralölwerke A.G.

This firm operates two plants in the Cologne area.

- 1. The Klettenberg plant consists 1) Klettenberg (3) of a number of storage tanks but is believed to be inactive.
- 2. This plant is estimated to (2) Monheim produce approximately 115,000 tons of petrol from crude oil per year. The plant has facilities for the manufacture of low grade lubricants for which its capacity is estimated to be 20,000 tons per annum.

Deutzer Oelgesellschaft Deutz (-)

The firm operates a small oil refinery at Deutz. Nothing is known regarding its present activity.

KÖLN AM RHEIN (Cologne) (contd.)

# Iron and Steel and Ferro-Alloys

Walzwerk A.G. vorm. Mülheim E.Bocking & Co.

(3)

Employing about 500 workers, the plant includes steelworks and rolling-mills. There are two electric steel furnaces and two open-hearth furnaces. Steel castings, shapes, and wire etc., are produced on a small scale.

# Non-Ferrous Metal Manufacture and Fabrication

Vereinigte Deutsche Ehrenfeld (3)
Metallwerke A.G.

This plant makes a variety of zinc products, such as etching plates, zinc wire, etc., also lead products including rolled lead, pipes, wire, and other manufactures.

Lindgens & Söhne Mälheim (-)

In 1938 about 200 workers were employed on the production of white-lead, lead and zinc dyes, lead salts, etc.

Vereinigte Blei- u. Zinnwerke Köln (-) G.m.b.H. (V.B.Z.)

The Cologne branch of this firm manufactures rolled lead, pipes, wire, and other lead manufactures.

#### Shipbuilding

(3)

(3)

(3)

(-)

Fritz Bausch

Deutz

(-)

These shippards are believed to be engaged on the repair of river barges only.

#### Engineering and Armaments

Felten & Guilleaume Carlswerk A.G.

Mülheim

(1)

This is the second largest cable works in Germany, occupying a total area of 300,000 square metres. All types of electric cables, copper, brass, bronze, aluminium and iron wire, steel hawsers, special armament components, and galvanised sheets are produced, and the plant includes a copper refinery with a capacity of 8,000 tons per annum, as well as a copper-rolling mill. The plant also manufactures wire-drawing machinery, and raw and semi-finished materials for wire making. The firm also makes equipment for wire works and mining installations. In 1938 the estimated cable output in tons per annum was 30,000 and the capacity for copper wire products is now believed to be 25,000 tons. It is estimated that some 10,000 workers are employed.

Klöckner Humboldt-Deutz A.G.

(2) 1) Deutz-

Mülheimerstr. 2) Kalk-Dillenburgerstr.

This firm has two factories at Cologne both engaged on the building of internalcombustion engines, including submarine engines, lorries (Magirus type), trucks, tractors, and fuel-injection pumps. The Kalk works also manufactures cranes, loading bridges, belt conveyors, excavators, and rope-haulage plant. The Deutz factory is believed to employ 5/6,000 and the Kalk factory 10/12,000 workers.

Ford Motor Co. A.G.

Niehl

(1)

This works has been extended since the war and is engaged not only on the production of motor vehicles and road tractors mainly for military purposes, but also on the manufacture of Ford engines for landing craft etc. and stationary power plants. Lorry production is estimated at 35,000 per annum, and the number of workers at 8/9,000.

# KÖLN AM RHEIN (Cologne) (contd.)

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Hermann Kolb Ehrenfeld (3)

Drilling machines are manufactured by this firm, which employed some 500 workers in 1939.

J.Pohlig A.G. Zollstock (3)

Some 500 workers are believed to be employed here on the production of overhead railway conveyors, blast furnaces, and other steel plant equipment, - e.g. complete charging apparatus etc. Heavy goods hoists, lifts, lattice transporters, and coal-cleaning equipment are also manufactured.

Imbert Generatoren Braunsfeld (3)

The Braunsfeld factory of this firm is believed to employ 800 workers and manufactures portable gas-producers for wood and mineral fuels.

Feldmühle Papier- u. Zellstoffwerke A.G. Lülsdorf-Porz (3)

Known as Werk Koholyt-Idlsdorf and covering an area of 743,248 square metres, this works is believed to be an important manufacturer of siliconcarbide and oxide abrasives. It is also stated to be producing electrolytic alkali and to have produced in 1936 4,800 tons of caustic soda, 6,600 tons of chlorine, and 3,000 tons of bleaching powder. Power is obtained from the R.W.E. grid through the works' own switching and transformer station. In 1939 some 450 workers were employed.

Heimat-Kraftfahrpark Ehrenfeld (3)

It has been reported that 400 workers are engaged here on the repair of military transport.

Gottfried Hagen A.G. Kalk (1)

This firm is the second-largest German manufacturer of accumulators and batteries (including submarine accumulators and battery containers). It also makes rubber goods, production of which is undertaken in two nearby works; and lead manufactures such as rolled lead, pipes, wire etc. One of the two rubber plants is employed on the production of rubber thread and the other on the production of varied articles, such as accumulator covers etc. In 1937 the company employed 2,000 workers.

KOLN

Prior to the war some 2,200 workers were employed here on the manufacture of railway wagons, rail cars, tank wagons, etc.

Vereinigte Deutsche Metallwerke A.G. Ehrenfeld (3) (vorm. Rheinische Sprengkapsel u. Zändhätchenfabrik)

This firm manufactures detonators, shell-fuzes, etc., and about 500 workers are employed.

Bamag Meguin A.G. Bayenthal (3)

This firm manufactures steel-works plant e.g. blast-furnace accessories, pig-breakers, pig-casting machines, steel furnaces and equipment, chemical plant, gears, and electrical equipment, and building machinery, and prior to the war employed 1,500 workers.

Citroenwerk Poll Poll (3)

1,000 workers are reported to be employed here on the repair and maintenance of military transport.

Meitowsky & Co. A.G. Porz (3)

This company belongs to the Felten & Guilleaume concern. It is an important manufacturer of insulators for high-and low-tension cables, condensers, switches, and insulated electrical apparatus. Some 1,000 workers were employed before the war.

Alfred H.Schätte Deutz (3)

This firm manufactures automatic machines, lathes, tools, grinding machines, and other machine tools. It is believed to employ about 700 workers.

Gebrüder Stollwerk A.G. Rheinau-Hafen (3)

This works includes a large engineering department which is now believed to be engaged solely on the manufacture of small arms components, minor aircraft components, etc. 600/800 workers are believed to be employed.

# KÖLN AM RHEIN (Cologne) (contd.)

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Rheinische Walzmaschinenfabrik Ehrenfeld (3)
G.m.b.H.

This firm manufactures cold-rolling mills and mills for rolling light-alloys.

Land- und Seekabelwerke A.G. Nippes (3)

This firm manufactures all types of electrical cable and wire, as well as accessories and rubber goods. The estimated output was 2,500 tons per annum in 1938.

Rheinische Draht- u. Kabelwerke Riehl (3)

Owned by Brown, Boveri & Co., Mannheim, this plant is engaged on the manufacture of cables and wires, including telephone cables. The estimated output in 1938 was 2,000 tons per annum.

Elektromotorenwerke Dornhoff & Co. Horrem (-)

This firm manufactures both A.C. and D.C. motors, from fractional horse-power up to about 100 h.p. together with pole-charging motors and convertors.

Kerpen & Co. G.m.b.H. Köln (-)

This is a small factory manufacturing insulated cable and wire.

Elektro-Isolier Industrie Wahn- Porz-Wahn (-)
Wilhelm Ruppert

This company specialises in the production of insulated wire and insulating materials.

## Chemicals and Explosives

A.G. für Stickstoffdünger Knapsack (2)

This factory, which is operated by the I.G. combine and which lies about 7 km. South-West of Köln, was one of the chief producers of carbide prior to the war. Gyanamide is manufactured by the Polzenius process, and other products include calcium cyanide, nitrates, ferro-silicon, and acetic acid. In 1938 the production of calcium carbide amounted to 250,000 tons, 60,000 tons more than in 1937. In 1938/39 also, the plant's capacity for cyanamide was estimated at 38,000 metric tons of nitrogen, although actual production in 1938 only amounted to the equivalent of 23,000 metric tons of nitrogen. 2,000 workers are believed to be employed and the plant has its own power-station known as Knapsack I with an installed capacity of 70 MW. (See also under Public Utility Services)

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Rubber an Red

Köln

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# KÖIN AM RHEIN (Cologne) (contd.)

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Chemische Fabrik Kalk G.m.b.H. Kalk	(2)
Sulphuric, hydrochloric, and nitric acids, nitrates of ammonia, potash and soda, potash salts and compounds, soda ash, caustic soda, and fertilisers are produced here. The worksis believed to employ more than 1,250 workers and produces 4% of Germany's total nitrate	
output. In 1928 the plant had the capacity to produce 10/20,000 tons of 100% sulphuric acid.	
Siegel & Co., G.m.b.H. (Sidolwerke) Braunsfeld	(-)
Prior to the war about 1,150 workers were employed here on the production of metal-cleaning chemical preparations.	
August Wegelin A.G. Kalscheuren	(-)
Prior to the war some three hundred workers were employed by this firm on the manufacture of tar-products and carbon black.	
Herbig Haarhaus A.G. Bickendorf	(-)
This firm manufactures dyes, paints, and varnishes. In 1936 it employed some 500 workers and they are now reported to number only 300.	
Westendorp & Wehner A.G. Köln	(-)
This firm manufactures plates, films, and paper for the photographic industry.	
Textiles, Rayon, Pulp and Paper	
Glanzstoff Courtaulds Niehl	(3)
Prior to the war some 800 workers were employed here on the manufacture of viscose rayon and staple fibre. The daily output was 20,500 Kg. of rayon and 18,000 Kg. of staple fibre.	
Felten & Guilleaume A.G. Köln	(-)

This factory of the firm manufactures rope and string, and in 1938 employed 300 workers.

UNIVERSITÄTS BIBLIOTHEK Mainz

well-known German trade mark.

# KÖLN AM RHEIN (Cologne) (contd.)

## Rubber and Tyres

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Radium Gummiwerke m.b.H. Dellbruck (3)

Prior to the war this firm employed about 1,000 workers and was manufacturing proofing, medical goods, and antigas clothing. It is thought probable that, in wartime, this firm is also producing fuel tanks. "Radium" is a

Rheinische Gummiwarenfabrik A.G. Nippes (3)
Franz Clouth

This firm manufactures cycle tyres and tubes and a fairly considerable range of soft rubber goods. 500 workers were employed in 1938. The company is controlled by Felten & Guilleaume Carlswerk.

Kölnische Gummifädenfabrik Deutz (3)

Bicycle tyres, rubberised cloth, and rubber goods form the production of this factory which was formerly owned by Ferd. Köhlstadt and Co. In 1939 some 450 workers were employed.

Carl Plaat Nippes (-)

Rubber goods such as suction tubes and sanitary articles were produced by this firm before the war, and it then employed about 440 workers.

Atlantic Gummiwerk Braunsfeld (-)
(Alois Weyers)

Prior to the war some 360 workers were employed on the production of technical rubber goods.

Karl Richelshagen-Richard Gerling Köln (3)

These firms are both Government-licenced re-treading concerns. Karl Richelshagen has a capacity to process 800 tyres per month, and Richard Gerling a capacity to process 650 tyres per month.

Peter Rost Gummiwaren- u. Packungsfabrik

Joseph Bienefeld

(3)

Of small individual importance these firms are both engaged on the manufacture of rubber goods. Normally, Peter Rost employed 400 workers on the manufacture of motorcycle tyres and mechanicals. Joseph Bienefeld produces rubber goods for medical and technical purposes, as well as rubber soling.

KÖLN AM RHEIN (Cologne) (contd.)

## Foodstuffs

Auer Mühlenwerke A.G.

Deutz

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This is a flour and grain storage mill with a milling capacity in 1938 of 5,000 tons per day, and a storage capacity of 280,000 tons.

Leysieffer & Lietzmann

Deutzer-Industrie- (-)

In 1939 this flour and grain-storage mill had a milling capacity of 2,000 tons per day and a storage capacity of 150,000 tons.

Hefftsche Kunstmühle A.G.

Agrippina Werft Mülheim

This is a grain-milling and storage plant with a pre-war milling capacity of 500 tons per day and a storage capacity of 40,000 tons.

Gebrüder Stollwerk

Rheinau-Hafen

(-)

In 1938 about 500 workers were employed on the production of food concentrates and chocolate preparations.

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# KÖNICSBERG (East Prussia)

54° 40' N. 20° 30' E: 870 miles: (370,000)

Königsberg is the chief town of East Prussia and an important traffic centre and base for the German lines of communication to the Eastern front. The city is built on either bank of the river Pregel, which flows from East to West into the Frisches Haff and thence into the Baltic. South of the river are the main railway station, goods and marshalling yards, and the docks and port area. North of the river is the main part of the city area and the Nordbahnhof passenger and goods stations. The Schichau ship-building concern of Danzig have large yards on the Pregel and these constitute the most important present-day industry in Königsberg. There are, however, several other factories connected with armament production, many of which are grouped on both sides of the Pregel in the South Western quarter of the town. Königsberg is an important flour-milling centre and grain-shipment port and has large storage facilities.

#### Transportation

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et (·)

Port Area Königsberg (3)

The docks, which consist mainly of three open docks or harbours, are on the South bank of the Pregel in the South-west corner of the town. The Industriehafen is approximately 1,600 yards long by 200 yards wide. The Holzhafen to the West is equal in area to the Industriehafen. The Freihafen to the East is the smallest of the three docks. The quays are well served with railway sidings and there are extensive storage sheds, grain silos, and oil tanks.

Railway Junction Königsberg (3)

Königsberg is on a main line leading from Danzig through Elbing and Königsberg to Insterburg where it connects with the direct railway route from Northern Germany to Lithuania and the Northern sectors of the Eastern front. Four branch lines lead from Königsberg to Pillau and Northwards to various small settlements on the Baltic coast. A further branch leads Southwards into the agricultural districts of East Prussia.

Goods Station Königsberg (3)

A large goods station is situated on the South bank of the river Pregel immediately North of the main railway station.

Goods Station Palve (3)

A second goods station is in the Northern part of the town close to the railway station known as the Nordbahnhof.

## KÖNIGSBERG (contd.)

Marshalling Yards

Königsberg

(3)

THITGSBER

Aircraft.

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Schi

There are large marshalling yards South of the river Pregel and close to the main railway station. These yards can handle 2,000 wagons per 24 hours. Numerous branches and sidings lead from these yards to the port area which lies one mile to the West.

Railway Repair Shops

Königsberg

(3)

These large shops are believed to employ some 1,500 workers and to undertake the repair of locomotives and rolling stock. They are situated immediately South-east of the marshalling yards.

Ship Build

## Public Utility Services

Power Station

Königsberg

(3)

The electric power station of the Ostpreussenwerk A.G. is on the North side of the river Pregel near to the Hollanderbaum railway station. It has an installed capacity of 36 MW.

Gas Works

Königsberg

(-)

The municipal gasworks are situated within the built-up area of the town. In 1936 they made 1,800 million cu. ft. of gas.

#### Liquid Fuels

Petrol Storage

Rathshof

(-)

Otto

ingineering

Steir

Three large storage tanks belonging to the Rhenania Ossag, with a total capacity of 8,000 tons, are on the North side of the Pregel opposite the dock area and East of the Rathshof railway station. It is not known to what extent, if at all, these storage facilities are now utilized.

Petrol Storage

Industriehafen

Two large and six small tanks belonging to the Rhenania Ossag, with a total capacity of 3,000 tons, are inside the dock area between the Industriehafen and the Holzhafen.

KÖNIGSBERG (contd.).

## Aircraft and Aero-Engines

Repair Works

Devau

(3)

The Königsberg airfield is on the East side of the town in the suburb of Devau. The workshops of the Deutsche Luft-Hansa A.G. which are adjacent to the airfield, are equipped to carry out aircraft repairs.

#### Ship Building

Schichau G.m.b.H.

Königsberg

(2)

The Schichau yards are on the South bank of the Pregel, half a mile downstream from the Holzhafen. Naval auxiliaries, mine-layers, small torpedo boats, and M.T.R's are built. There are two main slipways and a third smaller slipway where M.T.B.'s can be constructed. The yards have two floating docks where, in June 1943, seven submarines were undergoing repairs. A third floating dock is used for general ship repairs. In addition to shipbuilding the Schichau works produce torpedoes, A.A. shells (probably for naval use), and other ammunition. They also construct bridge parts, steel pontoons, and ships' equipment. Several thousand workers are employed, including a large proportion of foreign labour.

### Otto Kuczewski

Nettelbeckstr.

(3)

To the East of Königsberg the river Pregel flows in two channels. On the South bank of one of these, the Alte Pregel, in the South-eastern quarter of the town, are the shipbuilding yards of Otto Kuczewski, where small steamers are built and repaired and boilers and ships engines constructed.

#### Engineering and Armaments

Steinfurt

Holsteinerdamm

(3)

The Waggonfabrik Steinfurt A.G. have their works on the North bank of the Pregel close to the Rathshof railway station. They are builders of railway wagons and passenger coaches. Their capacity in 1939 was estimated to be 2,000 standard 20-ton trucks per annum. In 1939 they employed some 1,200 workers, having increased their activity three-fold during the previous four years.

## KÖNIGSBERG (contd.)

Odinwerk

Aweider Allee

(-)

Food S

KÖNIGS

The Odinwerk Maschinenfabrik u. Giesserei Bartlick u. Rägler employed some 300 workers before the war and make M.V. components and machinery. The works are in the South-east quarter of the town.

Optische Werke Holstein

Königsberg

(3)

The Optische Werke Holstein are reported to have a factory in Königsberg making reflectors, aircraft detectors, and similar apparatus.

Oster & Co.

Weidendamm

(-)

This firm employed 200 workers before the war and manufactures high-pressure steel gas-cylinders.

Pertrix G.m.b.H.

Hermann Goeringstr. (-)

The Pertrix Ostpreussische Elemente u. Batteriefabrik G.m.b.H. are makers of small electric batteries and elements mainly for domestic use.

Viktoria Giesserei

Cranzer Allee

(-)

The Viktoria Eisengiesserei u. Maschinen-fabrik Fritz Wittmoser are iron founders and makers of gun parts. Their works are in the North-eastern suburb of Rothenstein.

## Textiles layon, Pulp and Paper

Feldmähle

Holsteiner Damm

(3)

Feldmühle

Sackheim

(3)

nention

The Feldmühle Papier u. Zellstoffwerke A.G. have two large factories in Königsberg which formerly belonged to the Koholyt A.G. Both these factories have a similar range of products and make sulphite pulp. One of these factories, known as the Cosse works, is on the North bank of the Pregel opposite the dock area and the other, known as the Sackheim works, is East of the town on the North bank of the Neue Pregel in the suburb of Liep.

KONIGSBERG (contd.)

#### Food Stuffs

Gustav Karow

Holsteiner Damm (-)

This firm is a flour mill with a pre-war estimated daily output of 100 tons, situated on the North bank of the Pregel opposite the dock area and near to the Pregel railway station.

Lagerhaus

Holsteiner Damm

(-)

The grain silos and food-storage ware-houses of the Königsberger Lagerhaus A.G. are adjacent to the Karow flour mill mentioned above. The silos had storage capacity for 60,000 tons of grain.

Kählhaus

str.

Holsteiner Damm

(-)

The large cold-storage warehouse and ice-making plant of the Königsberger Kühlhaus u. Kristall-Eis Fabrik A.G. is on the North bank of the Pregel close to the railway bridge.

Grain Silos

Industriehafen

(-)

Large grain storage warehouses are situated between the Industriehafen and the Freihafen.

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# KÖNIGSHULD (Silesia)

50° 45° N. 18° E: 785 miles:

Königshuld is ten miles North East of Oppeln on the river Malapane, a tributary of the Oder. Apart from the VOHAG works mentioned below, there are no other industries.

#### Engineering and Armaments

VOHAG

Königshuld

(3)

These works of the Vereinigte Oberschlesische Hüttenwerk A.G. comprise forging and pressing plant. Agricultural implements are the principal products of the Königshuld branch. Further details regarding the VOHAG are given under Gleiwitz.

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### KONSTANZ (Baden)

47° 40' N. 9° 10' E: 495 miles: (38,000)

Konstanz is at the Western end of Lake Constance at the point where the Rhine flows out of the lake. The town's railway connection with Germany consists of a branch line from Singen which at Konstanz joins the Swiss railway along the Southern shore of the lake. To the North Konstanz is cut off from the German shore by the North-western arm of the lake. The town extends into Switzerland and the frontier passes through the Southern suburbs. It is a health resort. The industries, which include book printing, textile fancy goods, and a few small chemical works, are unimportant, except for the works listed below.

#### Chemicals and Explosives

H. I. A. G.

Konstanz

(3)

Known by the name of Holzverkohlungs-Industrie A.G. (H.I.A.G.) this is a subsidiary undertaking of the Deutsche Gold- und Silberscheideanstalt. Before the amalgamation in 1926 H. I. A. G. headquarters were in Konstanz together with the research laboratories. Before the war the works were known to be engaged on producing chemicals based on ethyl alcohol as the raw material: this is presumed to have now ceased. Wood distillation was once carried out on a considerable scale but, in view of the present unimportance of this product, production of it may have ceased. This remains, however, an important centre for developing chemical processes.

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## KORNWESTHEIM (Warttemberg)

48° 55' N. 9° 10' E: 450 miles: (12,000)

Kornwestheim is five miles North of Stuttgart and two miles South of Ludwigsburg. It is an important railway marshalling centre for the Stuttgart goods traffic. The principal industry is a large boot and shoe factory and the engineering works mentioned below.

#### Transportation

Marshalling Yards

Kornwestheim

(2)

To the West of the town are large marshalling yards capable of handling 4,000 wagons per 24 hours. These are the largest yards serving the Stuttgart area which includes not only Stuttgart itself but also Ludwigsburg, Waiblingen, Böblingen and Sindelfingen.

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KORNWESTHEIM (contd.)

#### Engineering and Armaments

A. Stotz A.G.

Kornwestheim

(3)

These works include an iron foundry and forging shops and employed some 900 workers before the war. Their products include heavy chains and conveyors.

#### Leather

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Salamander A.G.

Kornwestheim

(3)

The Salamander A.G. are the largest German boot and shoe manufacturers. At their factory in Kornwestheim they are reported to employ some 3,000 workers, including a large proportion of foreign labour. The factory is alongside the railway, close to the Kornwestheim railway station.

# ----000-----

# KOSEL (Silesia)

50° 20° N. 18° 10° E: 800 miles: (15,000)

Kosel is on the right bank of the Oder 25 miles West of Gleiwitz. It is a railway junction of importance to the coalmining and heavy industries of Upper Silesia. There is a large inland harbour serving the waterborne coal traffic from Upper Silesia which is here loaded on to the Oder barges. The Klodnitz Canal (now renamed Adolf Hitler Canal), which was nearing completion in 1939, leaves the Oder at Kosel and leads to Gleiwitz where an extensive coal trans-shipment port has been constructed. This canal has probably reduced the importance of Kosel as regards coal trans-shipment but on the other hand Kosel has acquired additional value as an inland port owing to its proximity to the synthetic-oil plants at Blechhammer and Deschowitz.

#### Transportation

Inland Harbour

Kosel

(2)

The inland harbour is to the North of the town and consists of three docks entered from a basin cut out of the Eastern bank of the Oder. The docks are served by an extensive system of railway sidings and are capable of handling 3½ million tons per annum, 95% of which in peacetime was coal. The Klodnitz canal leaves the Oder immediately to the South of the dock area. A pipeline connects the Schaffgottsch'sche synthetic-oil plant at Deschowitz with the inland harbour of Kosel. Deschowitz is six miles to the North. Blechhammer, where there are 2 large synthetic-oil plants, is six miles East of Kosel and is situated on the Klodnitz Canal.

KOSEL (contd.)

Marshalling Yards

Kosel

There are large marshalling yards to the East of Kosel near to the small town of Heydebreck (or Kandrzin) two miles from Kosel itself. From these yards the sidings diverge which serve the inland docks.

Railway Repair Shops

Heydebreck

These are medium-sized repair shops undertaking the repair of goods wagons.

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## KÖSLIN (Pomerania)

54° 10' N. 16° 10' E: 710 miles: (33,000)

Köslin is on the main line from Stettin to Danzig approximately halfway between the two. It is eight miles from the Baltic and is the junction for a branch line which follows the coast Westwards to Kolberg. The town is mainly an agricultural centre. There is a small fish-canning industry, a paper factory, and two firms making agricultural implements and machinery; but none is of importance.

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## KOSWIG

See under COSWIG.

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#### KOTTBUS

See under COTTBUS

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# KÖTHEN (Anhalt)

51° 45' N. 12° E: 520 miles: (29,000)

Köthen is on the main line from Magdeburg to Halle and is six miles West of Dessau. A line from Dessau to Bernburg and Aschersleben crosses the main line at Köthen. The principal industry is the highly important Junkers works mentioned below. Köthen's other activities include sugar refining and a few small engineering firms.

#### Transportation

Railway Junction

Köthen

(3)

The line from Dessau joins the main North to South line in the Northern part of the town and the line to Bernburg diverges from it in the Southern part of the town. This East to West connection is the railway link between the Junkers works at Dessau, Köthen, Bernburg, and Aschersleben, a total distance of 30 miles. There are marshalling yards to the South of Köthen.

Railway Repair Shops

Köthen

(3)

These shops undertake the repair of goods wagons and locomotives.

## Aircraft and Aero Engines

Junkers

Köthen

(1)

The Köthen aero-engine works of the Junkers Flugzeug u. Motorenbau G.m.b.H. has for some years been the largest serial production unit for Junkers aero-engines. They have been primarily engaged on the production of the Jumo 211 engine, but there were signs in 1943 that they were turning over to production trials for newly developed designs. In 1942 they were reported to be employing 15,000 workers. Bernburg, the main Junkers assembly plant, is six miles to the West of Köthen.

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KRAIBURG

See under MUHLDORF

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## KREFEID (Rhineland)

51° 20° N. 6° 35° E: (170,000) 285 miles:

Krefeld lies on the west of the Rhine, some 15 miles N.W° of Düsseldorf, and is one of the most important railway junctions in Western Germany. In addition to mumerous secondary lines, four main lines meet at Krefeld, namely from Holland in the N.W., Belgium in the S.W., Düsseldorf in the S.E., and the Ruhr in the N.E.

Silk manufacture, of which Krefeld was the centre before the war, is now of secondary importance since the development of the Deutsche Edelstahlwerke A.G. which specialises in the production of special steel particularly for the aircraft industry. There are also several light engineering works.

Krefeld has been heavily damaged by bombing. The damage is concentrated in the centre of the town and in the area surrounding the Adolf Hitler Strasse and the West Wall.

The nearby town of Uerdingen is described under its own heading.

## Transportation

Marshalling Yards

Krefeld

These yards, lying near the main station, are at the South-eastern end of the Ruhr industrial area at the point where the very heavy East-West traffic from the Ruhr splits, part going &.E. to Collogne and the Rhine valley and part going S.W. to Aachen, and Belgium and France. The capacity of the yards before the war was 2,000 wagons per 24 hours.

Railway Repair Shops

Oppum

(3)

These workshops are situated in the Eastern suburb of Oppum. In 1927 there were 78 passenger coach and 130 wagon repair stands. In 1937 the number of employees was 1,200.

#### Public Utility Services

Gasworks

Krefeld

(3)

These gas works are owned by the Municipality and are situated within the built-up area of the town. In 1937 they purchased 62 million and sold 520 million cubic feet of gas.

KREFELD (contd.)

#### Iron and Steel

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nd

e also

(3)

Edelstahlwerke

Gladbacherstr.

(1)

The Deutsche Edelstahlwerke A.G. is a subsidiary company of the Vereinigte Stahlwerke A.G. of Düsseldorf: it is situated in the extreme South West of Krefeld. This works is a special steel producer 'par excellence' and among the fabricators concerned with the production of rolled nickel, used principally in the manufacture of annodes, sheets, rods, bars and tubing. The estimated productive capacity is believed to be 250 tons per annum. (222 tons were produced in 1938). It has two steel plants in Krefeld, whose combined capacity is estimated at about 250,000 tons per annum of openhearth and electric steel. The works is also one of the principal consumers of ferro-alloys. In 1937 there were some 6,000 workers. The factory has its own station and railway sidings.

## Engineering and Armaments

Dornbusch & Co.

Industriestr.

(-)

The engineering works of Dornbusch & Co. are situated in the Western quarter of the town, and employed some 250 workers in 1939 on the manufacture of various types of engraving machinery and presses.

J. Kleinewerfers Söhne

Industriestr.

(-)

This plant is adjacent to the Dornbusch works and made textile machinery. The company employed some 250 workers in 1939.

Carl Zangs

Oberdiessemerstr. (-)

The works of the Maschinenfabrik Carl Zangs A.G. are in the Southern part of the town immediately to the East of the Hauptbahnhof. They employed some 800 workers in 1938 on the manufacture of all types of looms and other textile machinery. Their present activity is not known.

Siempelkamp

Ritterstr.

(-)

G.Siempelkamp & Co. whose works are situated in the centre of the town, make hydraulic presses and other machinery for the textile and chemical industries. They employed some 400 workers before the war.

Titanit Hartmetall G.m.b.H.

Krefeld

(3)

KKJ

This is a subsidiary of Deutsche Edelstahlwerke of Krefeld (see under Iron and Steel). They manufacture carbides which are used in the manufacture of tips for machine tools.

Krefelder Stahlwerke

Krefeld

(3)

This firm is one of the chief manufacturers of rolling mills and rolling mill equipment. They specialise in the manufacture of rolls.

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## KRIMMITSCHAU

See under CRIMMITSCHAU

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## KRUMMEL (Schleswig Holstein)

See under Düneberg

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# KRUPPAMÜHLE (Silesia)

50° 35' N. 18° 35' E: 810 miles: (1,000)

Kruppamühle is in Upper Silesia 30 miles East of Oppeln and near to the railway station of Keilerswalde on a branch railway leading from Oppeln to Tarnowitz (in Poland) and within 3 miles of the former Polish frontier. Apart from the explosives factory mentioned below there is no industrial development but the pre-war population will now have been largely increased presumably by the erection of workers' camps.

#### Chemicals and Explosives

Lignose Sprengstoff G.m.b.H.

Kruppamühle

(2)

This factory is operated by the Lignose Sprengstoff G.m.b.H., but, owing to its inaccessible situation in Upper Silesia, there is very little up-to-date information regarding its activities.

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KRUPPAMUHLE (Contd.)

Lignose Sprengstoff G.m.b.H. (contd.)

The factory covers a large area and is believed to be well equipped; but, owing to its bad strategic situation in close proximity to the former Polish frontier, it does not appear to have been much used for military purposes until some time after the invasion of Poland. Ground reports since that date suggest that the factory has now become of great importance, and although there is no air reconnaissance to confirm this, the reports must be considered of substance in view of the strategic situation of the plant, which is now as favourable as it was at one time dangerous.

It has been reported that the factory manufactures hexanitrodiphenylamine, tetryl and T.N.T., and that it has its own nitric-acid plant. It has also been reported that the factory makes nitroglycerine and nitrocellulose. It is not common practice to manufacture high explosives and propellant explosives in the same plant, but since the Kruppamthle factory was used for many years for the production of mining explosives, it probably has a nitroglycerine plant, and for this reason a propellants section may have been developed.

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# KÜSTRIN (Brandenburg)

52° 35' N. 14° 40' E: 630 miles: (22,000)

Kästrin is situated 20 miles North of Frankfurt a. d. Oder on the right bank of the Oder, on the tongue of land formed by the junction of the tributary Warthe with the main stream. To the East of the town the channels of the Warthe form an extensive area of marshland. A large garrison was stationed in Küstrin before the war. It is on the main line from Berlin through Schneidemühl to Danzig and to Danzig and to East Prussia and is a railway junction of some importance. The town's activities are largely concerned with agriculture and there are some small engineering works making agricultural implements. A large cellulose factory which was recently built in Küstrin is mentioned below.

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# KUSTRIN (contd.)

### Transportation

Railway Junction

Küstrin

(3)

The main West to East railway passes over three bridges inside the town area, two across the Oder which at this point divides to form an island, and one across the Warthe. A second main line coming from the direction of Silesia along the right bank of the Oder crosses the Warthe by a fourth railway bridge and joins the main track in the Northern part of the town. This line continues Northwards, forming a direct route between Silesia and Stettin. Two further branch lines lead from Küstrin into the Eastern parts of Brandenburg.

Railway Repair Shops

Küstrin

(3)

These are medium sized repair shops undertaking the repair of goods wagons. Adjacent to the repair shops are marshalling yards and a goods station.

#### Textiles, Rayon, Pulp and Paper

Zellstoff Fabrik

Küstrin

(3)

Prior to the war the Zellstoff Fabrik Küstrin A.G. produced viscose staple fibre at the rate of 60 tons per day. The company was formed in 1936 with the object of erecting this new factory which first went into production in 1938.

## Food Stuffs

Kartoffelmehl Fabrik

Küstrin

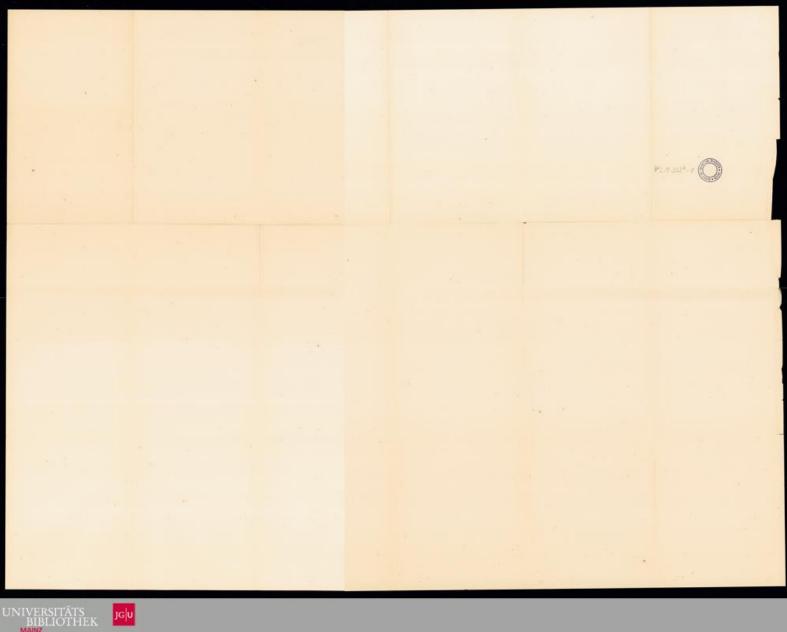
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The Norddeutsche Kartoffelmehl Fabrik G.m.b.H. are producers of potato flour, starch and other potato products.

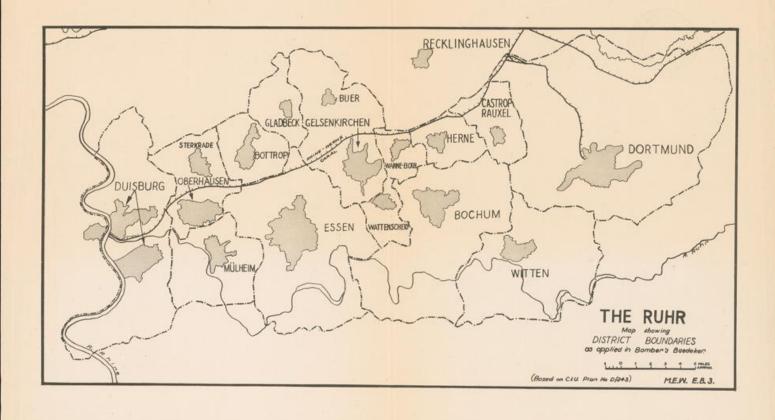
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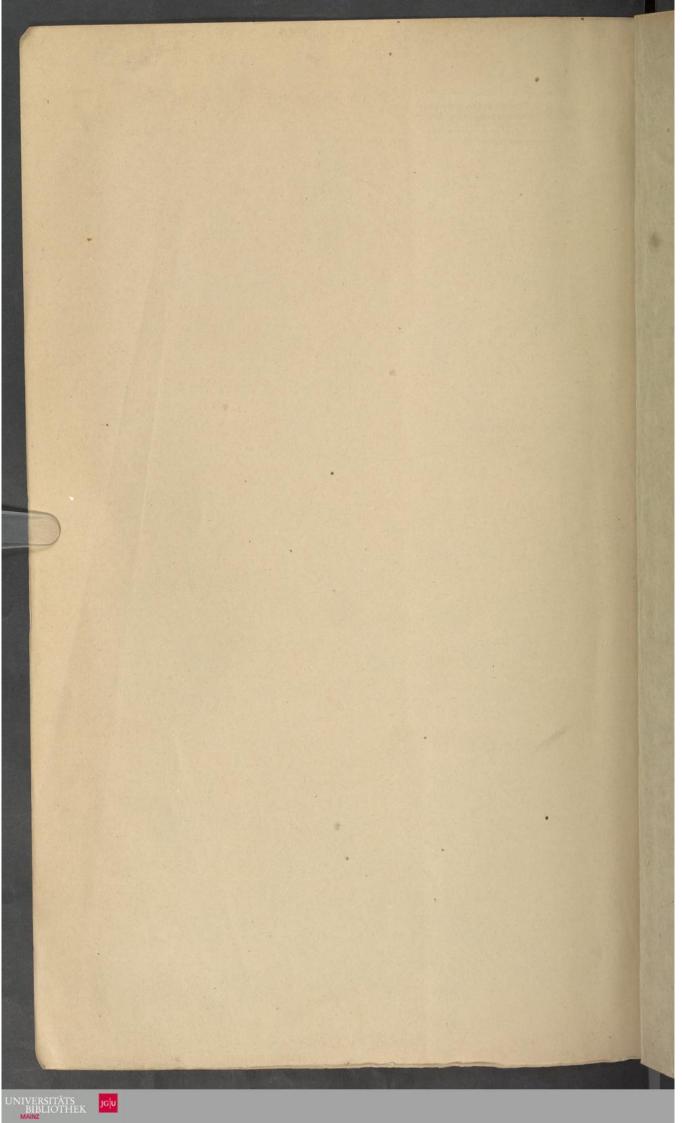


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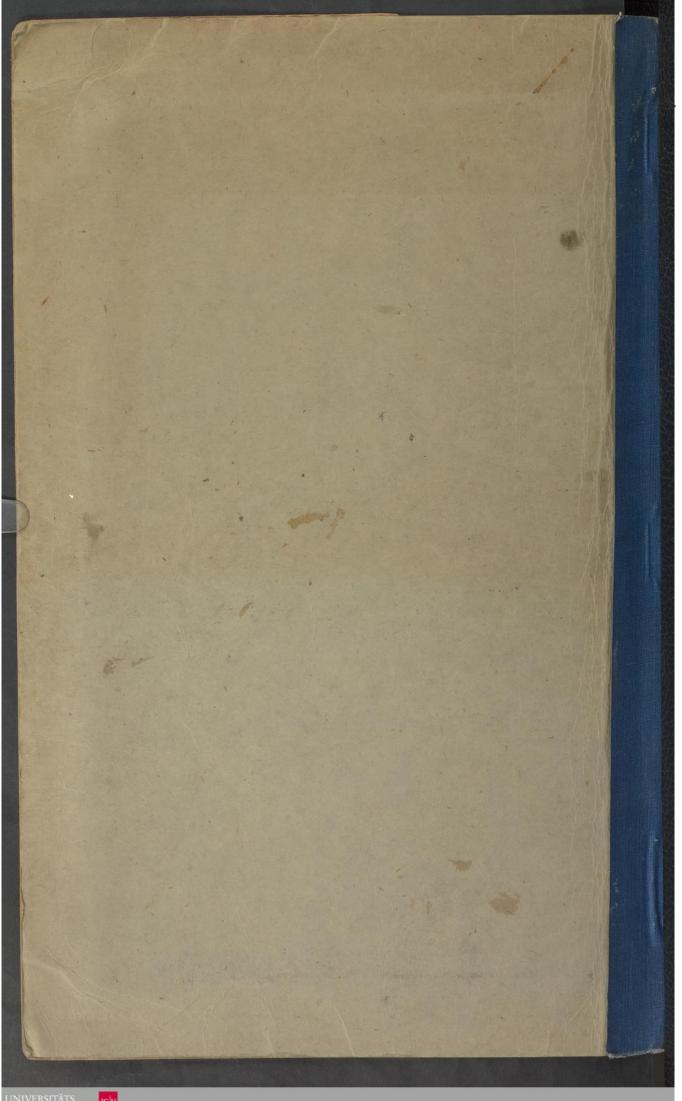
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## KRUPPAMUHLE (Contd.)

Lignose Sprengstoff G.m.b.H. (contd.)

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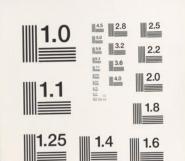


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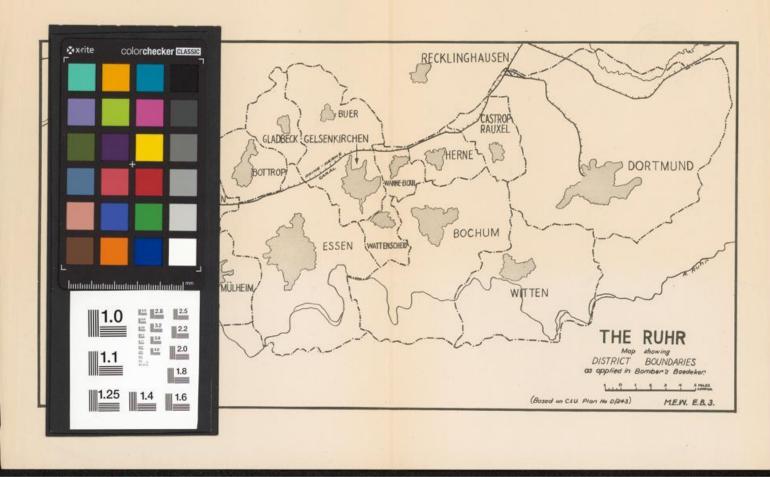
# TRIN (Brandenburg)

14° 40' E: 630 miles: (22,000)

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