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PETROLEUM FACILITIES OF BELGIUM AND LUXEMBOURG

PETROLEUM FACILITIES OF

B E L G I U M a n d L U X E M B O U R G

Prepared by

The Enemy Oil Committee

For the

Division of Fuels and Lubricants
Office of The Quartermaster General

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C O N F I D E N T I A L

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P L A C E N A M E S

French is the language most commonly employed in the eastern part of Belgium, while in the west Flemish is favored. However, in most of Belgium both languages are spoken. Consequently, the names of many places commonly are called by both their French names and the Flemish equivalent. In this report, wherever this is the case, as regards places where there are petroleum facilities, both names are given. Some order seemed essential, and we have chosen to show, in such cases, first the French, followed by the Flemish equivalent, wherever it exists, in parentheses.

BELGIUM

Place		Lat.(a)	Long.(a)	Province	
French	Flemish	N	E	French	Flemish
Angleur	---	50° 36'	5° 35'	Liége	Luik
---	Ampsin	50° 33'	5° 17' (P)	Liége	Luik
Anvers (b)	Antwerpen	51° 13'	4° 25'	Anvers	Antwerpen
Arlon	Aarlen	49° 42'	5° 49'	Luxembourg	Luxemburg
Beaumont	---	50° 15'	4° 15'	Hainaut	Henegouwen
---	Beeringen	51° 3	5° 14'	Limbourg	Limburg
---	Bertrix	49° 51'	5° 15'	Luxembourg	Luxemburg
---	Beveren	51° 13'	4° 15'	Flandre Orientale (f)	Oost Vlaanderen
Blankenberghe	Blankenberge	51° 18'	3° 8'	Flandre Occidentale(g)	West Vlaanderen
Bouvignes	---	50° 16'	4° 54'	Namur	Namen
Bruges (c)	Brugge	51° 2'	3° 14'	Flandre Occidentale	West Vlaanderen
Bruxelles (d)	Brussel	50° 52'	4° 22'	Brabant	---
Burght	Burcht	51° 12'	4° 21'	Anvers	Antwerpen
Charleroi	---	50° 24'	4° 28'	Hainaut	Henegouwen
Chercq	---	50° 35'	3° 24' (P)	Hainaut	Henegouwen
Courtrai	Kortrijk	50° 50'	3° 16'	Flandre Occidentale	West Vlaanderen
Curange	---	50° 56'	5° 17'	Limbourg	Limburg
---	Dolhain	50° 37'	5° 56' (M)	Liége	Luik
---	Doornzeele	51° 9'	3° 47' (M)	Flandre Orientale	Oost Vlaanderen
---	Ertvelde	51° 10'	3° 45'	Flandre Orientale	Oost Vlaanderen
---	Eelen	51° 4'	5° 45' (P)	Limbourg	Limburg
---	Eupen	50° 38'	6° 3'	Liége	Luik
Farciennes	---	50° 26'	4° 33'	Hainaut	Henegouwen
Furnes	Veurne	51° 3'	2° 40'	Flandre Occidentale	West Vlaanderen
Gand (e)	Gent	51° 3'	3° 45'	Flandre Orientale	Oost Vlaanderen
---	Graide	49° 58'	5° 2'	Namur	Namen
---	Haren	50° 54'	4° 25' (M)	Brabant	---
---	Hasselt	50° 56'	5° 21'	Limbourg	Limburg
Hemixem	Hemiksem	51° 9 '	4° 20' (M)	Anvers	Antwerpen

(a) Taken from "The Times Gazetteer of the World", The Times, Printing House Square, London E.C., 1922, except those marked "P" which do not appear in the "The Times Gazetteer" and were taken from "Philip's New Handy General Atlas and Gazetteer", London, 1930, and those marked "M" which appear in neither of the publications mentioned and were taken from various maps furnished by Army Map Service, May, 1944.

(b) English: Antwerp
(c) English: Bruges
(d) English: Brussels
(e) English: Ghent
(f) English: East Flanders
(g) English: West Flanders

PLACE NAMES (Continued)

Place		Lat.(a)		Long.(a)		Province	
French	Flemish	N		E		French	Flemish
Herseaux	Herseeuw	50°	43'	3°	14'	Flandre Occidentale	West Vlaanderen
---	Hofstade	50°	58'	4°	2'(P)	Flandre Orientale	Oost Vlaanderen
Iseghem	Isegem	50°	56'	3°	13'	Flandre Occidentale	West Vlaanderen
---	Kermpt	50°	57'	5°	15'	Limbourg	Limburg
---	Kierbrugge	51°	8'	3°	45'	Flandre Occidentale	West Vlaanderen
---	Landelies	50°	23'	4°	21'(P)	Hainaut	Henegouwen
---	Langerbrugge	51°	7'	3°	45'	Flandre Orientale	Oost Vlaanderen
Leffinghe	Leffingen	51°	11'	2°	53'	Flandre Occidentale	West Vlaanderen
---	Lichtervelde	51°	2'	3°	8'	Flandre Occidentale	West Vlaanderen
Liége	Luik	50°	38'	5°	35'	Liége	Luik
---	Lodelinsart	50°	26'	4°	27'(M)	Hainaut	Henegouwen
Longlier	---	49°	52'	5°	27'(P)	Luxembourg	Luxemburg
Louvain	Leuven	50°	52'	4°	43'	Brabant	---
Malines	Mechelen(b)	51°	2'	4°	29'	Anvers	Antwerpen
Marcinelle	---	50°	24'	4°	26'(M)	Hainaut	Henegouwen
Marloie	---	50°	12'	5°	19'(M)	Luxembourg	Luxemburg
---	Meerhout	51°	10'	5°	0'(P)	Anvers	Antwerpen
Molen-Beersel	Moolen-Beersel	51°	10'	5°	44'(M)	Limbourg	Limburg
---	Moll	51°	12'	5°	7'	Anvers	Antwerpen
Mons	Bergen	50°	27'	3°	57'	Hainaut	Henegouwen
Mouscron	Moeskroen	50°	45'	3°	10'(P)	Flandre Occidentale	West Vlaanderen
Namur	Namen	50°	28'	4°	53'	Namur	Namen
---	Neeroeteren	51°	5'	5°	42'(M)	Limbourg	Limburg
Nieuport	Nieuwpoort	51°	8'	2°	46'	Flandre Occidentale	West Vlaanderen
---	Ophoven	51°	8'	5°	48'	Limbourg	Limburg
Ostende	Oostende (c)	51°	13'	2°	57'	Flandre Occidentale	West Vlaanderen
Ougrée	---	50°	37'	5°	31'	Liége	Luik
Roeulx	---	50°	31'	4°	7'	Hainaut	Henegouwen
Rothem	Rotem	51°	2'	5°	45'(P)	Limbourg	Limburg
Roulers	Roeselare	50°	57'	3°	8'	Flandre Occidentale	West Vlaanderen
St. Servais	---	50°	25'	4°	52'(M)	Namur	Namen
---	Sclessin	50°	37'	5°	33'(M)	Brabant	---
---	Selzaete	51°	12'	3°	48'	Flandre Orientale	Oost Vlaanderen
Stavelot	Stablo	50°	23'	5°	57'	Liége	Luik
Theux	---	50°	33'	5°	49'	Liége	Luik
Thielt	Tielt	51°	0'	3°	20'	Flandre Occidentale	West Vlaanderen
Tournai	Doornik	50°	37'	3°	23'	Hainaut	Henegouwen
---	Vielsalm	50°	17'	5°	57'	Luxembourg	Luxemburg
Vilvorde	---	50°	56'	4°	26'	Brabant	---

(a) Taken from "The Times Gazetteer of the World", The Times, Printing House Square, London E.C., 1922, except those marked "P" which do not appear in the "Times Gazetteer" and were taken from "Philip's New Handy General Atlas and Gazetteer", London, 1930, and those marked "M" which appear in neither of the publications mentioned and were taken from various maps furnished by Army Map Service, May, 1944.

(b) English: Mechlin

(c) English: Ostend

PLACE NAMES (Continued)

Place		Lat.		Long.		Province	
French	Flemish	N		E		French	Flemish
Wevelghem	Wevelgem	50°	49'	3°	11'	Flandre Occidentale	West Vlaanderen
Wondelghem	Wondelgem	51°	5'	3°	43' (M)	Flandre Orientale	Oost Vlaanderen
Zeebruges	Zeebrugge	51°	19'	3°	12'	Flandre Occidentale	West Vlanderen

Grand Duchy de Luxembourg (Luxemburg)

Place		Lat.		Long.	
French	German	N		E	
Bertrange	---	49°	37'	6°	3'
---	Diekirch	49°	52'	6°	11'
---	Hollerich	49°	36'	6°	7'
Luxembourg(a)	Luxemburg	49°	37'	6°	8'

(a) "The Times Gazetteer" gives the English form as Luxemburg. However, it appears to be the practice of Americans engaged in European operations to spell it Luxembourg.

REVISION

Arrangements for the preparation and distribution of supplementary information pertinent to this report are contemplated. Request is made that advices concerning corrections and useful addenda for the report be sent to the

Director, Division of Fuels and Lubricants
Office of the Quartermaster General
Washington, D. C.

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PETROLEUM FACILITIES OF BELGIUM AND LUXEMBOURG

1.0 INTRODUCTION

1.1 GENERAL REMARKS

Scope.- This report is designed to describe briefly all significant aspects of the petroleum economy of Belgium and Luxembourg, and facilities pertaining thereto. With the exception of data concerning small Belgian distributing firms, the report is essentially complete.

Crude supplies.- There is no indigenous production of crude oil either in Belgium or Luxembourg, and the prospects of obtaining any are remote. Supplies of crude oil for the small refineries of the country were imported, mostly from the Caribbean area, Mexico and the United States.

Imports of products.- In 1938 the imports of products were 7,600,000 barrels, of which approximately 4,000,000 barrels were motor fuel, approximately 2,000,000 barrels were gas oil and distillate fuel, and 1,000,000 barrels were lubricating oil (a).

Refining.- There was some import duty advantage in refining in Belgium, and the excellent water communication system plus the central location of the country made it a convenient transshipment point for products for neighboring countries. Nevertheless, refinery production was small, amounting to 2,037,000 barrels in 1938.

Distributing.- Ocean terminal facilities owned by the various companies at Anvers (Antwerpen), the principal port of Belgium, were adequate. The interior bulk plants of the various marketing companies were adequate and well distributed throughout the country, with a particularly full utilization of water communication. There was an abundance of retail outlets, including both modern service stations and curb pumps.

Consumption.- The peacetime consumption of liquid fuels and lubricants in Belgium (b) was around 5,220,000 barrels a year. This does not include quantities transhipped to other countries.

Current situation: Supplies.- Importation of gasoline (from Germany) ceased in September, 1943 and current essential civilian liquid fuel requirements are at present supplied by substitutes, mainly illuminating gas. Lubricating oils, of very poor quality, continue to be imported from Germany.

1.2 COMPANIES OPERATING IN BELGIUM AND LUXEMBOURG

A table identifying the main companies engaged in the petroleum business in Belgium appears on page 10. Of these the most important were the companies affiliated with the Standard Oil Co. (N.J.) and the Royal Dutch Shell group. Detailed identification of the main American and British companies, including key personnel (c) follows:

(a) Wherever the word "barrel" appears in this report, a barrel of 42 U.S. gallons is meant.
(b) No record of the consumption in Luxembourg was available.
(c) In listing the individuals who have been associated with the various oil companies, it should be understood that, while these individuals may be looked to for information of possible value in their respective fields, in so far as concerns non-Americans no implication should be drawn as to their political sympathies or affiliations.

IDENTIFICATION OF COMPANIES OPERATING IN BELGIUM

COMPANY		AFFILIATIONS OF COMPANY	
Company	Address of Head Office of Company	Names of Owner Firms Majority Interests or Control	Address of Owner Firms
Antwerp Oil Wharves, Ltd.	Hemixem (Hemiksem; Anvers)(Managing Director in London, at Victoria House, Southampton Row, London, W.C.1.)	Several international oil companies	---
Atlantic Oil Storage Company, S.A.	2, avenue Marie Thérèse, Anvers (Antwerpen)	Atlantic Refining Company	Philadelphia
Bedford Petroleum Company, S.A.R.	19, avenue Rubens, Anvers (Antwerpen)	Standard American Petroleum Company	Anvers (Antwerpen)
Belgian Cracking Company, S.A.	31, rue de la Science, Bruxelles (Brussel)	Centrales Électriques des Flandres et du Brabant	Anvers (Antwerpen)
Belgian Gulf Oil Company, S.A.	97-99, avenue de France, Anvers (Antwerpen)	Gulf Oil Corporation	Pittsburgh, Pa.
Belgian Shell, S.A.	Shell Building, 47, rue Cantersteen, Bruxelles (Brussel)	Royal Dutch Shell group	London
Belgian Sun Oil Company, S.A.	107, avenue de France, Anvers (Antwerpen)	Sun Oil Company	Philadelphia
Belgo-Petroleum, S.A.	Terdonck	Several international oil companies through Credit Alliance Corporation	New York
British Lianosoff White Oil Co., Ltd.	20 East Cheap, London, E.C. 3.	Independent	
Compagnie Financière Belge des Pétroles (Pétrofina)	111, rue du Commerce, Bruxelles (Brussel)	Société Anonyme Nafta, Crédit Mobilier de Belgique, Société Générale de Belgique, Banque d'Anvers, Banque d'Outremer	Anvers (Antwerpen)
Compagnie Industrielle Atlas, S.A.	101, avenue de France, Anvers (Antwerpen)	Standard American Petroleum Company	Anvers (Antwerpen)
Compagnie Pétrolifère Nationale, S.A.	101, avenue de France, Anvers (Antwerpen)	Standard American Petroleum Company	Anvers (Antwerpen)
Deco, S.A.	18, Place Léopold, Anvers (Antwerpen)	Phoenix Oil & Transport Co., Ltd.	London
Établissements Eug. De Keyser	Anvers (Antwerpen)	Royal Dutch Shell group	London
Établissements Ferdin et Demets	Anvers (Antwerpen)	Royal Dutch Shell group	London
L'Alliance, S.A.	44 Kipdorp, Anvers (Antwerpen)	Anglo-Iranian Oil Co., Ltd.	London
Leysen et Pauwels, S.A.	Anvers (Antwerpen)	Independent	
Orion, S.A.	Anvers (Antwerpen)	Phoenix Oil & Transport Co., Ltd.	London
Purfina, S.A.	111, rue du Commerce, Bruxelles (Brussel)	Purfina, Société Cooperative du Pétrole transformed into a Société Anonyme	Anvers (Antwerpen)
Raffinerie Belge des Pétroles, S.A.	115, avenue de France, Anvers (Antwerpen)	British Lianosoff White Oil Co.,Ltd.	London
Raffinerie de la Belgian Shell Co., S.A.	Bruxelles (Refinery at Gand-Wondelghem)	Royal Dutch Shell group	London
Raffineries et Distilleries Anversoises, S.A., "Radian"	15, Installations Petrolifères, Anvers (Antwerpen)	Independent	Anvers (Antwerpen)
Redeventza, Société Anonyme Belge pour le Raffinage de Pétrole	36, rue d'Arenberg, Anvers (Antwerpen)	N.V. Europeesche Petroleum Maatschappij Redeventza, S.A.	Amsterdam Bucharest, Rumania
Shell Immeubles Belges		Royal Dutch Shell group	London
Sinclair Petroleum Company, S.A.	11, avenue des Arts, Bruxelles (Brussel)	Anglo-Iranian Oil Co., Ltd., through L'Alliance, S.A.	London
Société Anonyme d'Armement, d'Industrie et de Commerce	Bruxelles (Brussel)	Belgian Gulf Oil Co., S.A.	Anvers (Antwerpen)
Société Anonyme Belge d'Huiles et Vaselines	Bruxelles (Brussel)	Belgian Gulf Oil Co., S.A.	Anvers (Antwerpen)
Société Anonyme "Butagaz"	Bruxelles (Brussel)	Royal Dutch Shell group	London
Société Anonyme Entrepôts et Réservoirs	Anvers (Antwerpen)	Independent	---
Société Anonyme Belge des Huiles de "Créosote"	Anvers (Antwerpen)	Independent	---
Société Anonyme Huiles, Essences et Graisses Minérales	Anvers (Antwerpen)	Controlled by L'Alliance, S.A.	Anvers (Antwerpen)
Société Anonyme pour l'Importation des Huiles de Graissage	Bruxelles (Brussel)	Belgian Gulf Oil Co., S.A.	Anvers (Antwerpen)
Société Anonyme Tankwagon	Anvers (Antwerpen)	Affiliated with Tankage et Transport S.A.	Anvers (Antwerpen
Société Belgo-Luxembourgeoise des Carburants, S.A.	Bruxelles (Brussel)	Royal Dutch Shell group	London
Société Franco-Belge d'Entreposage de Pétrole	5, quai d'Herbouville, Anvers (Antwerpen)	Purfina, S.A.	Anvers (Antwerpen)
Societe Roumano-Belge de Pétrole	28, Str. Biserica Amzei, Bucharest (Paris Committee: 79, avenue des Champs-Elysées, Paris 8)	Prahova, S.A.	Bucharest, Rumania
Société Anonyme d'Entreposage et de Transports	Anvers (Antwerpen)	European Naval Stores	---
Standard American Petroleum Company (formerly American Petroleum Company, S.A.R.)	101, avenue de France, Anvers (Antwerpen)	Standard Oil Company (N.J.)	New York
Standard Luxemburgische Mineralöl-Gesellschaft	Hollerich, Grand Duchy of Luxembourg	Standard American Petroleum Company (controlled by Standard Oil Co. N.J.)	Anvers (Antwerpen)
Tankage et Transport, S.A.	15, Installations Pétrolifères, Anvers	Deco, S.A.	Anvers (Antwerpen)
The Texas Company, S. A. B.	47, avenue des Arts, Bruxelles (Brussel)	The Texas Company	New York
Transport and Trading Company	Anvers (Antwerpen)	Coal Trading Association	Rotterdam, The Netherlands
Vacuum Oil Company, S.A.R.	61-63 rue du Marche-aux-Herbes, Bruxelles (Brussel)	Socony Vacuum Oil Company, Inc.	New York

Antwerp Oil Wharves, Ltd.

Office address: Hemixem, Anvers (Antwerpen)
Ownership: Joint ownership several international oil groups.
Business: Public oil storage, including vegetable oils.
Key pre-war personnel: (1) C. H. Samuel, Managing Director in London, Victoria House, Southampton Row, London, W. C. 1, British. (2) L. G. Newman, Joint Manager (before war, resident at the installation), c/o Petroleum Board, Shell-Mex House, London, W. C. 2, British. (3) L. P. Wilson, Joint Manager, now working with the M.O.W.T. at Bombay, British. (4) J. van Hoof, Works Foreman, last known address: Hemixem, Anvers (Antwerpen), Belgian.

L'Alliance, Société Anonyme

Office address: 44, Kipdorp, Anvers (Antwerpen).
Ownership: Anglo-Iranian Oil Company, Ltd.
Business: Distribution of petroleum products in Belgium and Luxembourg.
Key pre-war personnel: Edouard Béganck, Managing Director, Belgian; V. Monjoie, Secretary, Belgian.

Belgian Shell, S. A.

Office address: 47, rue Cantersteen, Bruxelles (Brussel)
Ownership: Royal Dutch Shell group
Business: Marketing petroleum products.
Key pre-war personnel: Requested of Shell but not furnished.

Société Belgo-Luxembourgeoise des Carburants, S.A.

Office address: Bruxelles (Brussel)
Ownership: Royal Dutch Shell group
Business: Marketing petroleum products.
Key pre-war personnel: Requested of Shell but not furnished.

Bedford Petroleum Company, Société Anonyme Belge

Office address: 19, Avenue Rubens, Anvers (Antwerpen)
Ownership: Standard American Petroleum Company (all but a few shares).
Business: Marketing of lubricating oils and other petroleum products in Belgium.
Key pre-war personnel: (1) Charles Speth, Chairman of Board of Directors; (2) Jules Éd. van Dievoet, director (deceased).

Compagnie Industrielle Atlas, S. A.

Office address: 101, Avenue de France, Anvers (Antwerpen)
Ownership: Standard American Petroleum Company (all but a few shares).
Business: Refining and marketing of petroleum and its products in Belgium.
Key pre-war personnel: (1) Charles Speth, Chairman of the Board of Directors; (2) Thomas Bourhill, Director, 36 Queen Anne's Gate, Westminster, London, S. W. 1, British; (3) Louis van Hertbruggen, Director and Manager in Charge; (4) Paul Joris, Commissary.

Compagnie Pétrolifère Nationale, Société Anonyme

Office address: 101, Avenue de France, Anvers (Antwerpen)
Ownership: Standard American Petroleum Company (all but a few shares).
Business: No actual activities. Owns property operated by Standard American Petroleum Company.
Key pre-war personnel: (1) Charles Speth, Chairman of the Board of Directors; (2) Thomas Bourhill, Director, 36 Queen Anne's Gate, Westminster, London, S.W. 1, British; (3) Robert Anderson, Director; (4) Guillaume van Reeth, Director; (5) Paul Joris, Commissary.

Standard American Petroleum Company
(formerly American Petroleum Co. Société Anonyme Belge-
name changed August 17, 1938)

Office address: 101, Avenue de France, Anvers (Antwerpen)
Ownership: Standard Oil Company (New Jersey) has controlling interest.
Business: Marketing of petroleum and its products in Belgium.
Key pre-war personnel: (1) Charles Speth, Chairman of the Board of Directors; (2) Thomas Bourhill, Director, 36 Queen Anne's Gate, Westminster, London, S.W.1, British; (3) Yvan Maquinay, Director; (4) Bruno Klaare, Director, Netherlands citizen; (5) Robert Anderson, Sales Manager; (6) Jean Fr. Speth, Commissary; (7) Paul Joris, Comptroller.

Standard Luxembourgeische Mineralöl-Gesellschaft
(formerly Standard Luxembourgeoise des Pétroles--
name changed September 1940)

Office address: Route de Cessange, Hollerich, Luxembourg.
Ownership: Standard American Petroleum Company (Belgium) owns all but a few shares.
Business: Marketing of petroleum and its products.
Key pre-war personnel: (1) Charles G. Speth, Chairman of the Board of Directors; (2) Thomas Bourhill, Director, 36 Queen Anne's Gate, Westminster, London, S.W. 1, British; (3) Robert Anderson, Director; (4) Jacques De Bruyn, Director and Manager; (5) Paul Joris, Commissary.

Vacuum Oil Company S. A. B.

Office address: 61-63, rue du Marché-aux-Herbes, Bruxelles (Brussel)
Ownership: Socony-Vacuum Oil Company, Incorporated.
Business: Distribution and marketing of high grade lubricating products in Belgium and Luxembourg. A small bulk lube oil storage plant and warehouse was located at Anvers.
Key pre-war personnel: (1) A. D. de Maindreville, Manager (to 8/31/39), address unknown, French; (2) C. B. Todd, Manager (9/1/39 to 2/41), c/o Socony-Vacuum Oil Co. Inc., 20, rue de l'Horloge, Casablanca, French Morocco, American; (3) A. Archambaudière, Sales Manager, address unknown, French; (4) P. Ricard, Sales Manager, address unknown, French; (5) Y. Contant, Belgium, Chief Accountant and Office Manager, Belgian; (6) Mr. Nicolas, Superintendent of Antwerp Warehouse, Belgium, Belgian; (7) R. Durrieu, Supervising Manager of Paris office (Vacuum Oil Company, S.A.F.), France, French.

The Texas Company, Société Anonyme Belge

Office address: 47, Avenue des Arts, Bruxelles (Brussel). Phone: 12-31-80
Ownership: The Texas Company
Business: Marketing petroleum products
Pre-war operations: Distributing petroleum products, imported from The Texas Company U.S.A., through dealers or agents and direct to consumers. Bulk terminals or bulk depots at Anvers, Bruxelles, Farciennes, Gand, Iseghem, Kermpt, Liége, Luxembourg, Marloie, Mons, Namur and Ostende.
Key pre-war personnel: (1) Mr. J. E. Blake, Managing Director, The Texas Company, 135 East 42nd Street, New York 17, New York, American; (2) Mr. Georges Pichry, Assistant General Manager, address unknown, Belgian; (3) Mr. Ronald Gilson, Secretary (in charge of Accounting), address unknown, Belgian; (4) Mr. R. D. Wrigley, Superintendent of Operations, U.S. Armed Forces, American.

GEOLOGICAL AND STRUCTURE MAP

BELGIUM

LEGEND

WILDCATS

FAULTS

1 RECENT	12 TRIASSIC, UPPER
2 DILUVIUM & MORAINES	13 TRIASSIC, MIDDLE
3 PLIOCENE	14 TRIASSIC, LOWER
4 MIOCENE	CARBONIFEROUS, UPPER
5 OLIGOCENE	CARBONIFEROUS, LOWER
6 EOCENE	17 DEVONIAN, UPPER
7 CRETACEOUS, UPPER	18 DEVONIAN, MIDDLE
8 CRETACEOUS, LOWER	19 DEVONIAN, LOWER
JURASSIC, UPPER	SILURIAN, UPPER
JURASSIC, MIDDLE	SILURIAN, LOWER
JURASSIC, LOWER	22 CAMBRIAN
23 IGNEOUS	

0 25 50 75 100

KILOMETERS

CARTE GÉOLOGIQUE INTERNATIONALE DE L'EUROPE BERLIN, 1913

NORTH SEA

THE NETHERLANDS

GERMANY

FRANCE

BELGIUM

OSTEND (OOSTEND)

LEFFINGHE NO. 1

BRUGES (BRUGGE)

WOENSDRECHT

CALAIS

DUNKERQUE

ANVERS (ANTWERPEN)

LICHTERVELDE NO. 1

BEVEREN NO. 1

THIELT (TIELT)

GAND (GENT)

YPRES (IEPER)

ROULERS (ROESELARE)

MOLL NO. 1

MEERHOUT NO. 1

MOLEN-BEERSEL (MOOLEN-BEERSEL)

RUREMONDE (ROERMOND)

OPHOVEN

NEEROETEREN

COURTRAI

HAZEBROUCK

BEERINGEN

DIEST

LOUVAIN (LEUVEN)

TOURCOING

ROUBAIX

BRUXELLES (BRUSSEL)

SITTARD

HASSELT

LILLE

MAASTRICHT

BRABANT ANTICLINE

MONS (BERGEN)

ROUELX

VALENCIENNES

CENLY

THEUX

ARDENNE ANTICLINE

EIFEL SYNCLINE

GIVONNE ANTICLINE

SEDAN

LUXEMBOURG

LUXEMBOURG (LUXEMBURG)

2.0 PRODUCING

2.1 INTRODUCTION

While the major portion of Belgium lies in an extremely folded, faulted and metamorphosed zone, there is a small part of the country, the Campine monoclinal region of northeast Belgium, which possibly may contain accumulations of oil. In this region the flat lying, north dipping, Permian, Mesozoic and Tertiary sediments are found unconformable on folded Carboniferous and older formations. The Post-Carboniferous and Tertiary section is extensively block-faulted and this faulting could produce traps for migrating oil. It is also possible that highs in the Carboniferous or Cambrian-Silurian may have caused differential compaction in Post-Carboniferous or Post-Silurian beds, which may have resulted in the formation of structures. The presence of salt dome structures, which have been found oil productive in adjacent Germany, is also possible.

The search for petroleum in Belgium has not been extensive, nor have the results obtained from the few wells drilled been encouraging--no commercial oil or gas fields having been found. Prior to 1935, aside from two very shallow and unsuccessful tests for oil drilled near Mons, drilling in the country had been confined (a) to core holes drilled in search of coal measures in the Carboniferous or for salt in the Permian. However, the discovery in Germany in 1930 of oil in the Permian aroused interest in the northeastern part of Belgium, which is underlaid with Paleozoic-Mesozoic sediments. A total of five wildcat wells--all dry holes--was drilled, two in northeastern and three in northwestern Belgium during the period 1935-1940, to depths ranging from 300 meters to 2,050 meters (984 feet to 6,724 feet).

2.2 HISTORY OF EXPLORATION (b)

The first real wildcat oil well was drilled at Moll, in the eastern part of the Campine region. The drilling was directed by Mr. F. J. G. Vingerhoets (c) of Bruxelles (Brussel) who was financially backed by Baron Brugman de Walzin. The consultant for Mr. Vingerhoets was Dr. W. A. J. M. van Waterschoot van der Gracht, a petroleum geologist, well known in the United States.

Moll No. 1.- The well was spudded early in 1935 and had as its objective Paleozoic horizons. The location at Moll, chosen after geophysical investigations, is 23 kilometers north of Diest, with the Beeringen coal mines(northern-most of the Belgian coal mines) 14 kilometers northeast of Diest. The Moll well thus seemed far enough north to warrant the hope of finding a parallel to the advantageous relations that exist between the coal fields in the Appalachian Mountains and the Pennsylvania-New York oil fields. The top of the Paleozoic was expected at a depth of 1,000 meters, or 3,280 feet, and it was hoped to reach the objective at 2,100 meters (6,888 feet). Actually, the formations of interest were found at depths less than those expected, and the top of the Carboniferous was reached at a depth of 893 meters (2,929 feet). A fourth vein of good coal was encountered between 1,750 and 1,825 meters (5,740 and 5,986 feet). When the well reached a depth of 2,010 meters (6,592 feet), the drilling machinery broke down, necessitating a considerable outlay before operations could be resumed. At this time, Mr. Vingerhoets asked the Belgian government for a coal concession of about 3,200 hectares, or 7,904 acres, around this wildcat. The final depth of the well was 2,050

(a) Indeed, until the passage of petroleum legislation in 1939, there had been so little interest in petroleum exploration in Belgium that not only was there no petroleum law, but the Mining Law was not applicable to petroleum.
(b) Information supplied by courtesy of Standard Oil Co. (N.J.).
(c) F. J. G. Vingerhoets, Geophysical and Geological Research, 38, rue du Monastère, Brussel.

meters, or 6,724 feet. It had no oil shows and only the expected insignificant amounts of gas were encountered in the Tertiary formations. It was abandoned as a dry hole.

Beveren No. 1.- Shortly after Moll No. 1 was spudded, a small Belgian company called Les Bitumes Belges S.A. spudded a wildcat near the village of Beveren, 3 kilometers north-northeast of Roulers(Roeselare) in western Belgium. This well was abandoned in mid-1936 after reaching a depth of some 300 meters, or 984 feet. It is said to have had some gas shows.

Meerhout No. 1.- A second wildcat drilled under the direction of Mr. Vingerhoets is located 6 kilometers south-southwest of Moll No. 1. The well was spudded October 28, 1937. It is said to have penetrated the same formation as Moll No. 1, but ran structurally higher, which was to be expected, for this well is up dip from Moll No. 1. The well was believed to be near the top of the Carboniferous at a depth of 775 meters, or 2,542 feet. Meerhout No. 1 was drilled to a depth of 1,080 meters, or 3,542 feet, when the drill pipe stuck and all efforts to free it were unsuccessful. The rotary rig and equipment were transferred to Leffinghe (Leffingen) in the extreme western part of Belgium, in September 1938.

Leffinghe (Leffingen) No. 1.- The third wildcat drilled by Mr. Vingerhoets is located 6 kilometers south-southwest of Ostende (Oostende), on the English Channel. It was spudded in January 1939, and in May of the same year it found granite at 400 meters, or 1,312 feet. The well was then abandoned. The drilling equipment was still on location as late as March 1940.

Lichtervelde No. 1.- This well, situated 8 kilometers north-northeast of Roulers (Roeselare) was located with the aid of a "divining rod", and drilling was subsidized by the Belgian Government. It is not known when the well was spudded. Earliest available information reported it shut down in November 1937. Drilling was resumed in September 1938 with the hope of reaching a depth of 1,500 meters, or 4,920 feet. At 405 meters, or 1,329 feet, a stringer of quartz porphyry was found. The well is known to have reached the Llandoverian (Silurian). It was abandoned at a depth of some 580 meters, or 1,902 feet, in May 1939, for lack of funds.

The name of the operating company is unknown.

2.3 OIL PROSPECTS AND THEIR GEOLOGY (a)

The best prospects for oil production lie in the northeastern and eastern part of the country, where there are three areas worthy of consideration. They are as follows:

a) The Campine region, comprising the provinces of Anvers (Antwerpen), Northern Brabant and Dutch Limburg.

b) The Cretaceous basin of Mons.

c) The Foreland of the Midi fault which comprises the Dinant syncline.

2.3.1 Campine Region

Stratigraphy.- The surface formations are of late Tertiary and Pleistocene age. These beds were deposited in a geosyncline whose axis strikes east-west. The area was tilted in a northerly direction as these sediments were deposited. Surface dips to the north average about 15 feet to the mile.

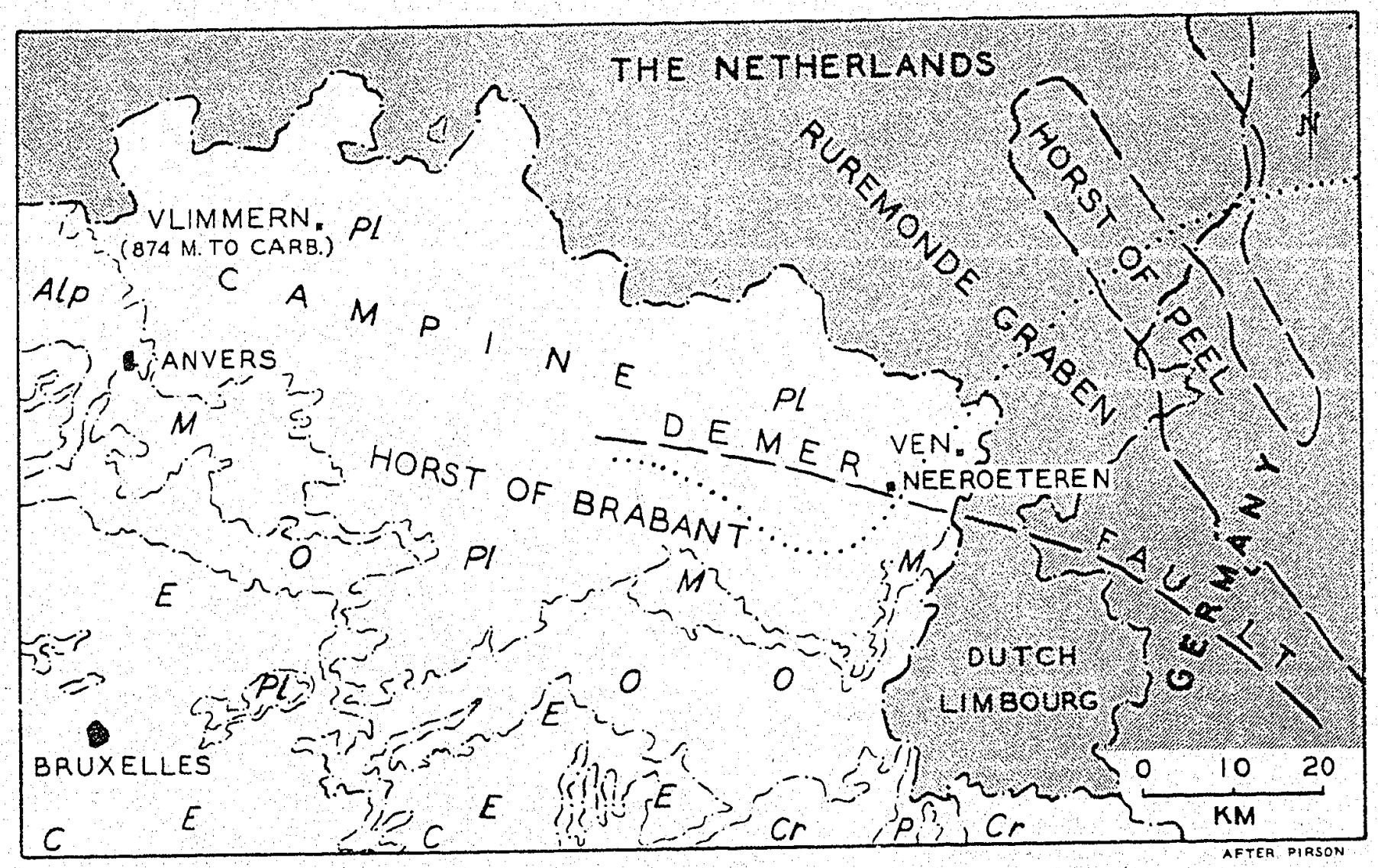
(a) Pirson, S. J. "Oil Possibilities in Belgium and Belgian Congo", American Association of Petroleum Geologists, Vol. 18, No. 9, September 1934.

STRATIGRAPHIC CHART, CAMPINE REGION (a)

System	Series	Formation	Characteristics	Approximate Thickness Feet	Meters
Pleistocene		Campinian	Sandy clays	75	23
Tertiary	Pliocene	Amstelian	Unconsolidated sands Lignites in places	900	274
		Scaldisian	Unconsolidated sands		
		Distian	Unconsolidated sands		
	Miocene	Anversian	Unconsolidated sands, gravel	30	9
		Bolderian	Unconsolidated sands, gravel		
	Oligocene	Chattian	Sand and gravel (glauconitic) Conglomerate Clay in south	250	76
		Rupelian	Clay Unconsolidated sand	?	?
		Tongrian	Sand and marl of continental facies Sand and marl of marine facies	730	222
	Eocene	Bartonian	Sand and clay	?	?
		Ledian	Sand and gravel		
		Bruxellian	Sand, unconsolidated		
		Ypresian	Sand and clay		
		Landenian	Continental: sand and lignite Marine: sand and sandstone; clay and gravel (foraminifers)	160	48
Cretaceous		Montian	Limestone, in places oölitic	25	8
		Maestrichtian	Tuff	160	48
		Senonian	Gray clay	17	6
Jurassic		Hettangian	Bituminous shales Limestones Numerous fossils	200	60
		Rethian	Limestone	50	16
		Keuper	Red shales and salt. Same facies as "Gyps Keuper" of Germany	270	82
Triassic		Conchylian limestone	The three corresponding facies of Germany are represented: 1. Hauptmuschelkalk (red rocks and anhydrite) 2. Anhydrit Gruppe 3. Wellenkalk (showing ripple marks)	270	82
Permian		Zechstein (?)	Dolomite Dolomitic limestone Conglomerate	?	?
Pennsylvanian		Coal measures		?	?
Cambrian			Quartzite	?	?

(a) Pirson op. cit.

Structure.- The Cambrian basement, on which the later Paleozoic, Mesozoic, and Cenozoic sediments were deposited, dips regularly in a northerly direction at the rate of about 90 feet to the mile. This platform is limited on the north by an abrupt displacement, the Demer fault, which marks the southern boundary of the Ruremonde (Roermond) graben (see figure below). In the latter, several parallel faults at Rothem (Rotem), Neeroeteren and Eelen (see page 19) gradually increases the depth to the Paleozoic in such a way that in the northern part of the Campine region the coal measures occur at an estimated depth of more than 1,829 meters, or 6,000 feet.

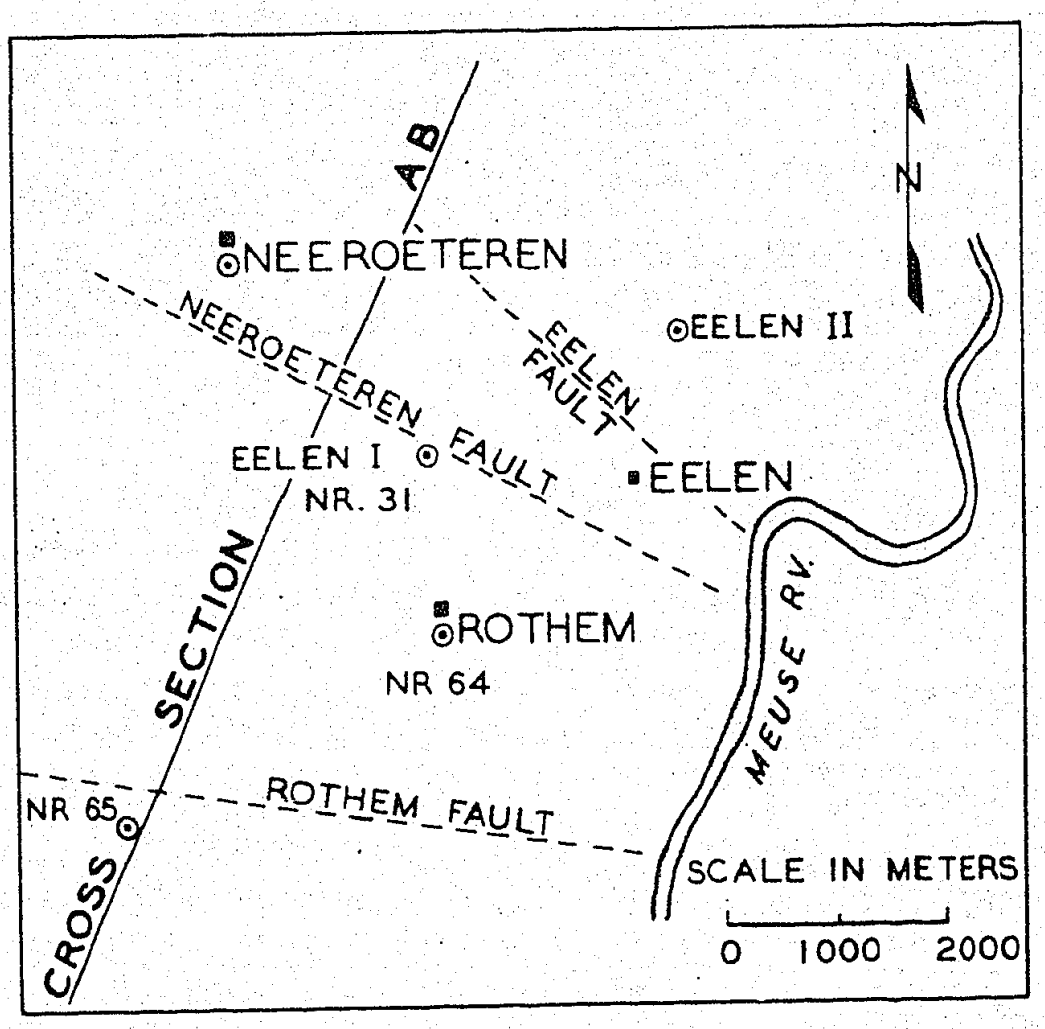


AREAL GEOLOGY OF CAMPINE REGION.

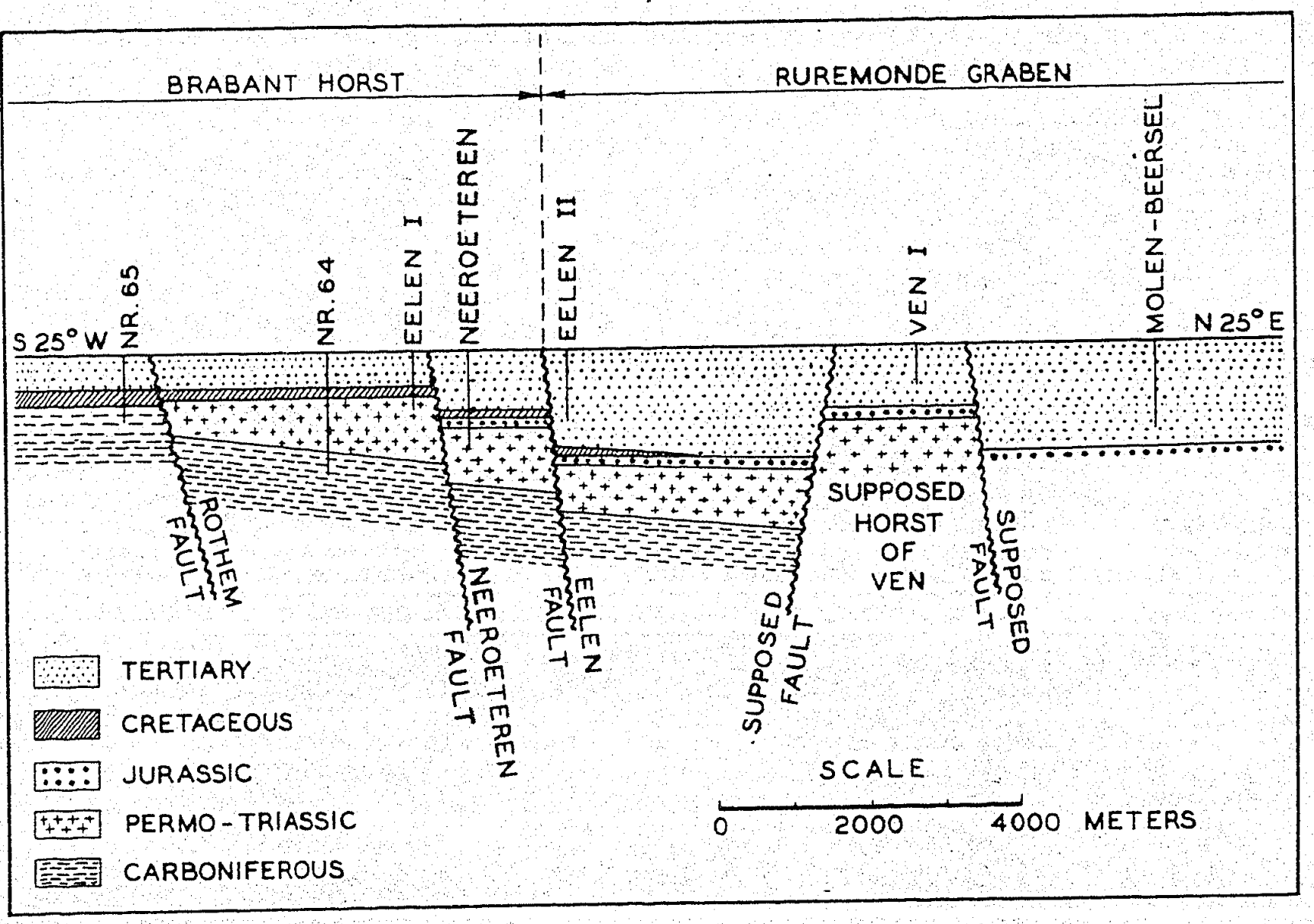
Alp = PLEISTOCENE *Pl* = PLIOCENE *M* = MIOCENE *O* = OLIGOCENE
E = EOCENE *Cr* = CRETACEOUS *P* = CARBONIFEROUS *C* = CAMBRIAN
.... = POSSIBLE LIMIT OF ZECHSTEIN FORMATION. —— —— —— = FAULTS

The vertical displacements in the late Paleozoic and younger formations are superimposed on folds and faults produced by the Hercynian movements (a). The latter structures strike in a direction at right angles to the general direction of the Ruremonde (Roermond) graben. In the Ruremonde graben it has been found by core drilling at Ven (b) that the upper Oligocene lies at a depth 328 meters, or 970 feet, which is much less than at Eelen and Molen-Beersel (Moolen-Beersel), located 6 kilometers north-northwest of Ophoven (732-884 meters or 2,400-2,900

(a) The Hercynian orogeny occurred at the close of the Carboniferous period. The orogeny formed a great inland Permian sea that extended from England across Northern Germany, and into Poland. Deposited in the deeper parts of this sea were the Zechstein salt deposits which are closely associated with the oil fields of Germany.
(b) The exact coordinates of Ven are not known. It is about 7 km. NE of Neeroeteren, approximately as shown on the diagram above.



FAULT SYSTEM OF CAMPINE REGION. AFTER STAINIER.



CROSS SECTION ALONG AB, AFTER STAINIER.

feet); consequently, there probably exists under the Ven region a horst similar to the one of Peel. However, there is no further proof of this other than the data supplied by the shallow drilling at Ven.

On the assumption that a close relationship exists between the geology and the structure of northern Belgium and the North German Plain, considerable drilling was carried on during the years from 1904 to 1909 by the Solvay Company under the direction of X. Stainier. These wells were drilled with the hope that large Permian salt deposits, similar to the Permian potash and salt deposits of Germany, might be discovered. The Solvay Company's program was stimulated when a coal company, prospecting for coal deposits in 1904, encountered some indications of salt in drillhole No. 28 at Beeringen. A campaign of drilling was then undertaken in search of salt, and seven holes were sunk in the Campine region by the Solvay Company. At Neeroeteren, the Hettangian (Jurassic) was reached at a depth of 701 meters, or 2,300 feet, proving the existence of Mesozoic bituminous shales. Red beds, undoubtedly of Permian age, were also encountered in this well, showing that the Zechstein (Permian) sea extended, in all probability, to the northern border of the Brabant anticline (see page 23). This test also proved the existence of block faulting in the Campine region, the trend of the faults being of the same general direction as those found in the neighboring countries.

Considerable subsidence has occurred between the horst of Brabant and the horst of Peel, the vertical throw being several thousand feet. The total amount of the throw is not known, as the bottom of the Ruremonde (Roermond) graben has not yet been reached by the drill.

Since oil has been discovered around salt-core structures in the North German Plains the existence of salt in the Campine region is considered a favorable sign.

Oil and gas possibilities.- A good potential source bed for petroleum is the Hettangian formation of Lower Jurassic age, which has a considerable horizontal extent. Although not very numerous, oil indications have been found in it, in the Campine region. In the drilling operations by the Netherlands government for coal measures in the Carboniferous at Woensdrecht, in western Netherlands, 26 kilometers north-northwest of Anvers (Antwerpen), this stratum yielding a strong bituminous odor was encountered just above the Carboniferous limestone. In the Dutch Limbourg (Limburg), a test made at Ratum (exact location unknown) demonstrated the existence of petroliferous impregnations in Carboniferous sandstones. Farther north, at Haarlem, 18 kilometers west of Amsterdam, an oil seep from an unknown horizon has been known since the Middle Ages.

The sediments from late Paleozoic to Recent in the Campine region are relatively undisturbed. It is probable that a magnetic survey in the northern part of the Belgian provinces of Anvers (Antwerpen) and Limbourg (Limburg) would reveal buried Cambrian-Silurian hills and possibly salt domes.

In addition to the possibilities of the Hettangian in the Campine region, Van der Gracht (a) feels that the Paleozoic section, particularly the Lower Carboniferous **Dinantian** (b) and the Paleozoic Permian are good prospective oil horizons (c). To illustrate this he states:

"The relationship between the Paleozoic geology of North America and Europe is strikingly similar. The only real difference is a matter of overburden. On much of the North American continent, Paleozoic rocks practically form the surface

---

(a) W. A. J. M. van Waterschoot van der Gracht, "Possibility of Oil and Gas Production from Paleozoic Formations in Europe". A. A. P. G. Vol. 20, No. 11, 1936, pp. 1476-1493.
(b) Dinantian of Mississippian age, also frequently called Culm, is productive in England at Hardstoft.
(c) In Belgium the Tertiary beds are water-bearing (Aquifers) or slightly gaseous; Cretaceous beds are wholly Aquiferous and Triassic formations are of a facies not favorable for oil source rock or reservoir.

(except in the north where they underlie a variable but not excessive cover of glacial Pleistocene sediments). This holds especially true for the foreland of the Appalachian Mountains, so well known for its oil fields. In Northern Europe, however, this foreland, extending from Northern Belgium and Holland through Northern Germany and into Poland, is buried under an extremely thick blanket of Mesozoic and Tertiary formations, and these in turn are buried under a thick layer of glacial drift. Consequently, the conditions on the foreland are heavily obscured in Europe, while in North America they are beautifully exposed and were easily observed.

Information on the Carboniferous has been gained only relatively near its outcrops, and further north in Holland the Carboniferous lies at depths probably exceeding 6,000 meters (19,680 feet). It is known that the Variscan folding, evident in the Brabant Anticline, gradually dies out northward and practically disappears in the Belgian Campine region. The Paleozoic section in the Belgian Campine region should comprise a more or less complete sequence from Upper Cambrian to Upper Permian inclusively, with a considerable gap in Lower and Middle Devonian (as in America) and probably a further gap at the top of the coal measures under the Upper Permian.

Unfortunately, the structure of the Paleozoic (in the Belgium Campine region) is complicated by a Mesozoic-Tertiary refolding of this deep-buried basin and its thick series of younger sediments. The Saxonian orogeny folded these Mesozoic-Tertiary sediments in a west-northwest strike, obliquely across the east to east-northeast Paleozoic (Hercynian) trend. These Saxonian folds can be traced in the basin from Poland eastward to Pennine axis in England.

It seems, therefore, that since facies and structure are very similar to the Appalachian foreland, with the exception of the second set of folds, Paleozoic accumulation could also be expected in Europe (in the Belgian Campine region).

The preceding considerations establish the fact that the Campine region of Belgium may be regarded as the best prospective petroliferous province in that country. However, the existence of commercial oil pools remains only a remote possibility.

2.3.2 Cretaceous Basin of Mons (Bergen)

Exploration for oil was carried on during 1928 and 1929 in the Cretaceous basin of Mons (Bergen). The incentive was the discovery of iridescent patches on the surface of the water at Thirieau du Sar (exact location unknown).

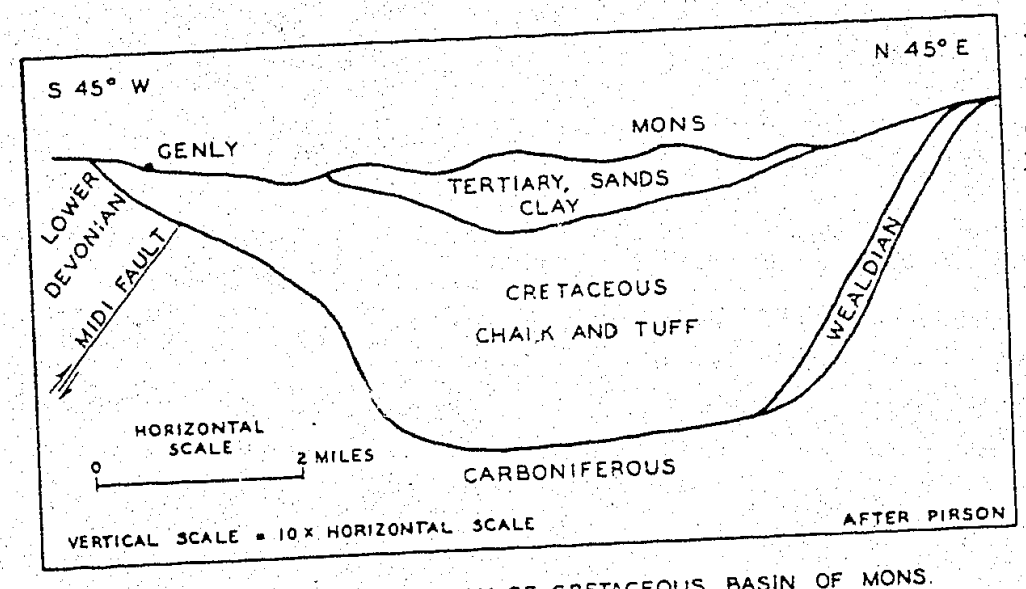
The search for oil was centralized around Houdeng Goegnies, 13 kilometers northeast of Mons, where it was believed that under the Cretaceous chalk at 519 meters (1,700 feet) there would be accumulation of oil. From the cross-section (page 22) it may be inferred that possible traps are lenticular sands in the Wealden of Lower Cretaceous age. Several shallow prospecting wells were drilled in this vicinity, namely at Mons du Sar (Sars-la-Bruyère?) on the Meuler farm (exact location unknown), which was abandoned at a depth of 30 meters (100 feet) after passing oil-impregnated sand; and at Roeulx, 12 kilometers northeast of Mons, which was abandoned at 15 meters (52 feet).

It is possible that oil may have migrated along the Midi fault from the overthrust sediments, since bituminous breccia is known to be present near Landelies, about 10 miles southeast of the Cretaceous basin.

The origin of the oil shows in the Cretaceous basin at Mons (Bergen) is an open question. If the hypothesis of migration along the Midi fault should be discarded as a result of future geological investigations, the basin must then be considered as being of an extent too small to justify the hope of discovery of oil in commercial quantities.

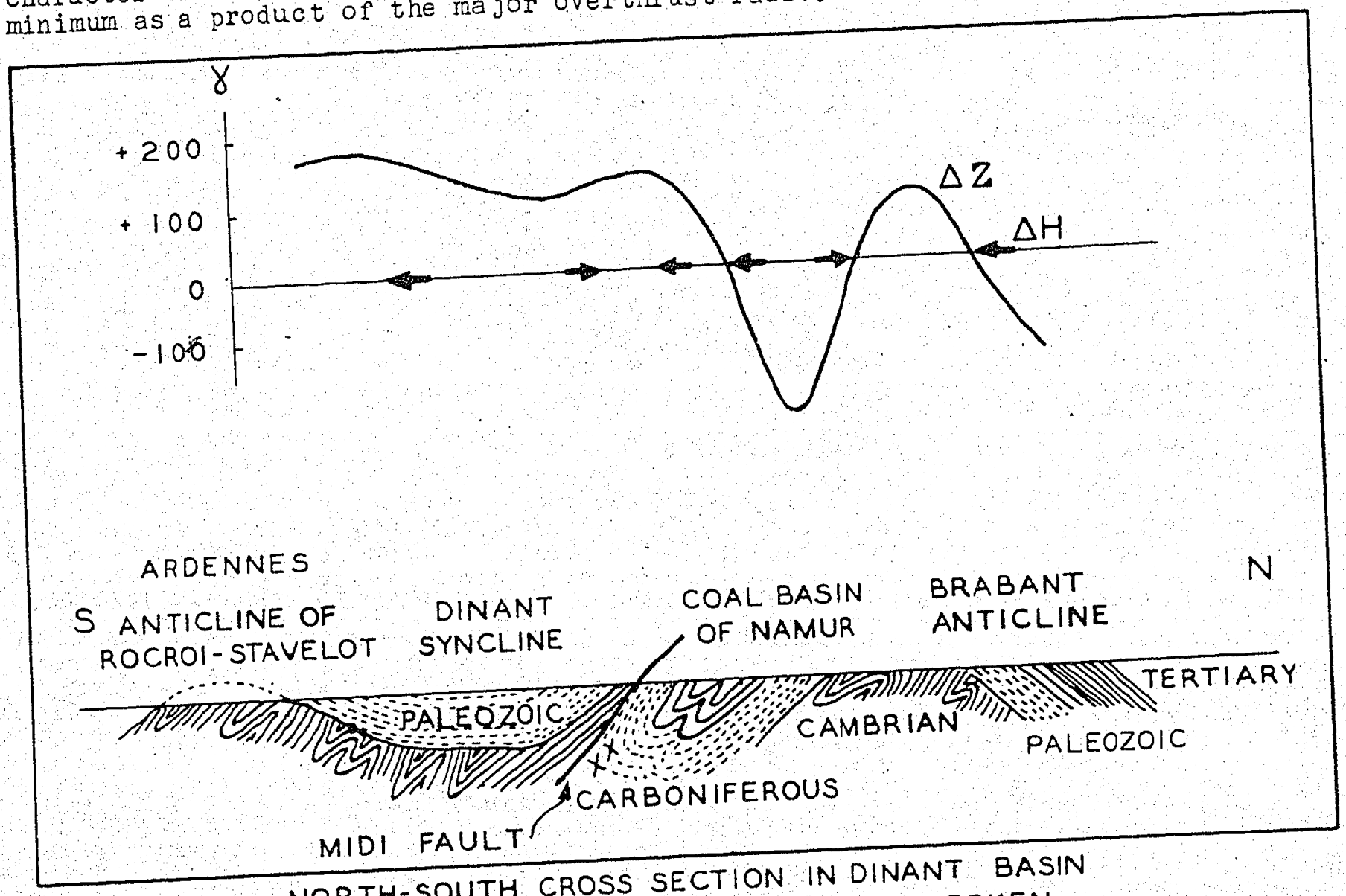
2.3.3 Dinant Syncline

Is is believed by some geologists and students of the Paleozoic formations of Southern Belgium that oil may be trapped under the thrust fault area (marked X in the diagram at the bottom of this page and at the bottom of page 23) known as the "Midi Fault", which extends eastward from Calais, on the English Channel, passing just south of Mons (Bergen), Namur (Namen) and Liége (Luik). This assumption is based mainly on the belief that the fault is of the low-angle thrust type, the displacement being 25 to 50 miles. In fact, it is possible to find locally horizontal planes of faulting in the regions of Namur (Namen), Landelies and Theux.

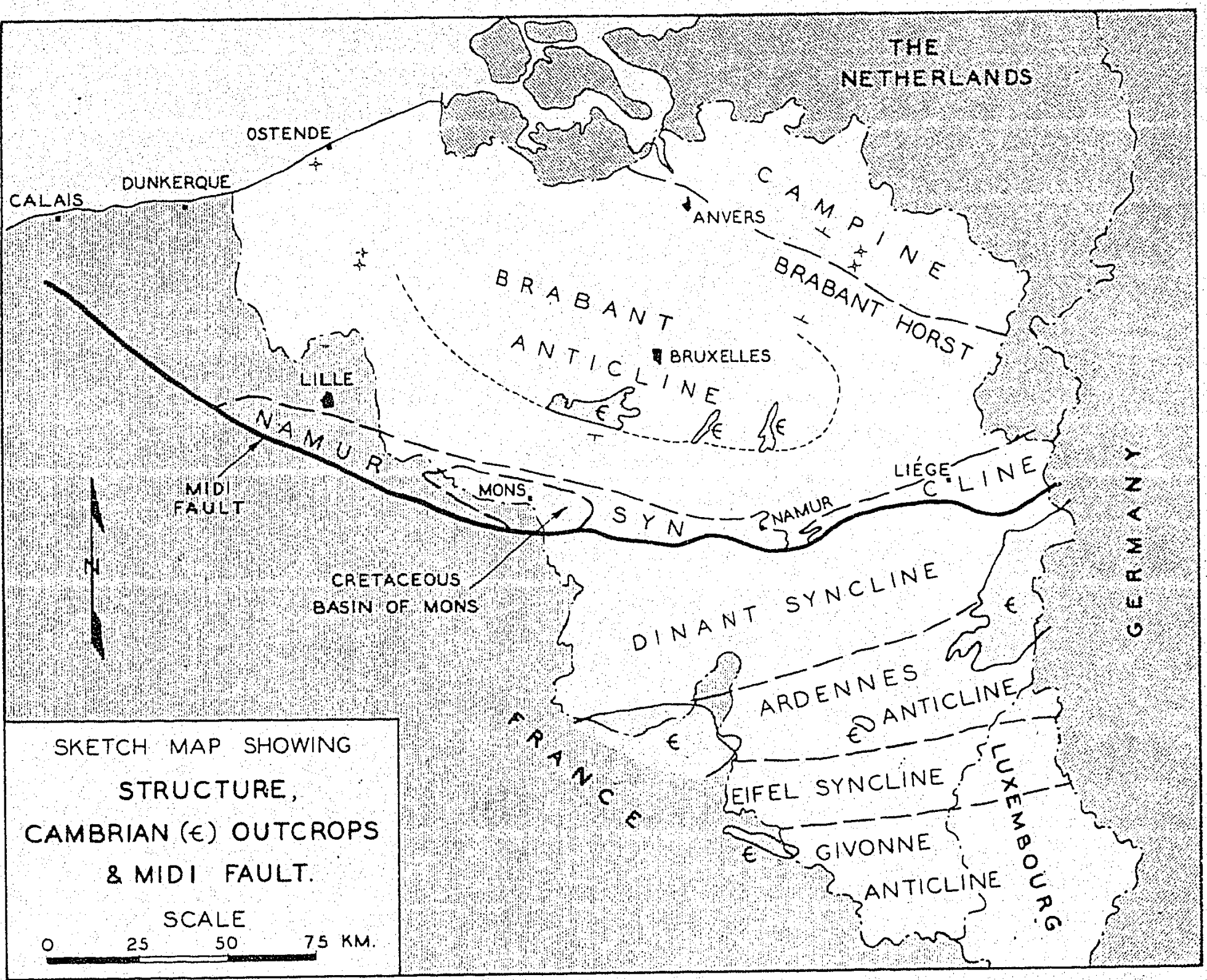


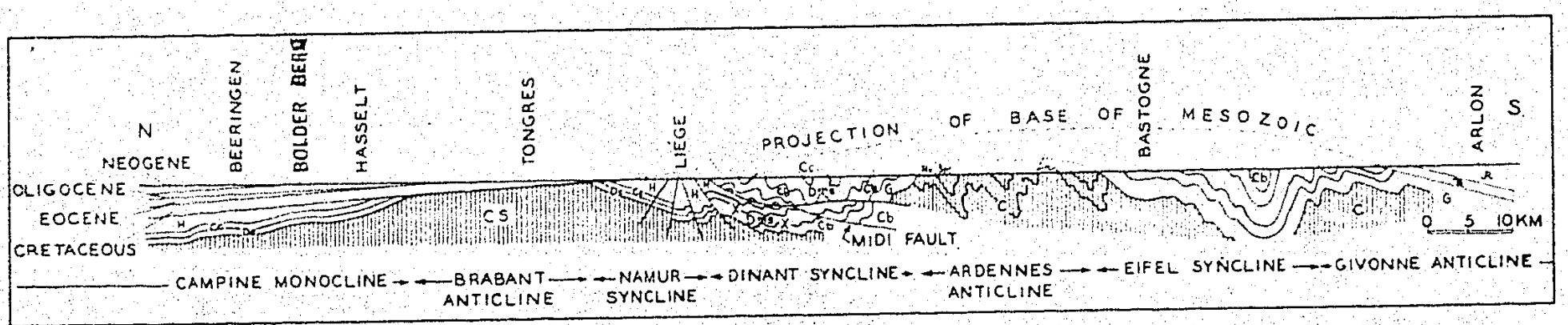
GENERALIZED CROSS SECTION OF CRETACEOUS BASIN OF MONS.

Magnetic measurements published by Merken led him to conclude that this assumption of the existence of a major low angle overthrust fault must be abandoned. He based his conclusions on the regularity of the vertical magnetic intensity low exhibited in the Namur (Namen) syncline area, and interpreted this regularity as an indication that the horizontal thrusting is purely a local phenomenon or the after-effect of intense compression, and is unrelated to structural effects at depth. Recent interpretive methods developed by petroleum geophysicists in the United States would not support Merken's conclusions as to the local character of the thrust faulting, but would interpret the Namur magnetic intensity minimum as a product of the major overthrust fault.



NORTH-SOUTH CROSS SECTION IN DINANT BASIN AND MAGNETIC ANOMALIES. AFTER MERKEN.





ZIG-ZAG PROFILE BETWEEN ARLON AND BEERINGEN.

LEGEND

J = JURASSIC	Cc = CARBONIFEROUS	Di = LOWER DEVONIAN	C = CAMBRIAN	Dsm = DEVONIAN, UPPER & MIDDLE
T = TRIASSIC	Ds = UPPER DEVONIAN	Cb = COBLENCIAN	Sm = SALMIAN	CS = CAMBRO - SILURIAN
H = COAL BEDS	Dm = MIDDLE DEVONIAN	G = GEDINNIAN	Rv = REVINIAN	

The formations lying under this major overthrust fault are undoubtedly compressed and folded to a high degree; therefore, it is safe to assume that the foreland area of the Midi fault does not contain petroleum in commercial quantities.

Concerning the Paleozoic of the Dinant syncline, above the Midi thrust fault, the folding is similar in intensity to that in the Appalachian Mountains, a condition which rules out the possible existence of important amounts of petroleum in the region.

2.4 SUMMARY OF GEOLOGY

The major structural features of Belgium (see figures 7 and 8) have a general east-west trend and are named as follows from south to north:

1. The Eifel Syncline
2. The Ardennes Anticline
3. The Dinant Syncline
4. The Namur (Namen) Syncline
5. The Brabant Anticline (Massif)
6. The Campine Region (monoclinal area)

The Eifel Syncline is composed of folded Middle and Upper Devonian and Lower Carboniferous strata.

The Ardennes anticline is formed of a closely folded series of Lower Devonian strata with some Cambrian beds exposed along the axes of the folds.

The Dinant syncline is filled with a thick series of Devonian beds and is overthrust to the north upon the Namur (Namen) syncline. This zone of overthrust faulting is known in the east as the Eifel overthrust and in the west as the Midi fault.

The Namur (Namen) syncline consists of complexly folded Carboniferous beds overlapped from the south by the overthrust Devonian beds of the Dinant syncline.

The Brabant Massif consists of closely folded Cambrian and Silurian beds overlain in part uncomformably by nearly flat-lying Upper Devonian and Carboniferous beds. Along the central portion, the Cambrian is directly overlain by Cretaceous beds. This ancient Brabant landmass was evidently a stable buttress against which the Devonian and Carboniferous basins to the south, with their thick series of sediments, were thrust and compressed into a complex series of folds.

The Campine monocline extending northeastward from the Brabant Massive has been little explored but it appears to have a Carboniferous basin filling which was later overlapped, in part, by Permo-Trias and Jurassic beds and thereafter extensively loaded with Cretaceous and Tertiary deposits. There is no evidence of folding, but block faulting is known from the few wells drilled in this area.

3.0 R E F I N I N G

3.1 INTRODUCTION

3.1.1 General Remarks

All available detailed information concerning the refineries of Belgium that could be summarized is included in the "Statistical Summary of Data on Refineries" on page 26. All the available deep-water port and discharge information has been shown on the corresponding "Summary of Data on Ocean and River Terminals" on pages 68 and 184 of the Distributing (4.0) section. Additional descriptive data are given, under appropriate headings, in the text in the following pages.

3.1.2 History

Until recent years the refining industry in Belgium was confined to the re-running of imported distillates and the manufacture of greases. However, in 1931, to encourage domestic refining the Belgian Government established a preferential excise tax and most of the important marketing companies built, during the period 1932-1935, small refineries to take advantage of this privilege. Perhaps the fact that the excellent water communications and the location of Belgium made that country a useful transshipment point for products for neighboring countries also made it convenient for the companies to build these small high-cost plants in Belgium. Further growth of the refining industry was interrupted by a decree published late in 1934 which greatly reduced the duty protection for operators of the refineries.

At the beginning of the present war there were seven refineries in Belgium with a total production, in 1938, of 2,037,000 barrels. Of these, four were near Anvers (Antwerpen) and three were near Gand (Gent). In addition, there were a few small plants manufacturing grease and producing special lubricating oils and asphalts.

Present Condition.- Except probably for some minor activity in the retreating of used lubricating oil all refineries are shut down for lack of feed stock. These plants have suffered less damage than would have been expected. All are considered operable and probably the throughput capacity of none has as yet been reduced more than 20 per cent of normal capacity.

3.1.3 Strategic Considerations

Value to enemy.- None except as reservoirs of material which might be dismantled and moved elsewhere.

Value to Allies if captured intact.- None, except as storage for imported products.

Importance in normal times.- Only that created by legislation encouraging local refining. Products manufactured abroad in large, low-cost refineries can be laid down in Belgium cheaper than they can be manufactured in these small plants.

Wartime use and extensions.- There have been no extensions. Plants are shut down except possibly for some isolated rerunning of used lubricating oils.

Effects of damage.- After successful bombardment, a period of six to nine months of active work would be required to repair these refineries. They are of little use to the Germans and since storage facilities captured in usable condition would be useful to the Allies, the utility of bombing these plants is not readily apparent.

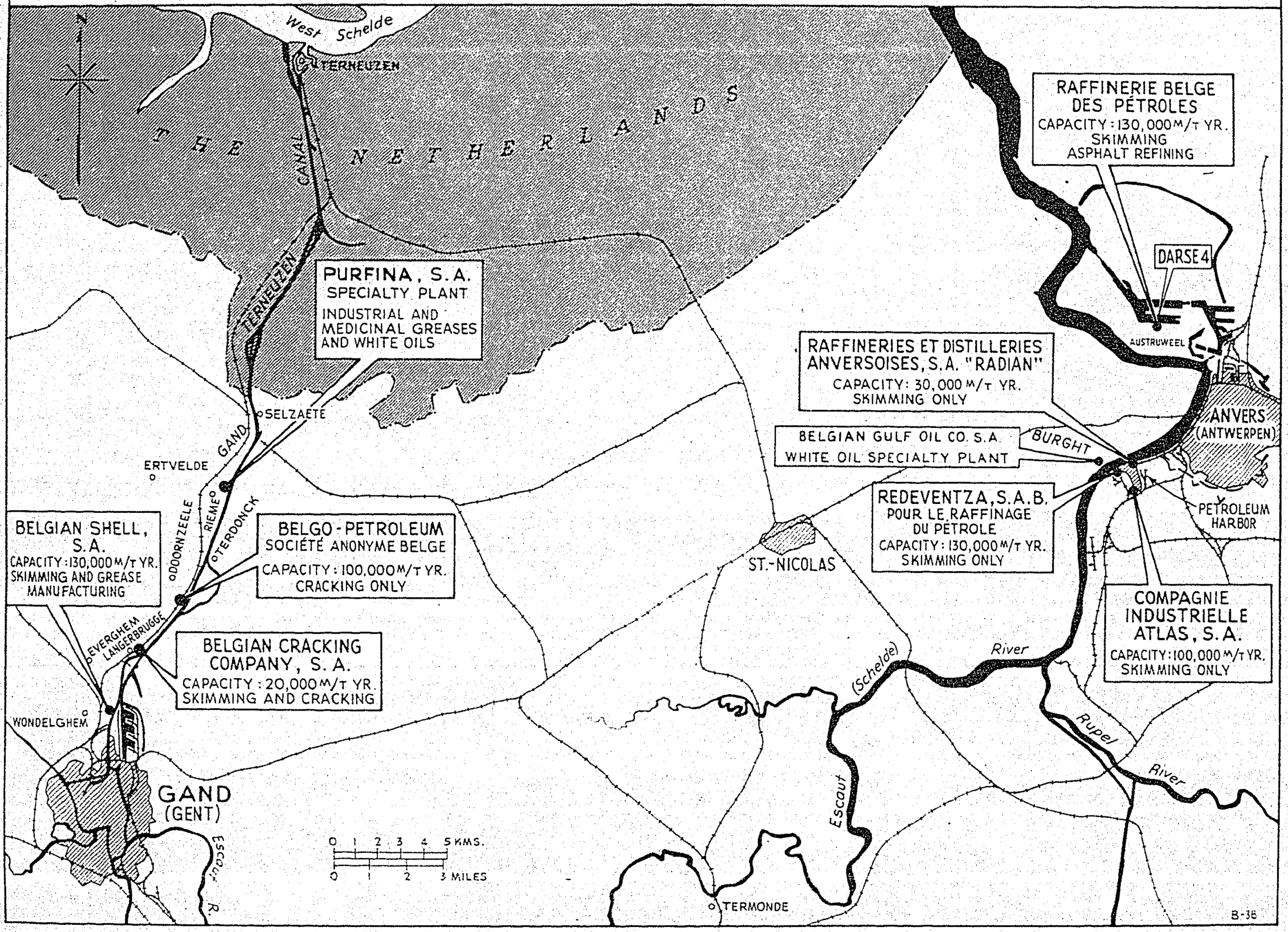
STATISTICAL SUMMARY OF DATA ON REFINERIES, BELGIUM

X = Data unknown

1. Common name of Refinery	Atlas-Hoboken	Redeventza	Raffinerie Belge	Radian	Belgian Cracking	Belgian Shell	Belgo Petroleum
2. Location of Refinery (a) Place	On the Escaut (Schelde) River, Petroleum Harbor, Anvers	On the Escaut (Schelde) River, Petroleum Harbor, Anvers	Anvers	Kiel (Anvers)	Gand-Langerbrugge--NE of Langerbrugge and SE of Heirbrugge N of railway	Gand-Oncelgem--Adjoining Terneuzen Canal N of the Nouveau Bassin	Terdonck
(b) Index Map Coordinates Lat.(a)	51°12'N	51°12'N	51°15'N	51°18'N	51°7'N	51°8'N	51°8'N
Long.	4°21½'E	4°21½'E	4°22'E	4°21½'E	3°45'E	3°46'E	3°46'E
3. Refinery Capacity: MT/yearly	100,000	130,000	130,000	80,000	2,000	130,000	100,00
Bbls daily	1,919	2,493	2,493		383	2,493	1,918
4. Damage	Approximately 1/5 of the tankage destroyed. Considered operable. No evidence of activity.	Approximately 1/5 of the tankage destroyed. Considered operable. No evidence of activity.	X	X	Intact. Air cover reveals no signs of activity.	Apparently undamaged. Sorties have detected no evidence of activity.	X
5. Refining Units (a) Crude distillation facilities	Shell Stills	Foster Wheeler pipe still	Shell Stills	Pipe Still	40 tons a day	Shell Stills Vacuum Pipe Still	None
(b) Cracking facilities	None	None	None	None	Dubbs Unit for about 17,000 T/Yr.	None	Jenkins Unit for about 100,000 T/yr
(c) Lube facilities	None	None	None	None	None	None	None
(d) Hydrogenation, Alkylation, etc.	None	None	None	None	Uhling & Florentin Unit (about 1930) ?	None	None
(e) Asphalt facilities	None	None	Asphalt only	None	None	None	None
(f) Gas Plant	None	None	None	None	None	None	None
(g) Specialties	None	None	None	None	None	Grease Manufacturing Facilities	None
(h) Boiler Plant	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(i) Power Plant	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6. Tankage Capacity:							
Black: M³	X	X	X	X	X	X	X
Bbls.	X	X	X	X	X	X	X
White: M³	X	X	X	X	X	X	X
Bbls.	X	X	X	X	X	X	X
Total: M³	16,000	46,000 (pre-war)	70,000	200,000 (pre-war)	10,984	46,000 (pre-war)	
Bbls.	100,800	289,800	441,000	1,260,000	69,200	289,000	
7. Construction: (a) When built	1925	Began operating Aug. 14, 1935	X	1934	X	Equipment brought in from Rouen refineries for orig.construction	X
(b) Built by what concern	Independent contractors	X	X	"Radian"	X	X	X
(c) Flow plans and working drawings in possession of whom	X	X	X	No flow plans available. (b)	Universal Oil Co., Chicago	X	X
8. Name of Company	Compagnie Industrielle "Atlas", S.A.	"Redeventza", S.A. Belge pour le Raffinage du Pétrole	Raffinerie Belge de Petrole, S.A.	Raffineries et Distilleries Anversoises, S.A. "Radian"	The Belgian Cracking Co., S.A.	Belgian Shell Company S.A.B.	Belgo Petroleum, S.A.
9. Address of Company	101, Avenue de France, Anvers	Anvers	115, Avenue de France, Anvers	Anvers	31, rue de la Science, Bruxelles	63, rue de la Loi, Bruxelles	Terdonck, Belgium
10. Affiliations of Company (a) Name (s) of owner firms	Standard Oil Co. (N.J.)	(a) Redeventza, S.A. (b) N.V. Europeesche Petroleum Mij.	British Lianosoff White Oil Co.	Tankage et Transport, S.A.	S. A. Centrales Electriques des Flandres et du Brabant	Royal Dutch Shell group	Credit Alliance Corp. The Texas Co. Royal Dutch Shell group, Standard Oil Co. (N.J.)
(b) Addresses of owner firms	30 Rockefeller Plaza, New York City, N. Y.	(a) Bucharest (b) Amsterdam	London	18, Installations, Petrolifères, Anvers	X	London	Anvers

(a) Latitudes and Longitudes taken from maps furnished by Army Map Service.
(b) Distillation Unit was supplied by Brünn-Koenigsfeld.

MAP SHOWING REFINERIES OF BELGIUM



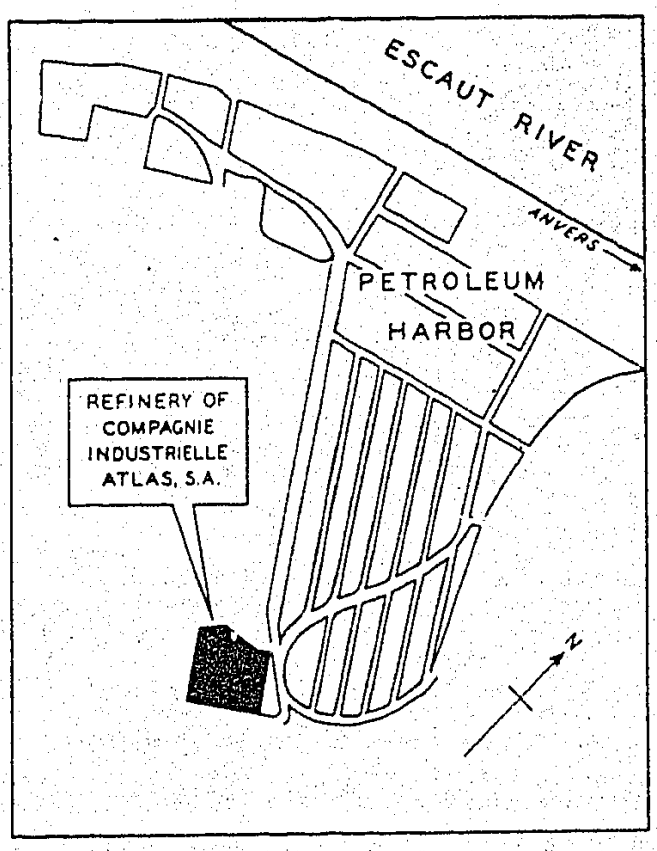
REFINING
Location map

3.2 REFINERY OF COMPAGNIE INDUSTRIELLE ATLAS, ANVERS (ANTWERPEN)

Identification.- This company is affiliated with Standard Oil Co. (N. J.). The plant occupies an area of 27,000 M^2.(6 acres) at the extreme southern end of the Petroleum Harbor area, just west of Anvers.

Plates and Tables.-

Item	Page	Item	Page
Plate showing view	29	Statistical Summary of Data on Refineries	26
Layout Plan	31	Statistical Summary of Ocean & River Installations	68



Summary description.- This is a small and simple refinery, producing gasoline, kerosine, gas oil and fuel oil, with a throughput capacity of 100,000 metric tons a year or 2,054 barrels per calendar day. This is an old plant which was modernized just before the present war. The distillation facilities consist of shell stills. There are neither cracking nor lubricating oil manufacturing facilities. Storage capacity is approximately 16,000 M^3 or 100,800 barrels.

Electric Power.- Produced at the refinery. Dynamos are steam-operated.

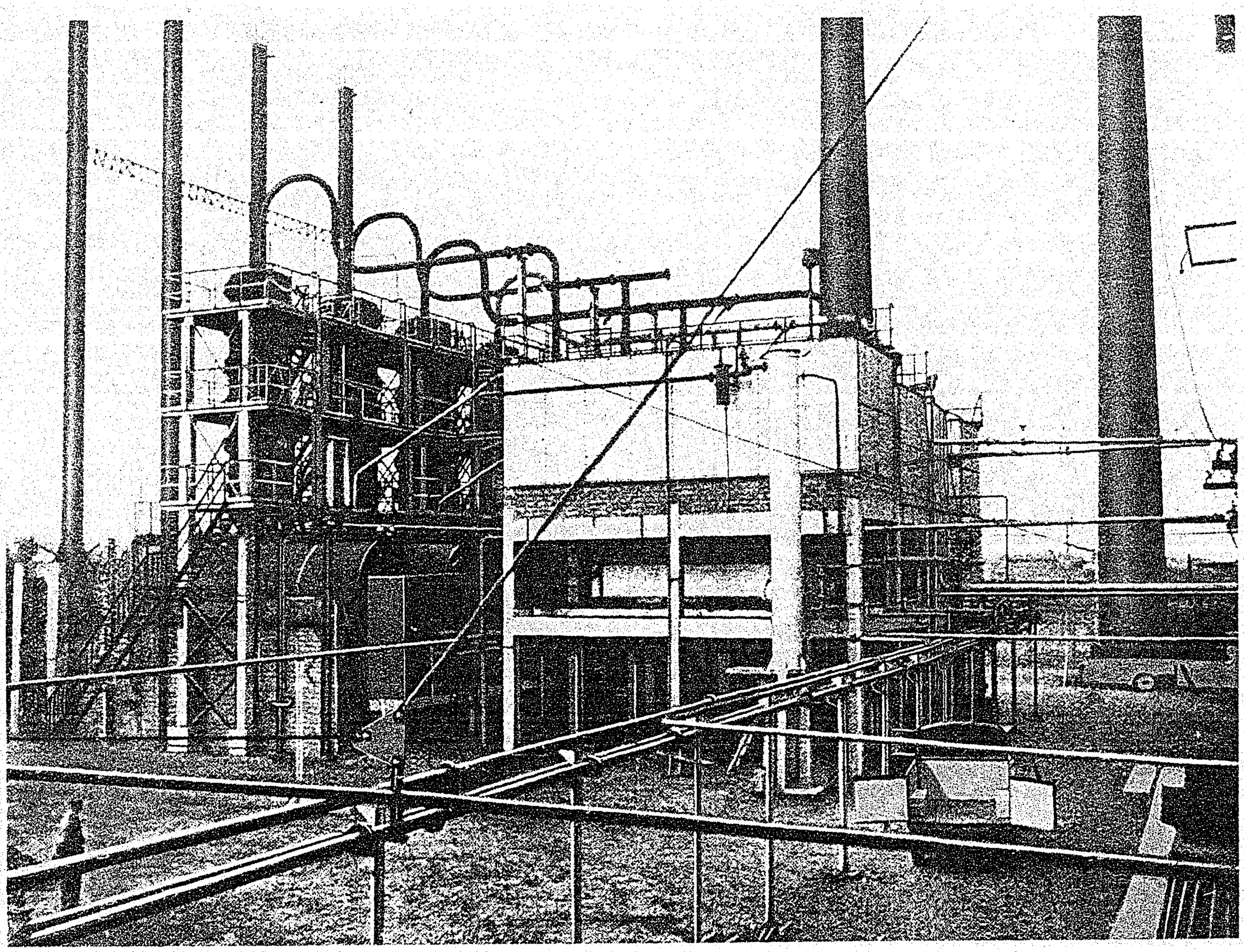
Buildings.- Construction of brick with tile roofs. concrete floors, steel doors and window sashes. There is a materials warehouse, office building, boiler house with two boilers, a machine shop, large warehouse for package goods, electric pumphouse. Plant protected by portable foamite extinguishers and steam.

Present condition.- No detailed information as to damage to this plant has been received. However, it was reported that approximately one fifth of all the installations in this area has been destroyed, and it is considered unlikely that this plant would have escaped unharmed. However, it has also been reported that the damage suffered was not sufficient to incapacitate the plants.

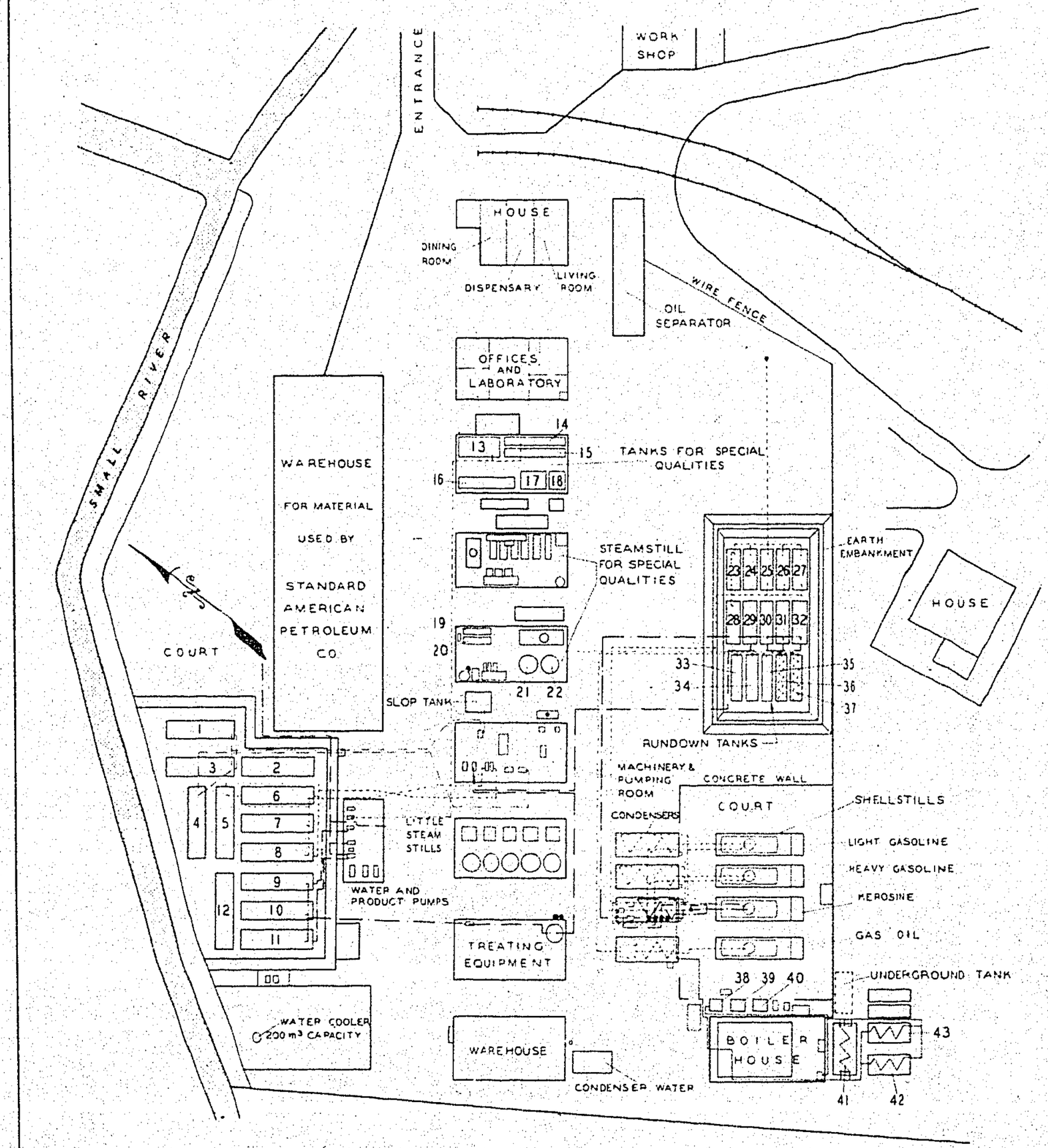
Areal reconnaissance has revealed no evidence of activity.

3.3 REDEVENTZA REFINERY, ANVERS (ANTWERPEN)

Identification.- This refinery belongs to "Redeventza", S.A. Belge pour le Raffinage du Pétrole, affiliated with the firms of Redeventza, S.A. of Bucharest and N.V. Europeesche Petroleum Maatschappij of Amsterdam. It occupies an area of 35,266 M^2 (9 acres) at the extreme western end of the Petroleum Harbor area, just west of Anvers.



REFINERY OF COMPAGNIE INDUSTRIELLE ATLAS, S.A., PETROLEUM HARBOR,
ANVERS (ANTWERPEN), BELGIUM



TANKS

TANK NO.	PRODUCT	CAPACITY M³	CAPACITY BBLS.
1	CRUDE	62	390.6
2	"	62	390.6
3	"	62	390.6
4	"	62	390.6
5	GASOLINE	62	390.6
6	"	62	390.6
7	"	62	390.6
8	"	62	390.6
9	WHITE SPIRIT	62	390.6
10	KEROSINE	62	390.6
11	"	62	390.6
12	SPECIAL GASOLINE	62	390.6
13	" "	20-	126
14	" "	26	163.8
15	" "	26	163.8
16	" "	26	163.8
17	" "	9	56.7
18	" "	9	56.7
19	" "	2.7	17
20	" "	2.7	17
21	" "	10.5	66.2
22	" "	9.5	59.9
23	HEAVY GASOLINE	26	163.8
24	" "	26	163.8
25	LIGHT GASOLINE	26	163.8
26	" "	26	163.8
27	" "	26	163.8
28	HEAVY GASOLINE	26	163.8
29	KEROSINE	26	163.8
30	"	26	163.8
31	"	26	163.8
32	"	26	163.8
33	WHITE SPIRIT	16.5	104
34	" "	16.5	104
35	" "	16.5	104
36	" "	16.5	104
37	" "	16.5	104
38	FUEL OIL	2	12.6
39	" "	2	12.6
40	" "	2	12.6
41	" "	70	441
42	GAS OIL	55	346.5
43	" "	55	346.5

LAYOUT PLAN

REFINERY OF

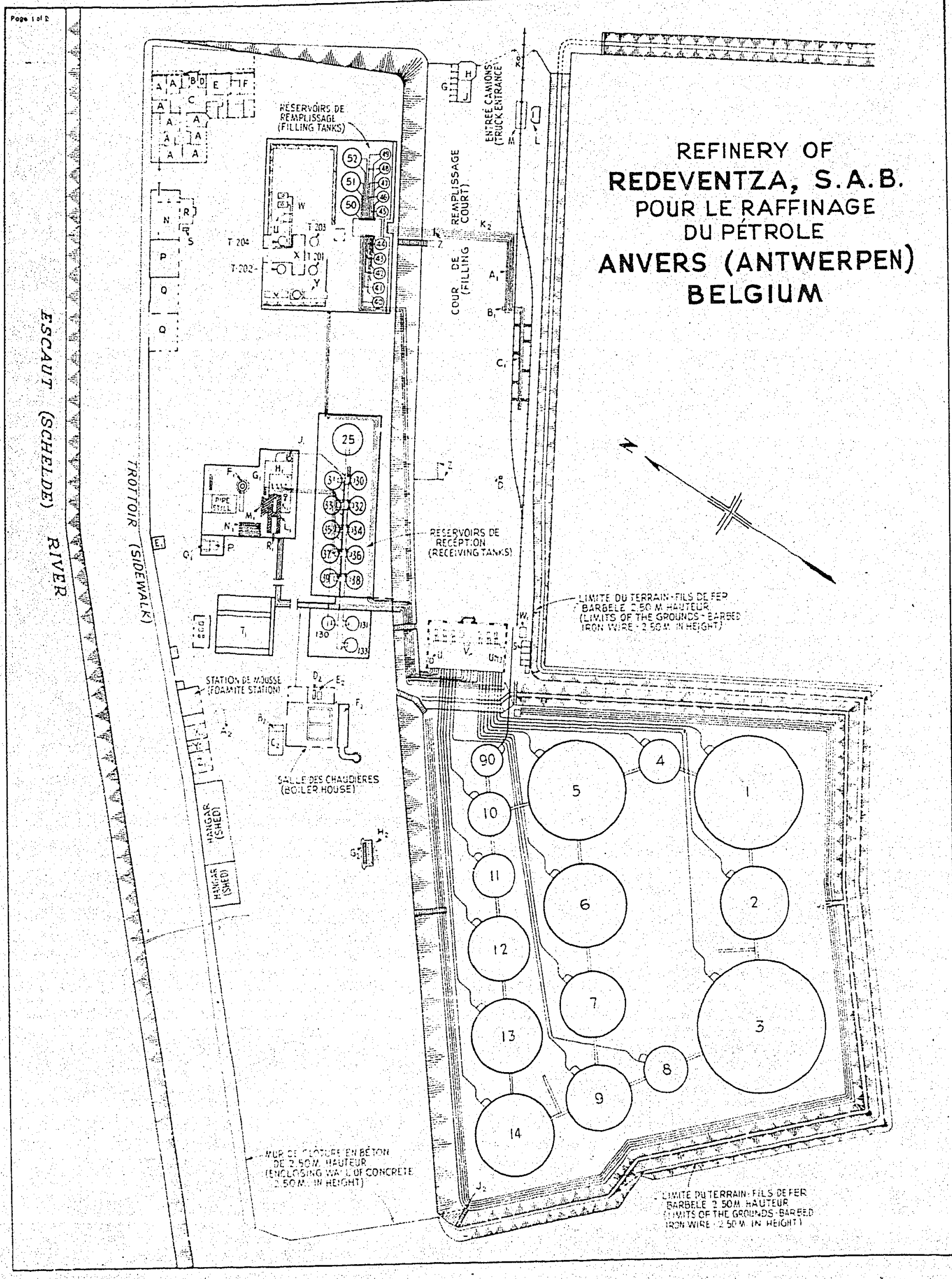
COMPAGNIE INDUSTRIELLE ATLAS, S.A

PETROLEUM HARBOR

ANVERS (ANTWERPEN)

BELGIUM

B 29


Page 1 of 2
REFINERY OF
REDEVENTZA, S.A.B.
POUR LE RAFFINAGE
DU PÉTROLE
ANVERS (ANTWERPEN)
BELGIUM
ESCAUT (SCHELDE) RIVER
TROTTOIR (SIDEWALK)
RESERVOIRS DE REMPLISSAGE (FILLING TANKS)
COUR DE REMPLISSAGE (FILLING COURT)
ENTRÉE CAMIONS (TRUCK ENTRANCE)
RESERVOIRS DE RÉCEPTION (RECEIVING TANKS)
STATION DE MOUSSE (FOAMITE STATION)
SALLE DES CHAUDIÈRES (BOILER HOUSE)
HANGAR (SHED)
HANGAR (SHED)
LIMITE DU TERRAIN - FILS DE FER BARBELÉ 2.50 M. HAUTEUR (LIMITS OF THE GROUNDS - BARBED IRON WIRE - 2.50 M. IN HEIGHT)
MUR DE CLÔTURE EN BÉTON DE 2.50 M. HAUTEUR (ENCLOSING WALL OF CONCRETE 2.50 M. IN HEIGHT)
LIMITE DU TERRAIN - FILS DE FER BARBELÉ 2.50 M. HAUTEUR (LIMITS OF THE GROUNDS - BARBED IRON WIRE - 2.50 M. IN HEIGHT)
PIPE STILL
T 201
T 202
T 203
T 204
1
2
3
4
5
6
7
8
9
10
11
12
13
14
90

Page 2 of 2

REFINERY OF
REDEVENTZA, S.A.B.
POUR LE RAFFINAGE DU PÉTROLE
ANVERS (ANTWERPEN)
BELGIUM

TANKS

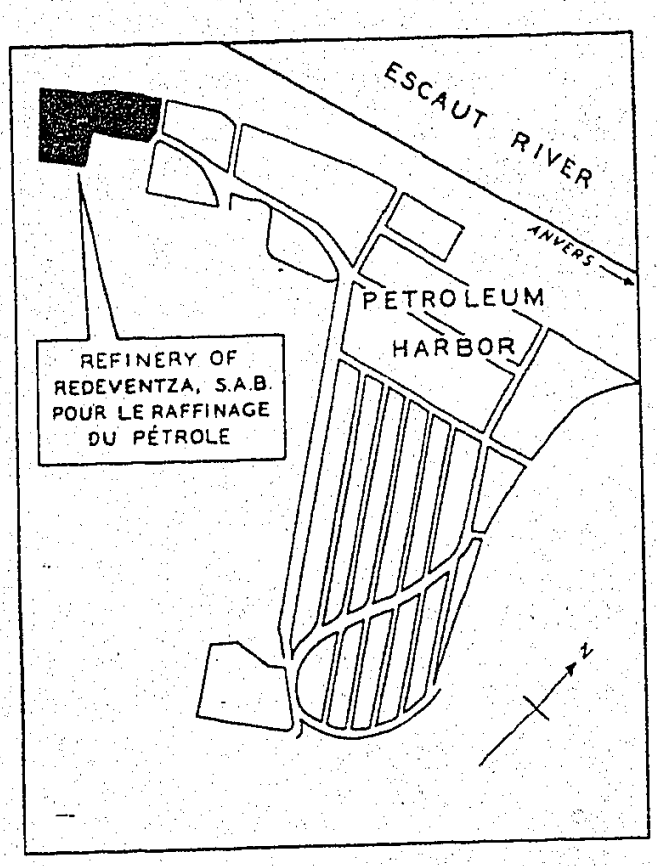
NO	CAPACITY		TOTAL CAPACITY		HEIGHT	DIAMETER
	M^3	BBLS	M^3	BBLS	IN METERS	IN METERS
1	6605	41,611.5	6605	41,611.5	10	29
2	2543	16,033.5	2543	16,033.5	10	18
3	8533	53,757.9	8533	53,757.9	10	33
4	950	5,985.0	950	5,985.0	10	11
5	4908	30,920.4	4908	30,920.4	10	25
6	3141	19,788.3	3141	19,788.3	10	20
7	2010	12,663.0	2010	12,663.0	10	16
8	950	5,985.0	950	5,985.0	10	11
9	2010	12,663.0	2010	12,663.0	10	16
10 - 11	950	5,985.0	1900	11,970.0	10	11
12	2010	12,663.0	2010	12,663.0	10	16
13	2545	16,033.5	2545	16,033.5	10	18
14	3141	19,778.3	3141	19,778.3	10	20
25	442	2,784.6	442	2,784.6	10	7.5
30 to 39	47.7	300.5	477.0	3,005.0	3	4.5
40 to 49	34.4	216.7	344.0	2,167.0	7	2.5
50 to 52	159.0	1,001.7	477.0	3,005.1	10	4.5
90	442	2,784.6	442	2,784.6	10	7.5
130 - 131	20	126.0	40	252.0	2.08	3.5
133	20	126.0	20	126.0	2.08	3.5
TOTAL			43,488.0	273,976.7		

LEGEND

A - Bureau	Office
B - Entrée	Entrance
C - Hall	Hall
D - Concierge	Doorkeeper
E - Salle à Manger	Dining Room
F - Cuisine	Kitchen
G - Abri Pour Outillage	Tool Shed
H - Expédition	Shipping
J - Accises	Excise
K - Pylone de Projecteur	Projecting Pylon
L - Bascule	Scale
M - Pont à Peser	Track Scales
N - Laboratoire	Laboratory
P - Magasin	Warehouse
Q - Atélier	Workshop
R - Ingénieurs	Engineers
S - Intercepteur d' Huile	Oil Interceptor
T - Agitateur	Agitator
U - Traitement Chimique Continu	Continuous Chemical Treatment
V - Réservoir d' Hypo	Hypo Reservoir
W - Salle des Pompes	Pump Room
X - Traitement Chimique	Chemical Treatment
Y - Réservoir d' Acide	Acid Reservoir
Z - Prises Pour Remplissage de Fûts	Intakes for Filling Drums
A_1 - Passerelle	Gangway
B_1 - Cabestan Pneumatique	Pneumatic Capstan
C_1 - Rateller de Remplissage des Wagons	Filling Racks for Railway Cars
D_1 - Poulie	Pulley
E_1 - Puits	Well
F_1 - Cheminée	Chimney
G_1 - Groupe de Distillation	Distilling Group
H_1 - Installation de Pompes et Salle de Réception (Pompes 21, 22, 23, 31, 32)	Dump and Receiving House (Pumps 21, 22, 23, 31, 32)
J_1 - Séparateur d' Eau	Water Separator
K_1 - Réfrigérent Suppl.	Final Cooler
L_1 - Echangeur de Chaleur et Condenseur d' Essence	Heat Exchanger and Gasoline Condenser
M_1 - Tour de Fractionnement	Fractionating Tower
N_1 - Echangeur de Chaleur et 4 Réfrigerateurs	Heat Exchanger and 4 Coolers
P_1 - Réservoir Résidu Pour Brûleurs	Fuel Oil Tanks for Burners
Q_1 - Cabine Pompes d'Alimentation Brûleurs	Cabin for Pumps Feeding Burners
R_1 - Tours de Fractionnement White Spirit et Diesel Oil	Fractionating Towers - White Spirit and Diesel Oil
S_1 - Salle des Pompes d' Eau	Water Pump Room
T_1 - Réservoir et Réfrigérent d' Eau	Reservoir and Water Cooler
U_1 - Pompe	Pump
V_1 - Salle des Pompes de Pétrole	Petroleum Pumps Room
W_1 - Réservoir d' Eau Condensée	Reservoir of Condensed Water
X_1 - Lavabos	Washroom
Y_1 - Vestiaire	Cloakroom
Z_1 - Réfectoire	Dining Room
A_2 - Fosse d' Aisance	Cess-Pool
B_2 - Solution Saline	Saline Solution
C_2 - Réservoir d' Eau Chaude	Hot Water Reservoir
D_2 - Moteur Générateur	Motor Generator
E_2 - Turbo Générateur	Turbo Generator
F_2 - Économiseur "Green"	"Green" Economizer
G_2 - Abri Pour La Distribution de Mousse d' Incendie	Shed for The Distribution of Foamite
H_2 - Reserve Ligne Générale	Pipe Manifold
J_2 - Escalier	Stairway
K_2 - Pont de Remplissage des Camions	Platform for Filling Trucks

Plates and Tables.-

Item	Page	Item	Page
Aerial view	35	Statistical Summary of Data on Refineries	26
Layout Plan	32-33	Statistical Summary of Data on Ocean and River Terminals	68



Summary description.- Throughput capacity of 130,000 metric tons a year or 2,493 barrels per calendar day. Foster Wheeler pipe still, no cracking or lubricating oil manufacturing facilities, tankage capacity approximately 46,000 M^3 or 289,800 barrels. Pipeline connections to the terminal of Tankage et Transport S.A., likewise located in the Petroleum Harbor area.

Present condition.- Approximately one fifth of the tankage in this area has been destroyed. While it is considered that the plant can be operated, aerial reconnaissance has revealed no evidence of activity and it is believed to be inactive. The plant has been camouflaged.

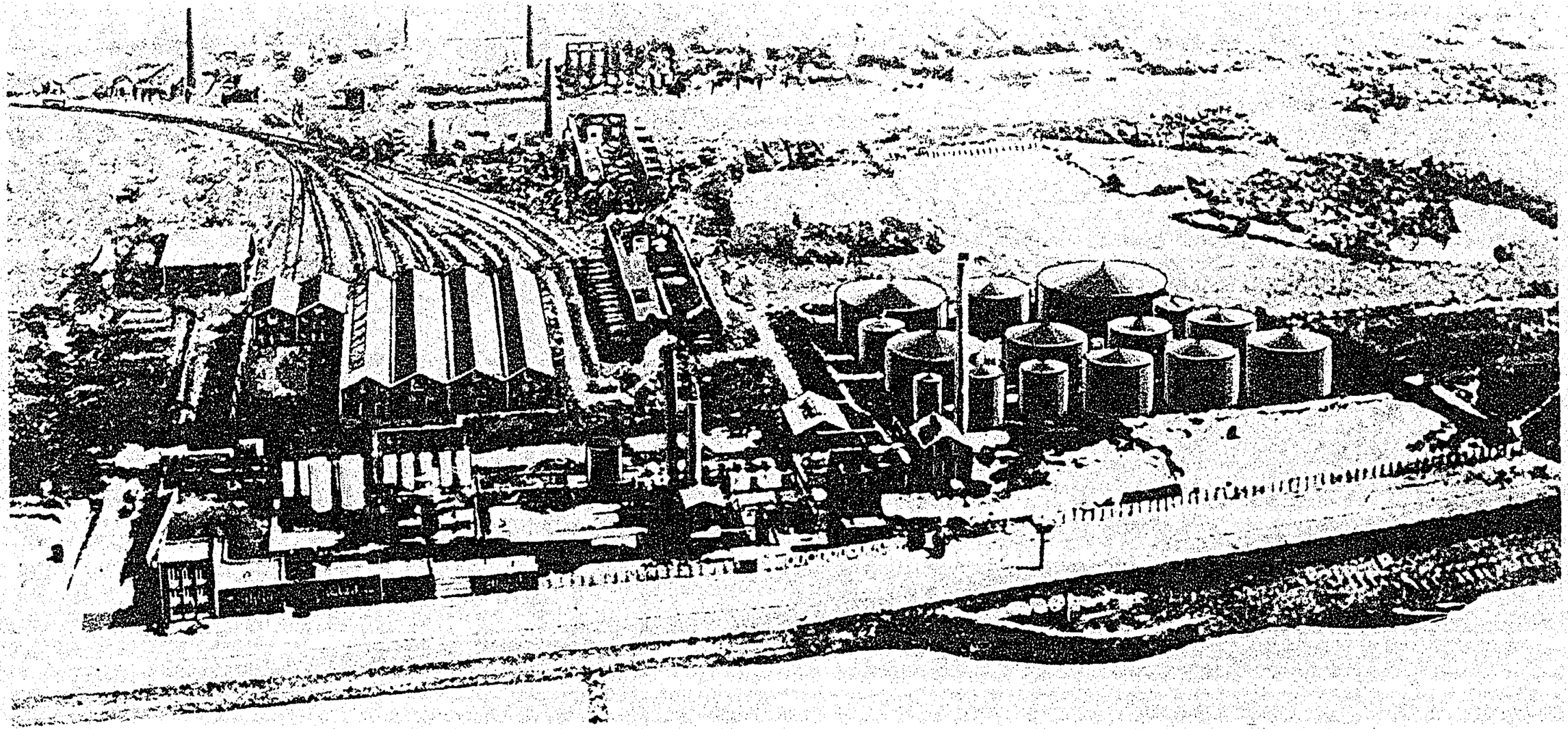
3.4 RADIAN REFINERY AT ANVERS (ANTWERPEN)

Identification.- This refinery belongs to the firm Raffineries et Distilleries Anversoises, S.A., "Radian", affiliated with the firm Tankage et Transport, S.A., both of Anvers.

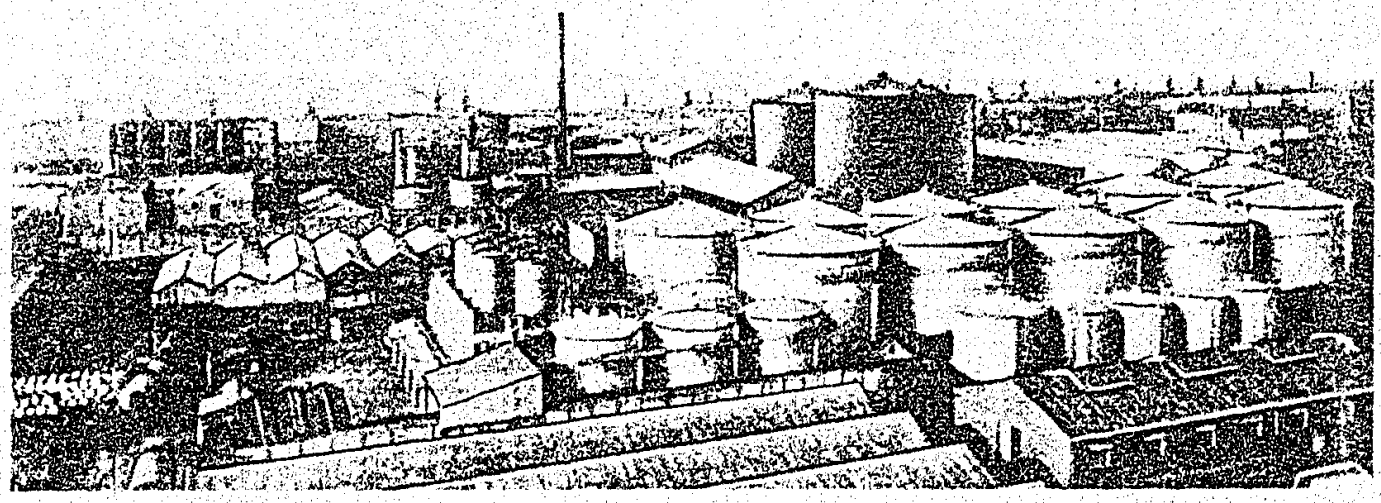
It is at Petroleum Harbor, Anvers.

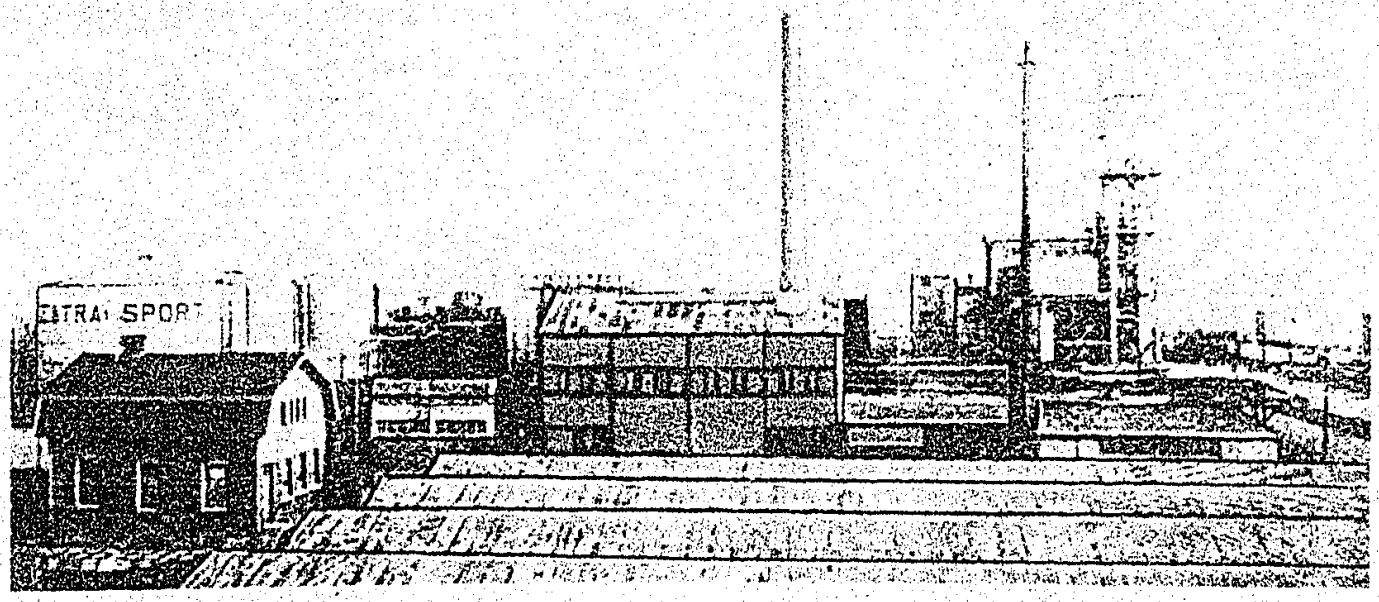
Plates and Tables.-

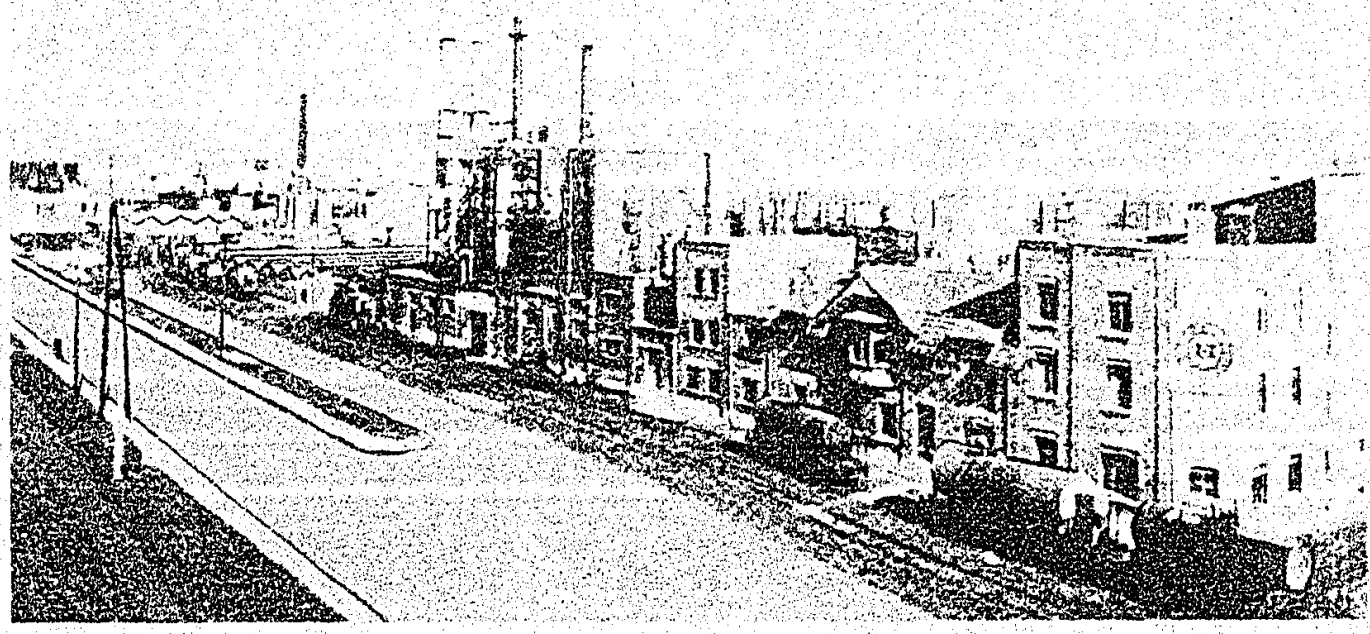
Item	Page	Item	Page
Aerial view	None	Statistical Summary of Data on Refineries	26
Various views	37	Statistical Summary of Data on Ocean and River Terminals	68
Layout Plan	None		



REFINERY OF REDEVENTZA, S.A.B. POUR LE RAFFINAGE DU PÉTROLE,
PETROLEUM HARBOR, ANVERS (ANTWERPEN), BELGIUM

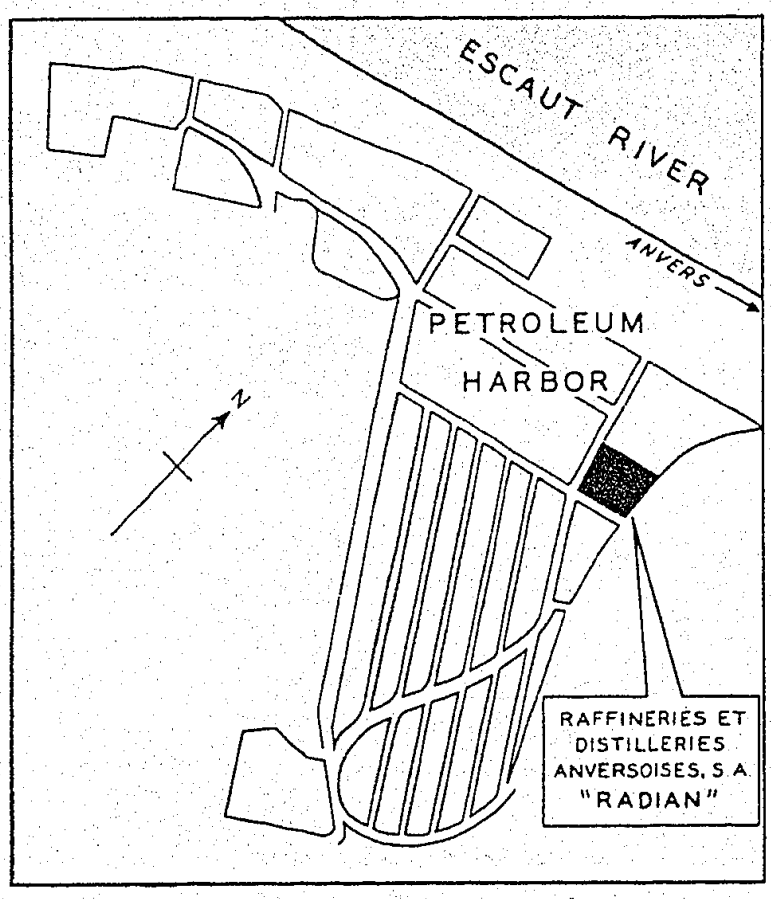






RAFFINERIES ET DISTILLERIES ANVERSOISES, S.A., "RADIAN", PETROLEUM HARBOR, ANVERS (ANTWERPEN), BELGIUM

UPPER: TANKS, LOT 10. MIDDLE AND LOWER: VIEWS OF THE REFINERY



Summary description.- This is a small and simple refinery, with a pipe still. Throughput capacity, 30,000 metric tons a year or 958 barrels per calendar day. The distillation unit was supplied by Brünn-Koenigsfeld, but was built by Radian in 1934. No flow plans are available. Pre-war tankage capacity was about 200,000 M^3(a) (1,260,000 barrels). This tankage probably is included in the tankage used for storage by the affiliated company, Tankage et Transport, S.A., as described in the Distributing section of this report. It is connected by pipe lines with the bulk storage terminal of Tankage et Transport, S.A., in the Petroleum Harbor area, Anvers.

Present condition.- Intact, but inactive.

3.5 RAFFINERIE BELGE (BRITISH LIANOSOFF WHITE OIL COMPANY, LTD.)

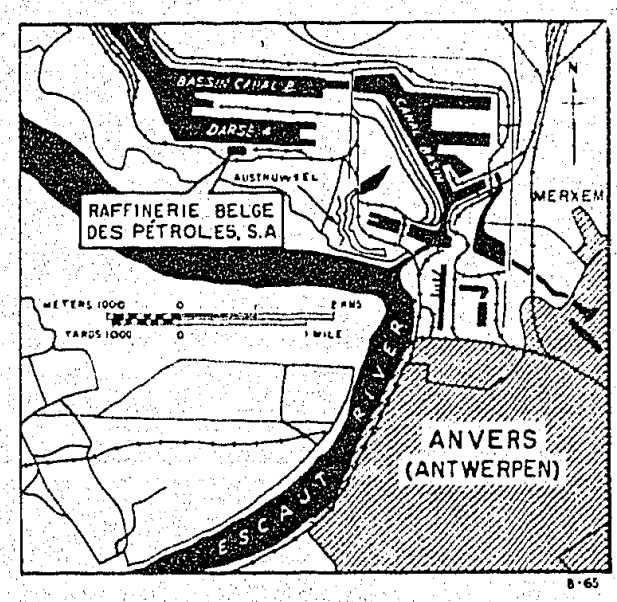
Identification.- This refinery belongs to the Raffinerie Belge des Pétroles, S.A. affiliated with British Lianosoff White Oil Co., Ltd. of London.

It is located at Anvers (Antwerpen), at Austruweel, on the south side of Darse Four.

Plates and tables.-

Item	Page	Item	Page
View	41	Statistical Summary of Data on Refineries	26
Layout Plan	43		

Summary description.- This is primarily an asphalt plant. There are no cracking or lube facilities. Throughput of 130,000 metric tons a year or 2,493 barrels per calendar day. Pre-war tankage capacity was 51,904 M^3 or 327,000 barrels.



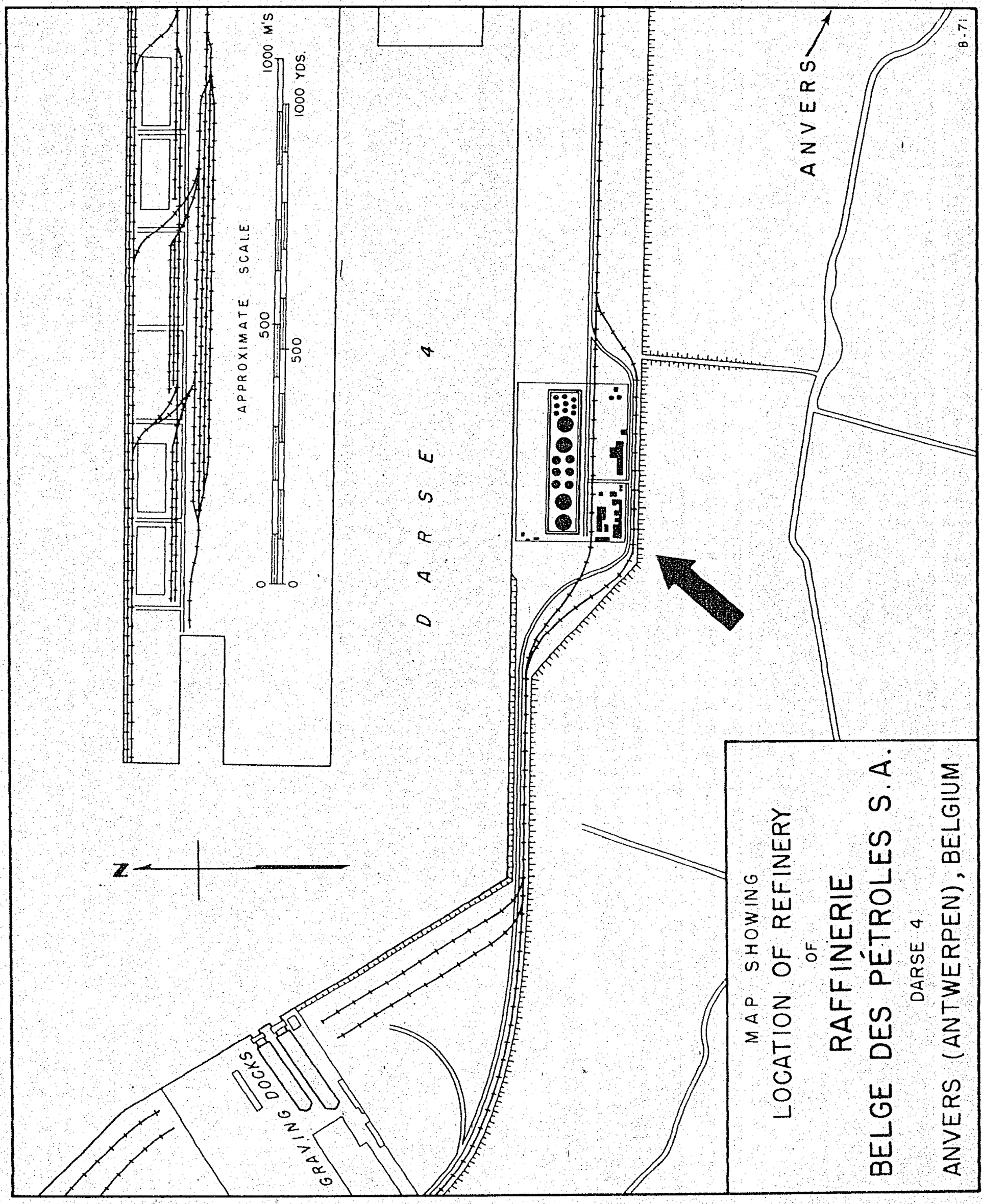
This plant was originally imported from Germany in 1933, being made up from installations removed from the Danubia plant in Regensburg, Bavaria, and from shell stills from Anvers. Later, in 1939, a more modern pipe still installation was built, but was not completed owing to the outbreak of the present war. The flow plans and working drawings are not, unfortunately, in the possession of the owner, Dr. M. Melamid, who is in the United States.

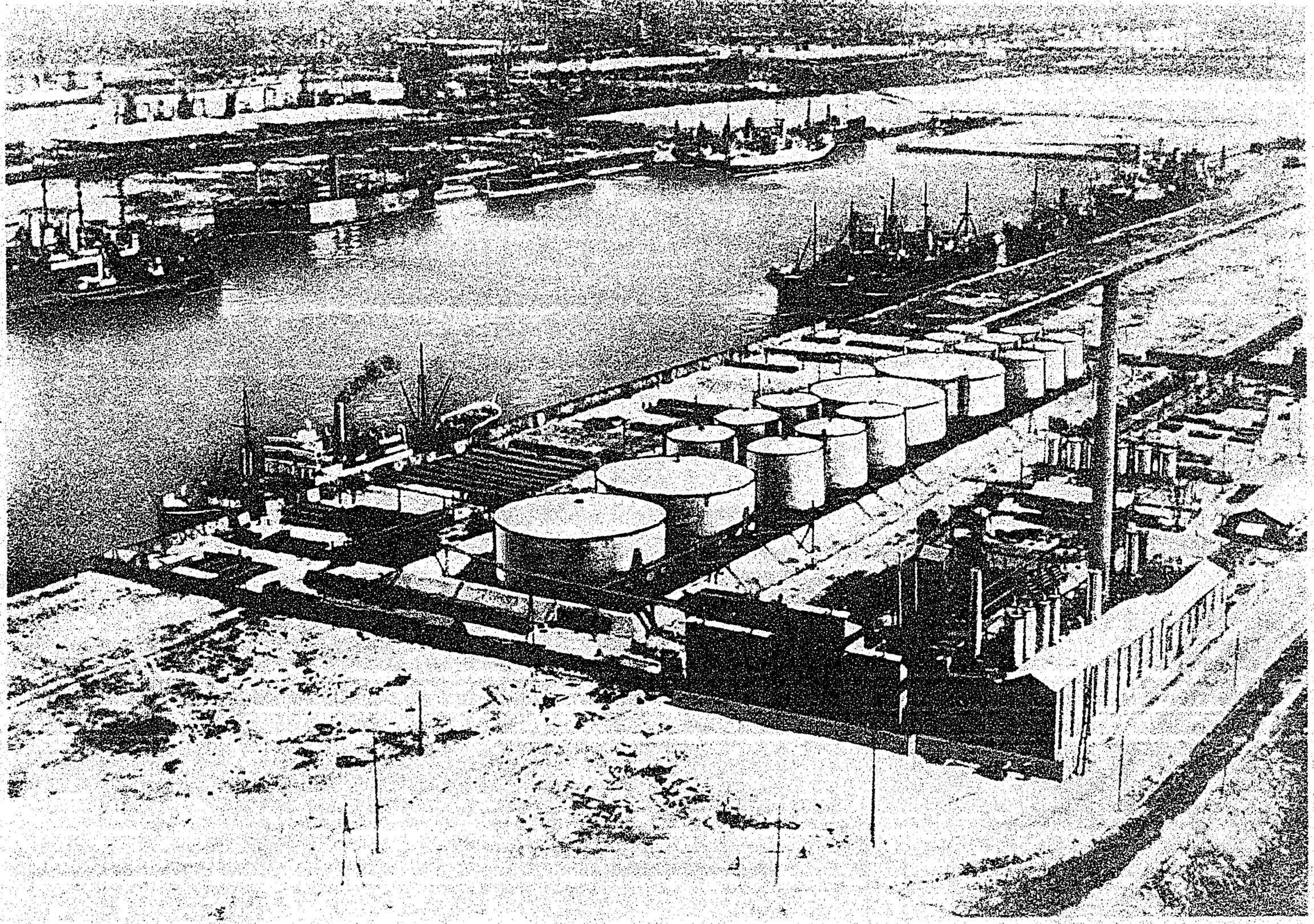
The refinery was built by Dr. Melamid with the help of local engineering firms. The storage installation was also imported from Germany in 1933 but later was increased by tanks built by Nobels-Peelmans, St.-Nicolas, Belgium.

Present condition.- No reports indicating damage to this plant have been received. It may have suffered some damage but it is believed that it can be operated

(a) While this figure is given by sources usually considered reliable, it is suggested that it be used with caution, as it seems excessive.

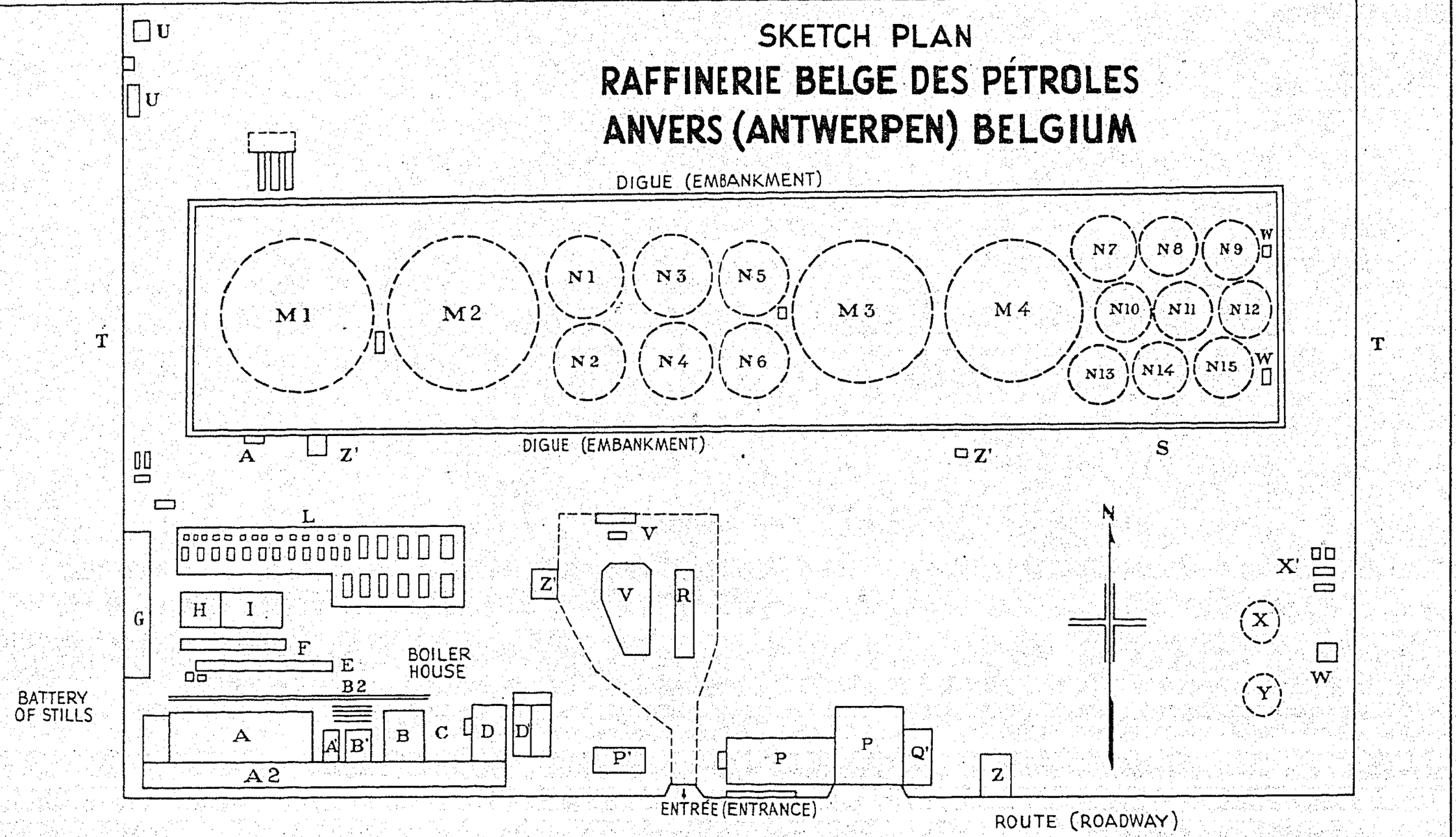
Raffinerie Belge





RAFFINERIE BELGE DES PETROLES, AUSTRUWEEL, ANVERS, BELGIUM

SKETCH PLAN
RAFFINERIE BELGE DES PÉTROLES
ANVERS (ANTWERPEN) BELGIUM



LEGEND

A - Emplacement des alambics (chauffés par les cendres d. mazout)	A - Battery of stills (heated by fuel oil)	H - Salle des pompes I - Salle des recettes L - Recipients en plein air à produits fabriqués ou non-fabriqués M - Tuyauteries diverses des installations A à L (non indiqués ou plus réduit) M1 - Tanks à huiles minerales M2 - Principalement M3 - M4 - N°to- Tanks à huiles diverses et N6 - essence principalement N°to- Tanks à produits fabriqués N15 - ou mi-fabriqués C - Réservoirs d'asphalte avec toiture-abri P - Bureaux, laboratoire, petite bureau et P2 vélos Q - Garage privé d'automobiles atelier de réparations ne travaillant que les métaux	H - Pumphouse I - Receiving house L - Open air working tanks M - Piping for installations A to L (Not shown on layout sketch) M1 - Tanks mainly for crude oil M2 - M3 - M4 - N°to- Tanks, principally for miscellaneous N6 - oils and gasoline N°to- Tanks for intermediate or N15 - finished products C - Asphalt tanks and shed P - Office, laboratory, small office and P2 bicycles Q - Garage for private motor cars and machine shop	Q' - Appentis R - Chargement et remplissage des wagons-citernes S - Digue en terre battue T - Mure de clôture U - Pompe à eau et abri pour ouvriers V - Pont-bascule et accessoires W - Abris pour pompes X - Agitateur X' - Bacs à soude à eau acidulée et de neutralisation Y - Vaisseau mesureur Z - Service d'incendie magasin à poudre à emulsion (firefoam) avec pompe double, semi-électrique et à l'essence Z' - Dépendances du service d'incendie, notamment tuyau à émulsion, abri des vannes et poste de premiers secours e - Sous-station d'électricité	Q' - Lean-to R - Loading rack S - Firewall of earth T - Property wall U - Water pump and shelter for workmen V - Truck scales and accessories W - Pump sheds X - Agitator X' - Tanks for soda, for acid water and for neutralization Y - Measuring tank Z - Fire Fighting equipment and firefoam powder storage with double pump electric and gasoline driven Z' - Fire fighting auxiliaries, particularly emulsion tank, valve shed, first aid station e - Transformer station

8-30

WHITE OIL AND SPECIALTY PLANT OF

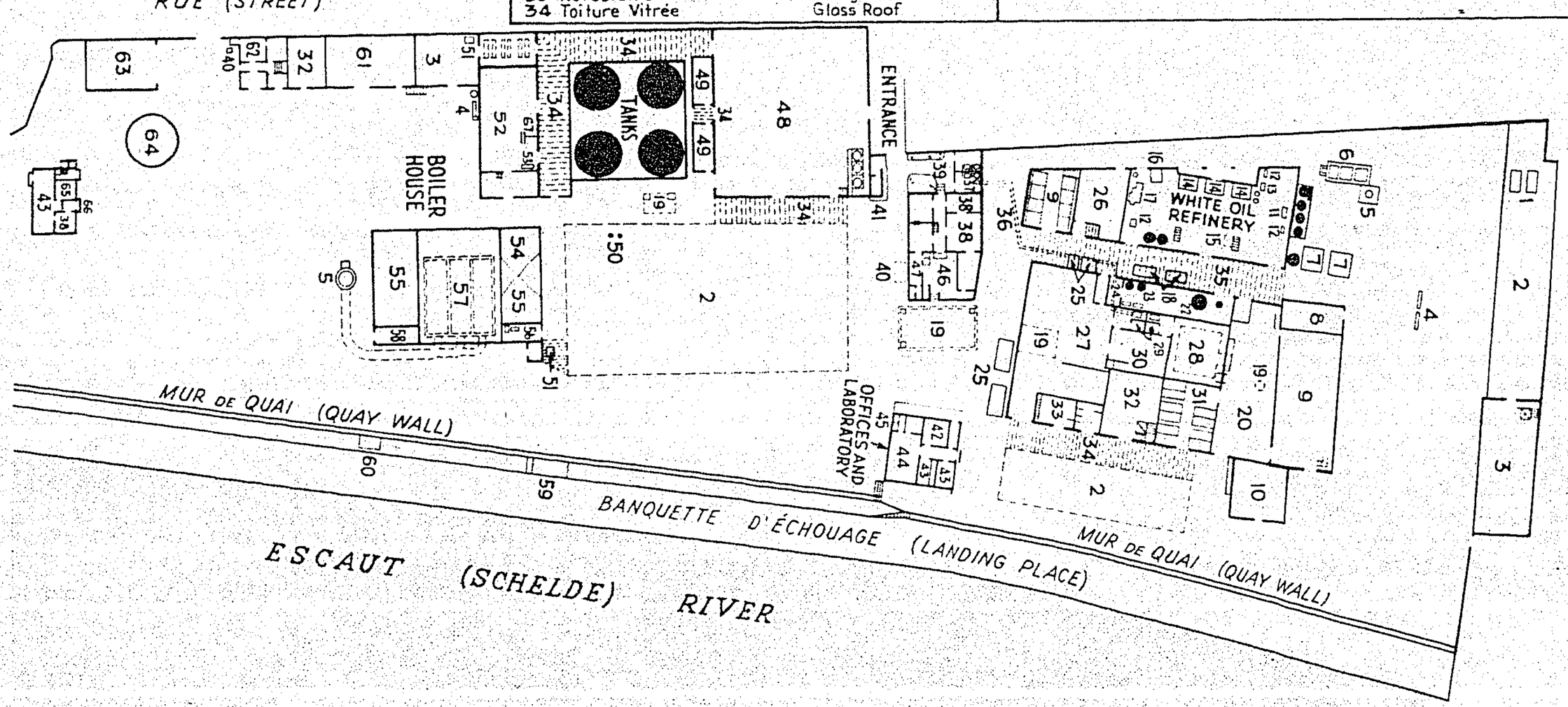
BELGIAN GULF OIL CO., S.A.

BURGHT BELGIUM

RUE (STREET)

L E G E N D

1	Séchage Fûts	Drum Drying
2	Hangar	Shed
3	Tonnellerie	Barrel House
4	Lavage Fûts	Drum Washing
5	Chéminée	Chimney
6	Fours	Furnaces
7	Épurateur	Purifier
8	Fours à Terre	Clay Furnace
9	Salle des Stocks	Stock Room
10	Terres	Grounds
11	Filtres-Presses	Press Filters
12	Moteur	Motor
13	Monte-Acides	Acid Pump
14	Acide	Acid
15	Monte Charges	Hoist
16	Dépotoirs	Cess-pools
17	Compresseur	Compressor
18	Concentrateur	Concentrator
19	Citerne	Cistern
20	Emballage	Packing
21	Réfrigérant	Refrigerant
22	Malaxeur	Mixer
23	Alambics	Stills
24	Dépôt d'Alcool	Alcohol Storehouse
25	Réservoirs	Reservoirs
26	Décongélation des Acides	Defroster of Acids
27	Electrion	"Electrion"
28	Cave Frigorifique	Cooler
29	Transformateurs	Transformers
30	Salle des Machines	Machine Room
31	Stocks	Stocks
32	Magasin	Warehouse
33	Réfectoire	Dining Room
34	Toiture Vitrée	Glass Roof
35	Passage Couvert	Covered Passageway
36	Départ	Exit
37	Cabines Electriques	Electric Cabins
38	Bureau	Office
39	Habitation	Residence
40	Fosse	Pit or Dry Well
41	Portier	Doorman
42	Comptabilité	Accounts
43	Laboratoire	Laboratory
44	Laboratoire d'Analyse	Analytic Laboratory
45	Table Évier	Table Sink
46	Terrasse	Terrace
47	Laverie	Washing Place
48	Salle des Graisses	Lubricant Warehouse
49	Magasin à Chaux et Sulfate	Warehouse for Lime and Sulphate
50	Puits Artésiens	Artesian Wells
51	Bascule	Scales
52	Salle des Vaselines	Vaseline Room
53	Vidange Huile Blanc	White Oil Discharge
54	Château d'Eau	Water Works
55	Charbons	Coal
56	Pompes	Pumps
57	Salle des Chaudières	Boiler Room
58	Veilleur	Watchman
59	Ponton Déchargement Huile	Oil Discharge Platform
60	Ponton Arrivée Huile	Oil Receiving Platform
61	Atelier	Workshop
62	Habitation Mécanicien	Mechanic's Residence
63	Hangar Pour Garage	Shed for Garage
64	Réservoir d'Huile	Oil Reservoir
65	Phisique et Chimie	Physics & Chemistry
66	Vestiaire	Coat Room
67	Ascenseur	Elevator



3.6 SPECIALTY PLANT: BELGIAN GULF OIL CO., S.A. NEAR BURGHT (BURCHT)

This company, a subsidiary of Gulf Oil Corporation of Pittsburgh, Pa., owns a plant at Burght on the west bank of the Escaut (Schelde) River, directly across the river from the Petroleum Harbor. It was designed for the manufacture of technical white oils, greases, vaselines and other specialties. Capacity is unknown.

Description.- This terminal is fully equipped to receive raw oils in bulk and to deliver finished products both in bulk and in packages. Deliveries are effected by barge, rail and road. The river at this terminal has mud bottom and is quite shallow--sufficient only for barges and other vessels of light draught.

Storage capacity.- Capacity is unknown, but, from the layout plan shown on page 44, it is judged to be small.

3.7 BELGIAN CRACKING REFINERY NEAR GAND (GENT)

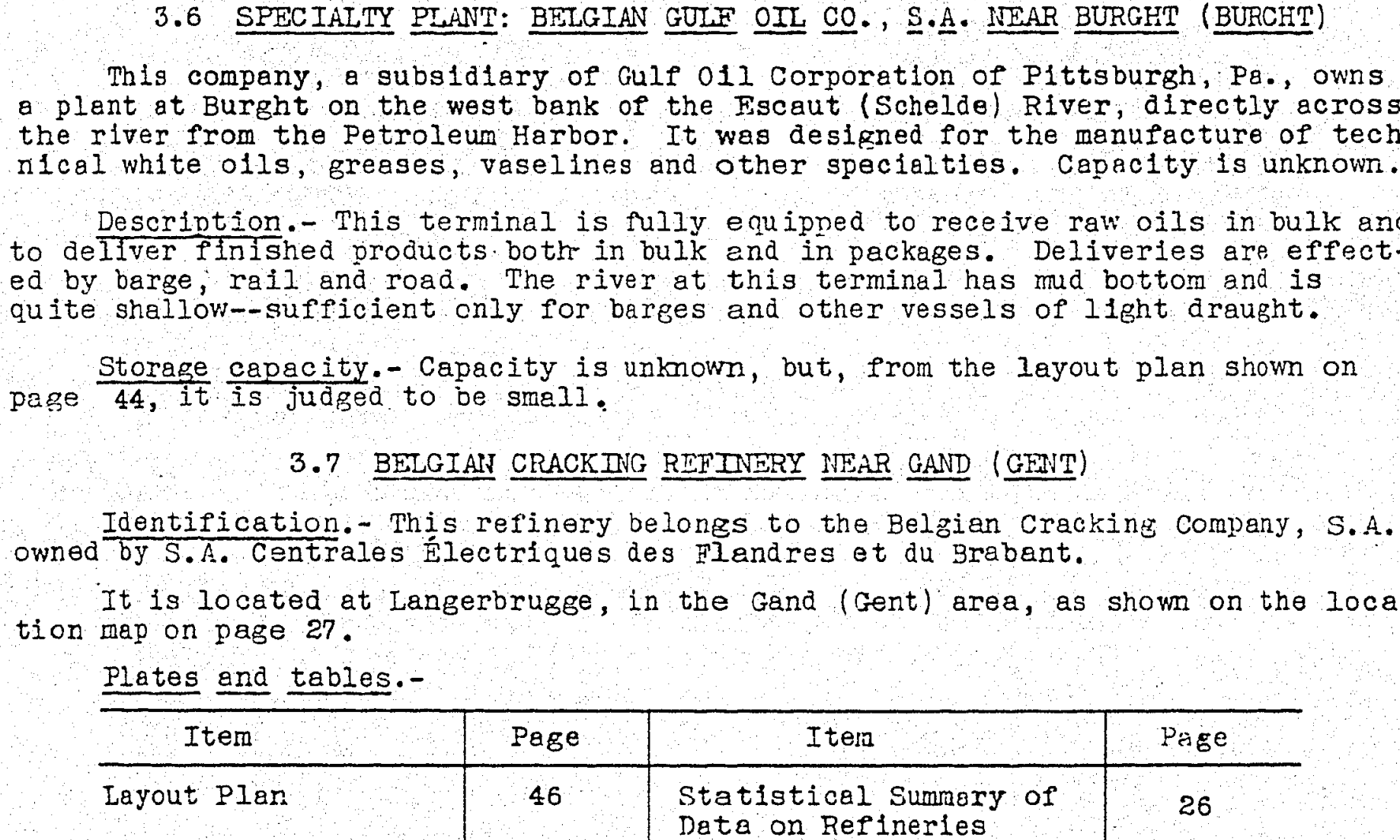
Identification.- This refinery belongs to the Belgian Cracking Company, S.A. owned by S.A. Centrales Électriques des Flandres et du Brabant.

It is located at Langerbrugge, in the Gand (Gent) area, as shown on the location map on page 27.

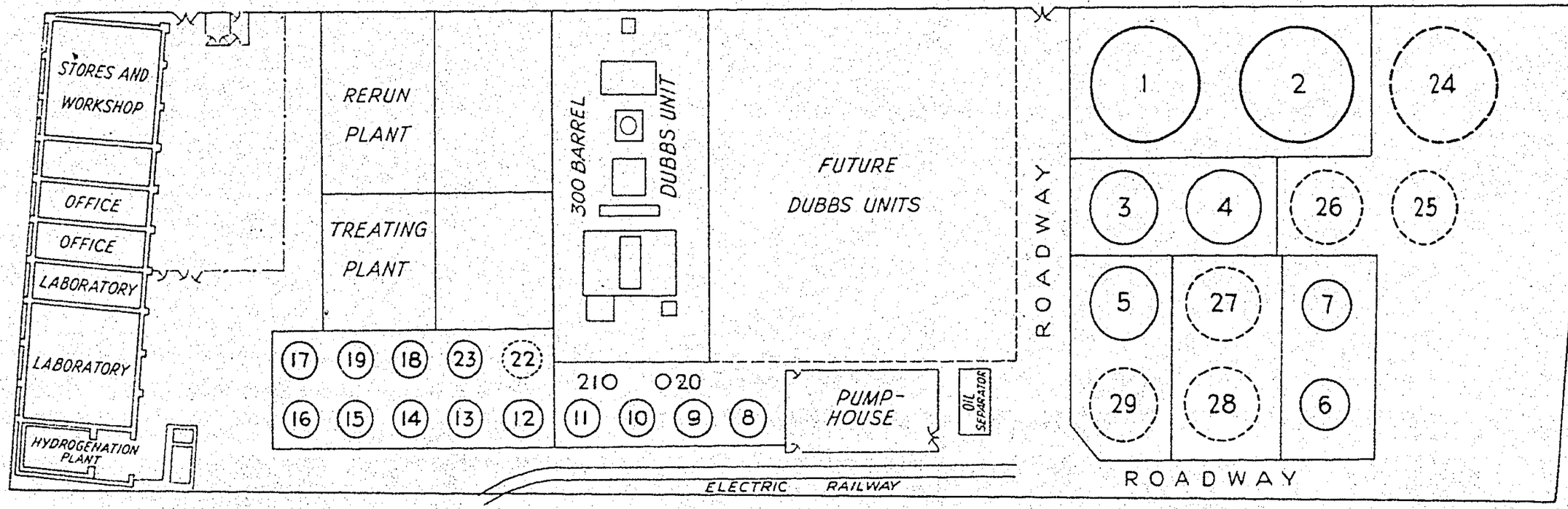
Plates and tables.-

Item	Page	Item	Page
Layout Plan	46	Statistical Summary of Data on Refineries	26
Plate showing view	47	Statistical Summary of Data on Ocean and River Terminals	None

Summary description.- Throughput capacity of 20,000 metric tons a year or 383 barrels per calendar day. No distillation facilities. This plant, built about 1930, consists of a Dubbs cracking unit of 17,000 metric tons yearly capacity. In this unit fuel oil and gas oil were cracked and cracked gasoline and bottoms obtained. Flow plans and working drawings are in the pos-

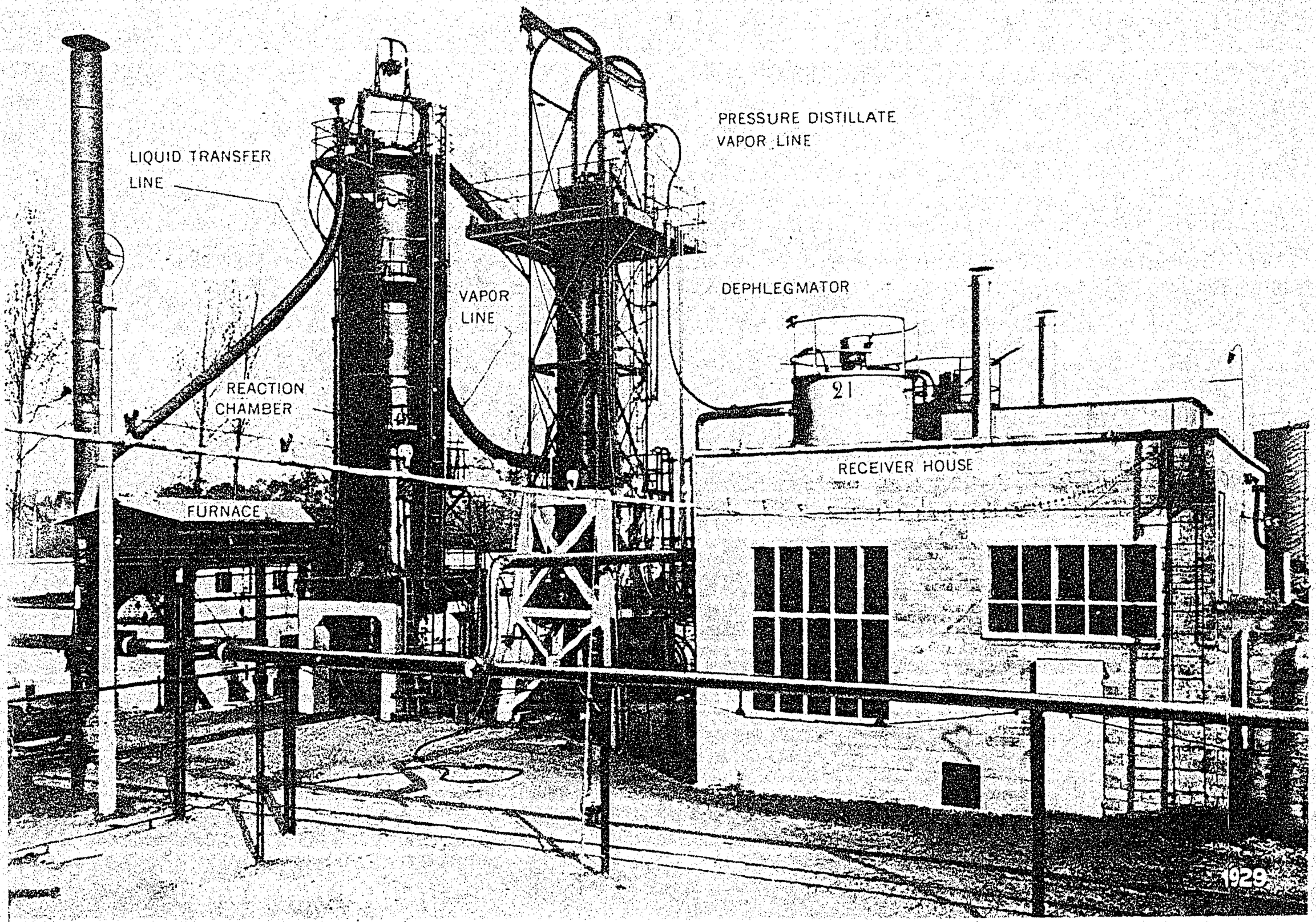


REFINERY OF
THE BELGIAN CRACKING COMPANY, S. A.
LANGERBRUGGE (GAND)
BELGIUM



T A N K S

No.	DIMENSIONS DIAM.x HEIGHT	CAPACITY IN CUBIC METERS	CONTENTS	No.	DIMENSIONS DIAM.x HEIGHT	CAPACITY IN CUBIC METERS	CONTENTS
1	14m x 6.5m	1.000 m³	MAZOUT OR GAS OIL	16	4.6m x 3.0m.	50m³	GAS OIL RUNDOWN OR SLOP
2	" "	"	" " " "	17	" "	"	" " " " "
3	8.8m x 9.0m	550m³	" " " "	18	" "	"	UNTREATED GASOLINE RUNDOWN
4	" "	"	" " " "	19	" "	"	" " "
5	" "	"	GASOLINE STORAGE	20	2.27m x 1.8 m	7.3 m³	FUEL OIL TO BURNERS
6	5.8m x 7.57m	200 m³	RESIDUE STORAGE	21	" "	"	" " " "
7	" "	"	PRESSURE DISTILLATE STORAGE	22	4.6m x 3.0 m	50 m³	UNTREATED GASOLINE PROPOSED
8	4.6m x 4.5m	75m³	DUBBS CHARGING STOCK	23	" "	"	UNTREATED GASOLINE RUNDOWN
9	" "	"	" " "	24	14m x 6.5m	1000 m³	STOCK STORAGE PROPOSED
10	4.6m x 3.0m	50m³	DUBBS RESIDUE RUNDOWN	25	8.8m x 9.0m	550 m³	" " "
11	" "	"	" " "	26	" "	"	" " "
12	" "	"	PRESSURE DISTILLATE RUNDOWN	27	" "	"	PRESS. DISTILLATE PROPOSED
13	" "	"	" " "	28	" "	"	" " "
14	" "	"	TREATED GASOLINE RUNDOWN	29	" "	"	DUBBS CHARGE PROPOSED
15	" "	"	" " "				



THE BELGIAN CRACKING COMPANY, S.A., REFINERY, NEAR LANGERBRUGGE, BELGIUM

session of the Universal Oil Company, Chicago. Pre-war tankage capacity was 10,984 M^3 or 69,200 barrels.

Present condition.- Intact. No signs of activity and believed to be shut down.

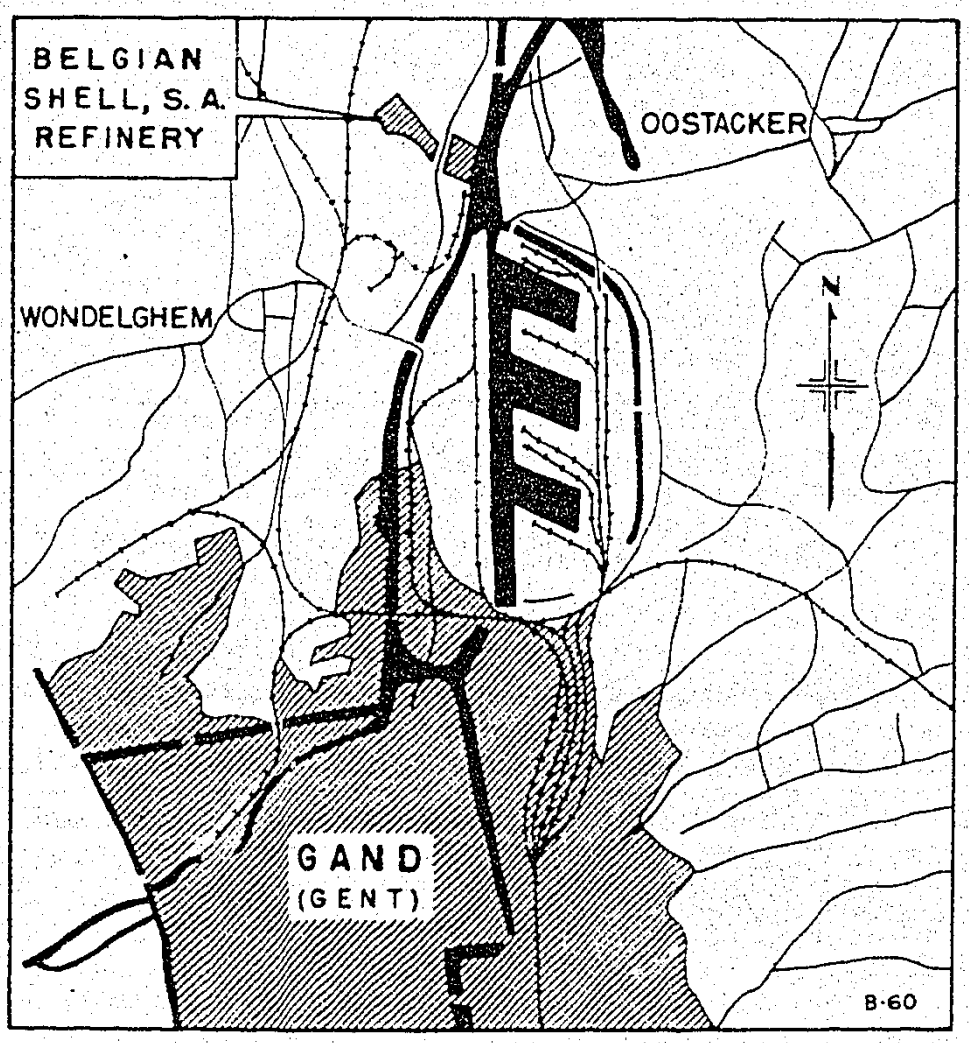
3.8 BELGIAN SHELL REFINERY AT GAND (GENT)

Identification.- This refinery belongs to the Belgian Shell S. A., 153, Quai de Wondelghem, Gand, an affiliate of the Royal Dutch Shell group.

The refinery is at Wondelghem, on the Terneuzen-Gand Canal, north of the "Nouveau Bassin."

Plates and tables.-

Item	Page	Item	Page
Layout Plan	50	Statistical Summary of Data on Refineries	26
		Statistical Summary of Data on Ocean and River Terminals	184



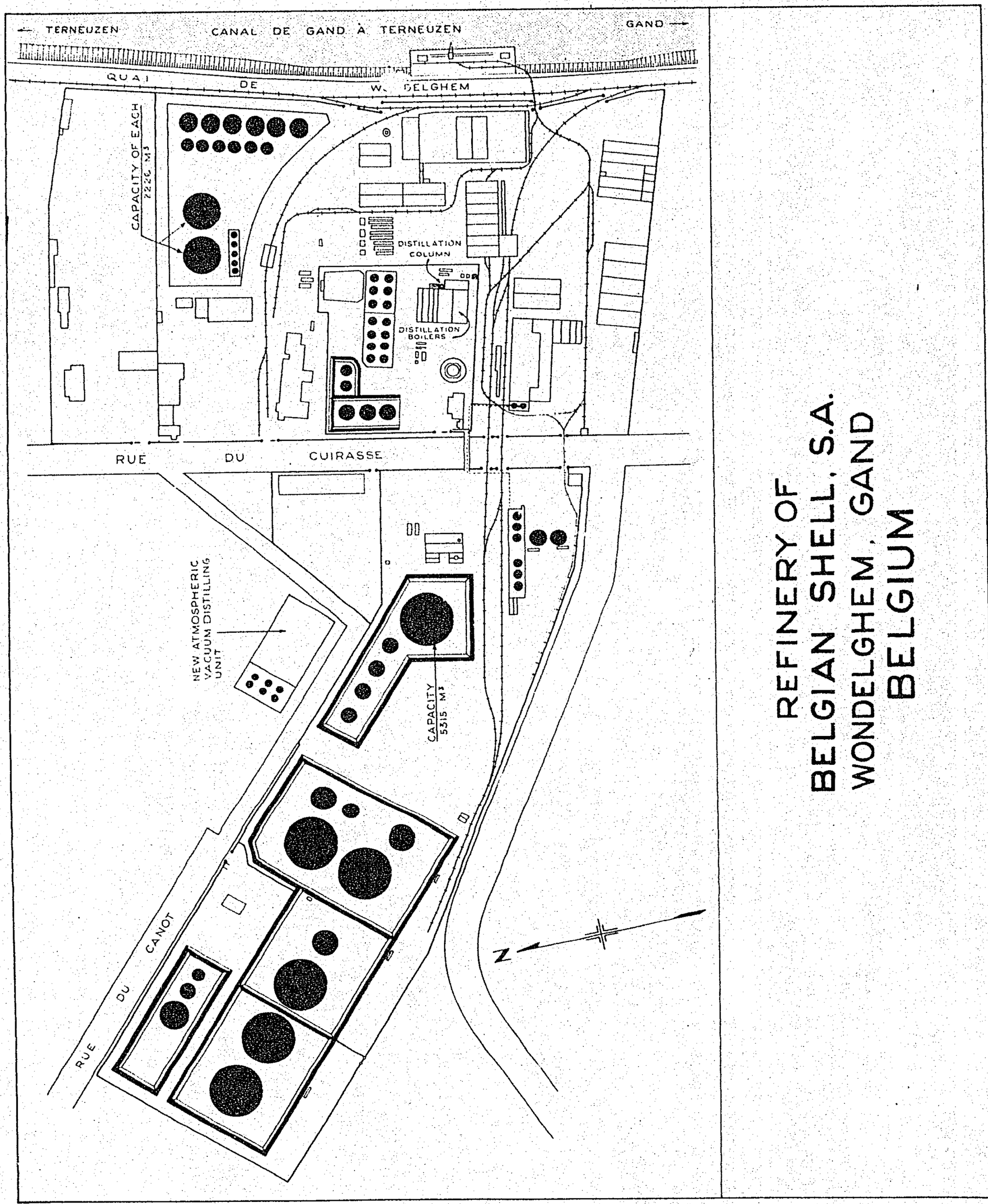
Summary description.- This is a joint storage plant and refinery, principally of crude oil for the manufacture of asphalt. Throughput capacity is 130,000 metric tons yearly or 2,493 barrels per calendar day. There are shell stills, a vacuum pipe still, and grease manufacturing facilities, but no cracking equipment. This plant was transferred from Rouen about 1933.

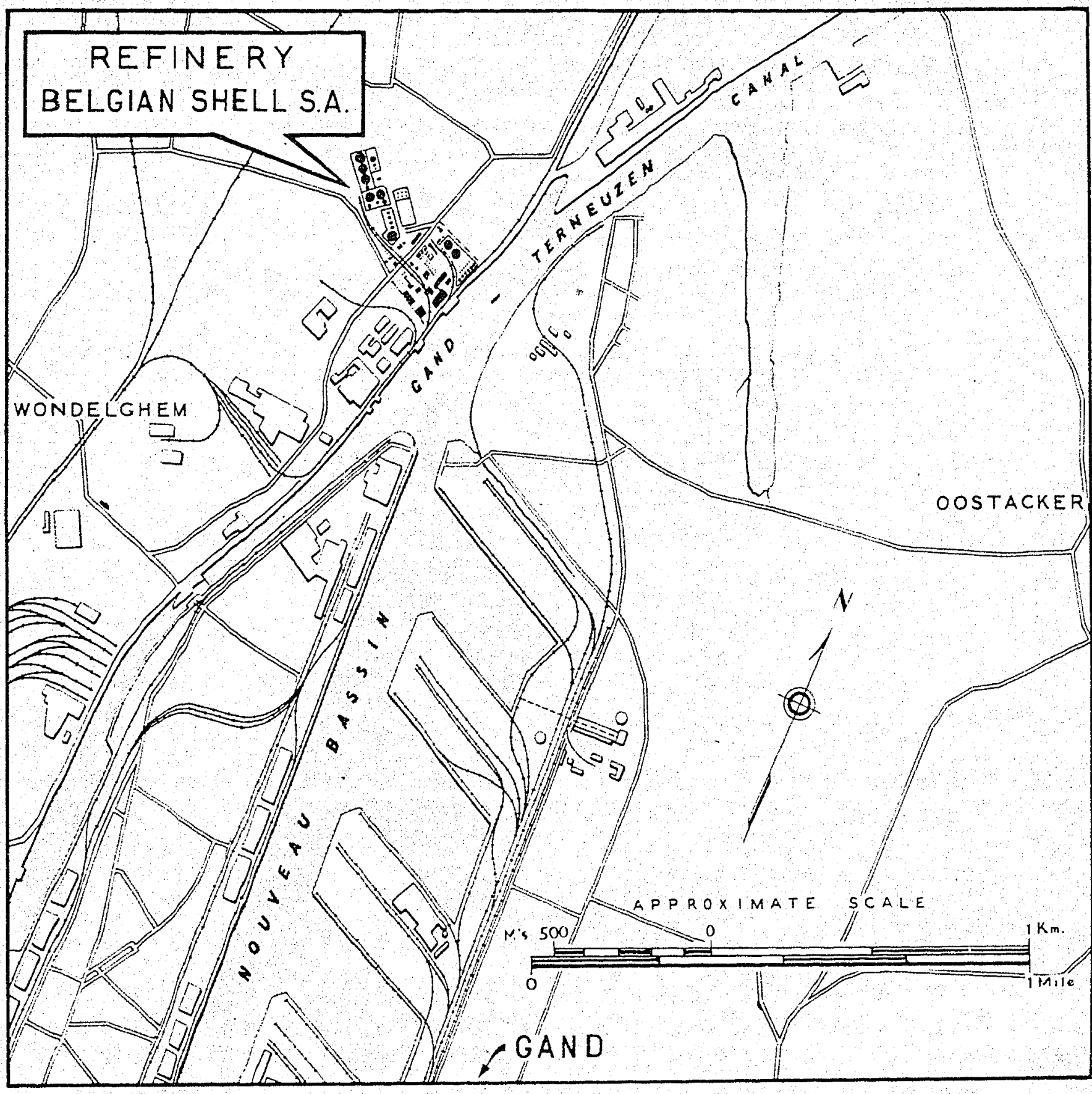
Pre-war tankage capacity, shown in detail in the Distributing section of this report, was:

Product	Tankage M^3	Capacity Barrels
Gasoline	984	6,200
Special gasoline	11,587	73,000
Lube oil	4,571	28,800
Fuel oil and gas oil	19,794	124,700
Crude oil	10,603	66,800
Total	47,539	299,500

Present condition.- Apparently intact. No signs of activity.

Belgian Shell refinery





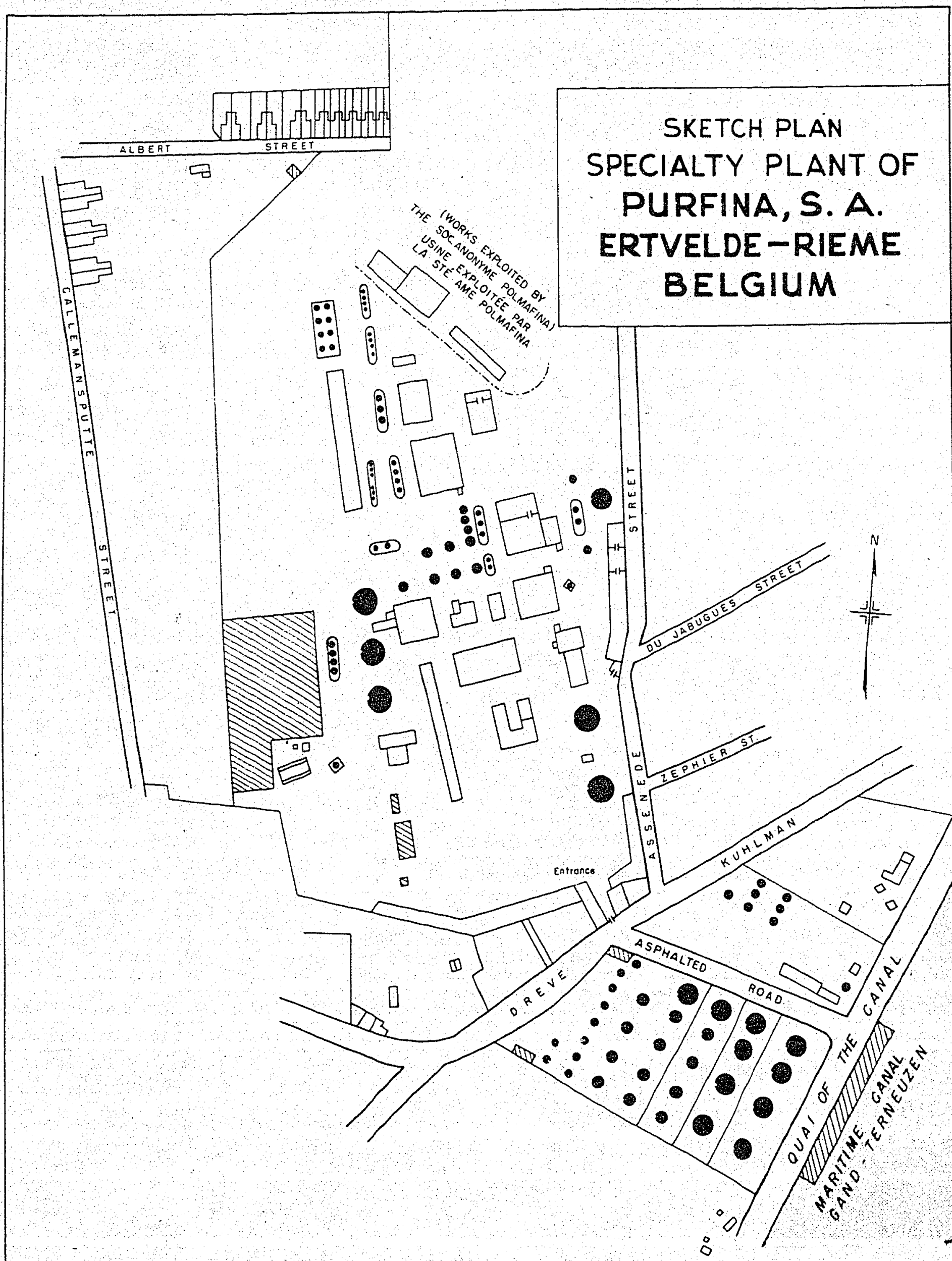
3.9 BELGO PETROLEUM REFINERY AT TERDONCK-LEZ-GAND

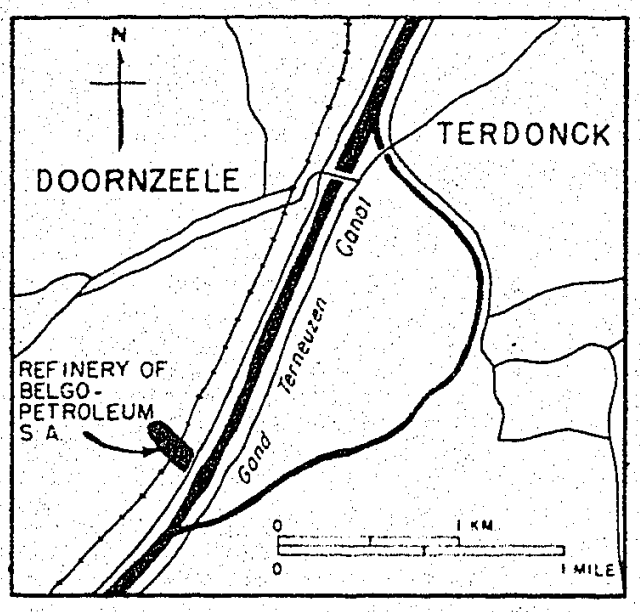
Identification.- This refinery belongs to Belgo Petroleum, S.A. of Terdonck, which, in turn, is a subsidiary of Credit Alliance Corporation. The latter is said to be owned jointly by the Standard Oil Co. (N.J.), the Royal Dutch Shell group and The Texas Company, S.A.B.

It is located at Terdonck-lez-Gand, near Gand (Gent).

Plates and tables.-

Item	Page	Item	Page
Layout Plan	None	Statistical Summary of Data on Refineries	68


SKETCH PLAN
SPECIALTY PLANT OF
PURFINA, S. A.
ERTVELDE-RIEME
BELGIUM
ALBERT STREET
CALLEMANSPUTTE STREET
(WORKS EXPLOITED BY THE SOC. ANONYME POLMAFINA)
USINE EXPLOITÉE PAR LA STÉ AME POLMAFINA
STREET
DU JABUGUES STREET
N
ASSENEDE
ZEPHIER ST.
KUHLMAN
Entrance
ASPHALTED ROAD
DREVE
QUAI OF THE CANAL
MARITIME CANAL
GAND-TERNEUZEN



Summary description.- This is a cracking plant, a Jenkins unit of a capacity of about 100,000 metric tons a year or 1,917 barrels per calendar day. There are no distillation or other special facilities. The unit is reported to have been unusually well constructed for a contract job. There are 26 storage tanks with a total capacity of 26,700 M^3 or 168,210 barrels.

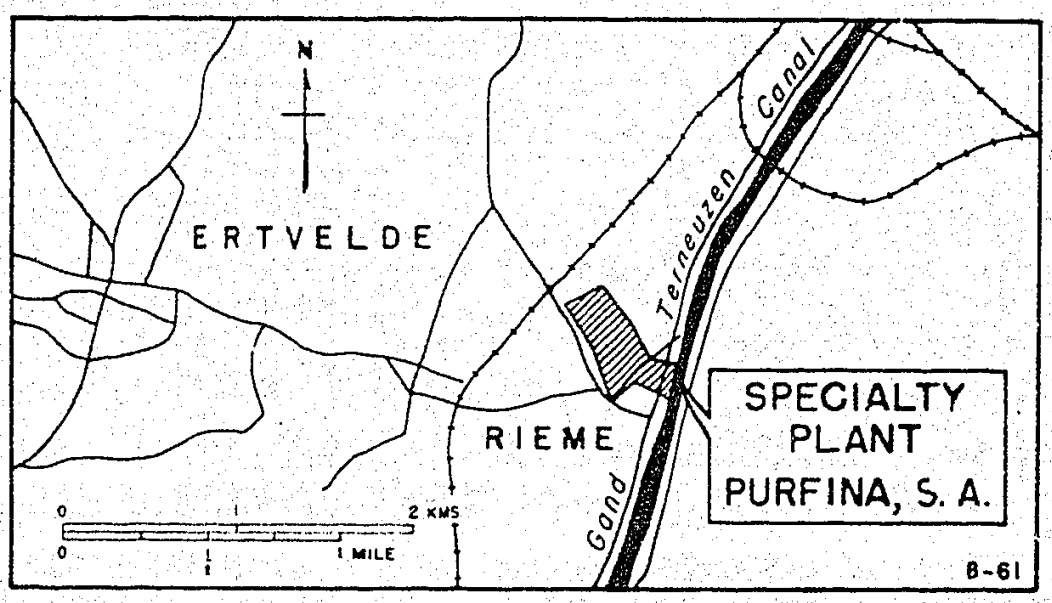
Present condition.- Intact. Inactive.

3.10 ERTVELDE-RIEME (PURFINA) SPECIALTY PLANT

Identification.- This plant was bought from the Société des Pétroles de Grozny by Purfina, S.A. It is on the Gand-Terneuzen Canal just east of Rieme.

Plates and tables.-

Item	Page	Item	Page
Layout Plan	52	Statistical Summary of Data on Refineries	26



Summary description.- This is a specialty plant, manufacturing industrial and medicinal greases and white oils. Capacity is unknown. There is a railway loading rack, and barge loading facilities along the canal.

The plant includes an office, garage, and a few dwellings for employees. Buildings are heated by steam. There are some 40 to 50 tanks, reported as having a total capacity of 19,047 M^3 or 120,000 barrels.

3.11 "ELEKTRION" PLANT AT GAND (GENT)

3.11.1 Summary

There is an important plant at Gand (Gent) engaged in the manufacture of aviation lubricating oils. The exact location of this plant, called the "Elektrion" plant, is not known, nor is there any information as to current production.

3.11.2 History

"Elektrion" and "Voltol" are proprietary names for similar products generally

obtained by treating oils with a silent electrical discharge. "Elektrion" was the first process. The plant was stolen during 1915 by the Germans at Gand, and sent to a point near Dresden. After the war they were compelled to make a replica and present it to its original home in Gand. The name "Voltol" was then applied to "elektrionized" oil which was made in Germany.

The Voltol oil process was discovered about 1910 by the Belgian physicist, De Hemptine, who observed that when fatty oils were subjected to glow discharges a transformation of the raw material took place, producing Voltol concentrates which, when added in low percentages (10-15%) to mineral oil, considerably improved the properties of the latter. The viscosity of the mixture was increased, the viscosity curve greatly flattened, and the blend showed remarkable lubricatint properties, much more so than those achieved by adding an equal percentage of non-voltolized fatty oil.

At first, Voltol (concentrate) was employed in the production of bearing-lubricating oils of superior lubricating properties (oiliness). Later on, possibly in 1924, voltolized oil was first used in automotive oils and now this developed the production of voltolized aircraft oils. Experiments showed that a maximum of 5% Voltol (concentrate) gave the best results, while higher concentrations behaved unfavorably.

3.11.3 Brief Description of the Voltolizing Process

Principal Reactions.- It is believed that most of the reactions which occur during voltolizing are the result of electron bombardment. The principal reactions are: 1. Polymerization; 2. Dehydrogenation; 3. Rupture of carbon-carbon bonds, especially those in long-chain hydrocarbons.

All vegetable oils with a high iodine number can be voltolized. In this process hydrogen is intermediately produced and then is added to the unsaturated bonds. During voltolizing of the vegetable oil the iodine number is reduced. Voltolization of rapeseed oil increases the viscosity from 59 to about 300 seconds Saybolt Universal at 210°F.

If vegetable oil alone is voltolized and no mineral oil is added during the process, then, after a certain time, over-voltolizing is observed, which results in sedimentation of fatty acids in the oil. A fatty oil not diluted with the mineral oil reaches, during voltolization, a viscosity limit which does not increase substantially during continued operation. Tests indicated that voltolization proceeds more quickly if Edeleanised mineral oil (SO_2 raffinate) is added than is the case when only acid-treated mineral oils are used. Straight mineral oils, which voltolize badly, have been found to voltolize rapidly when combined with fatty oils.

The yield in the Voltol process is 100% because, through the influence of the glow discharge, only a re-arrangement of molecules and polymerization takes place.

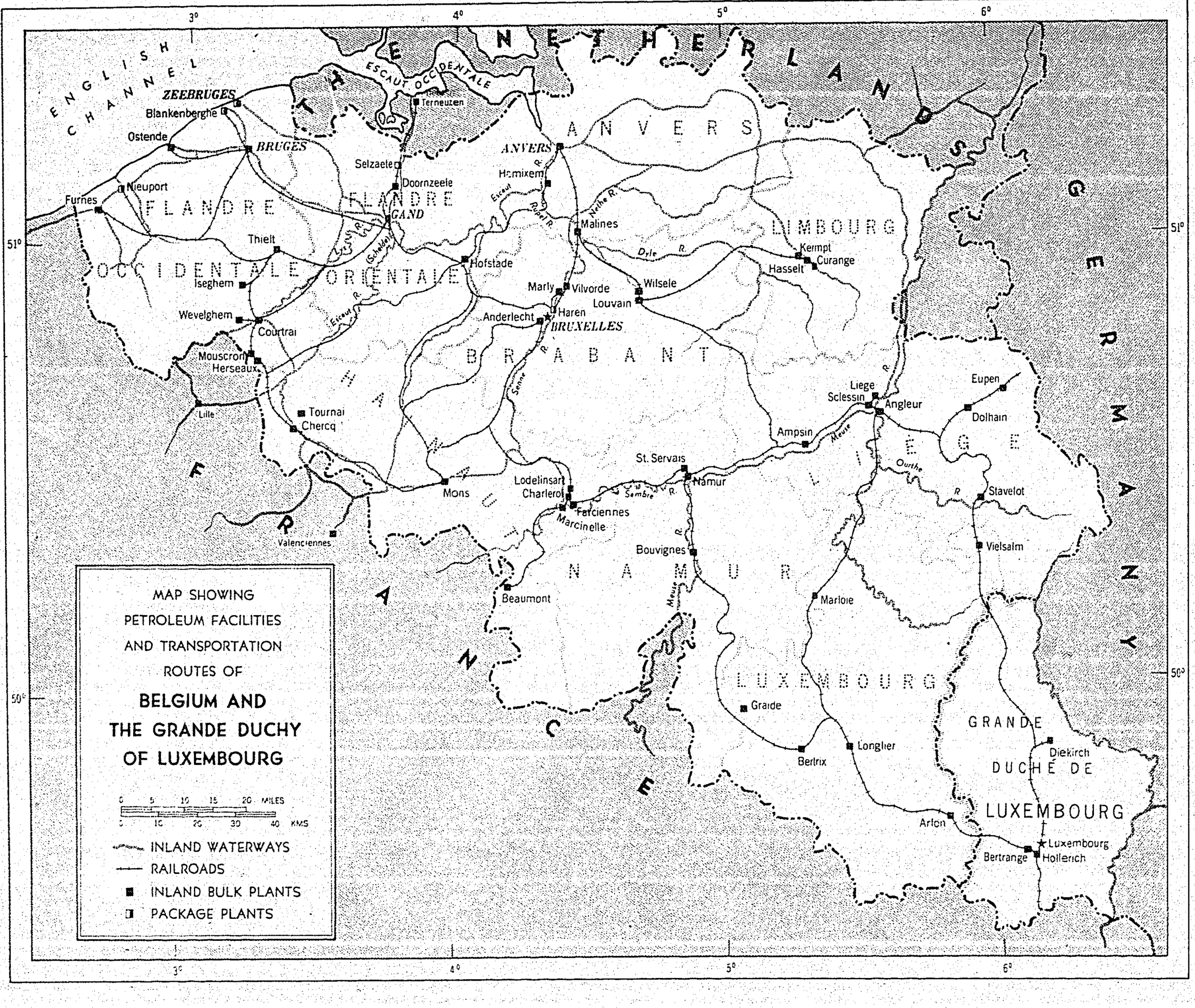
Description of the Process.- In the commercial voltolization of rapeseed oil, at least as practiced in Freital, Germany, in 1936, pure rapeseed oil was voltolized until the viscosity reached 275 S.U. seconds at 210°F. Two parts of mineral oil were then added and voltolization continued until the final product had a viscosity of about 800 S.U. seconds at 210°F. Further voltolization would yield a product that could not be successfully blended with mineral oil to give a final blend that would not separate on standing. It is believed that dilution during the voltolization process is practiced simply to reduce the viscosity of the oil during the final stages of the process, although it may also aid in promoting solubility of the Voltol in the final blend by inter-polymerization of mineral oil and rape seed oil molecules.

The partly voltolized rapeseed oil before dilution is usually called "Rapeseed Mild Voltol" whereas the voltolized blend of two parts of mineral oil and rapeseed mild Voltol is called "Voltol." The final lube oil which consists of about 5% of Voltol and 95% of a suitable mineral oil is called "Voltolized Oil."

Operating conditions.- The voltolization operation is carried out at a temperature of about 140°F, using a glow discharge produced by a high frequency current of 2,000 to 5,000 volts, 2 amperes, and 6 kilocycles. The power consumption is roughly 0.5 KWH per kilogram of oil (70 KWH per barrel). It is desirable to apply the lowest possible temperature and working pressure in order to avoid the formation of higher polymers on the electrodes. Owing to the rather great consumption of current and elaborate equipment, this procedure is rather expensive.

Properties of Voltolized Oils.- The addition of about 10% of Voltol oil to mineral lubricating oils results in the following improvements of lubricating oil: (1) Increase of Viscosity and Viscosity Index of the Oil: The viscosity of the mixture is increased so that, if necessary, bright stock can be saved. The viscosity index of the final blend is a maximum of some 20 points higher than the viscosity index of the mineral oil. (2) Pour Reduction: The addition of Voltol to mineral lubricating oils decreases the pour point of the oil. (3) Improvement of Oiliness: It has been found that the addition of Voltol oil improves the oiliness. Moreover, voltolized oils lead to cleaner engines due to the sludge-dispersing properties of the Voltol oil.

Available data indicate that for luboils used for aircraft engines, the amount of Voltol oil which can be added is limited to about 5%, as, due to the thermal instability of the vegetable oil content, it is believed that a larger percentage of voltolized vegetable oils in the final blend would, owing to the high temperature, cause some decomposition in aircraft engines.


3°
4°
5°
6°
51°
50°
ENGLISH CHANNEL
ZEEBRUGES
Blankenberghe
Ostende
BRUGES
Nieuport
Furnes
FLANDRE OCCIDENTALE
Thielt
Iseghem
Wevelghem
Courtrai
Mouscron
Herseaux
Lille
Tournai
Chercq
Valenciennes
ESCAUT OCCIDENTALE
Terneuzen
Selzaele
Doornzeele
FLANDRE ORIENTALE
GAND
Lys R.
Schelde R.
Escaut R.
Hofstade
Anderlecht
Haren
BRUXELLES
BRABANT
Senne R.
Hainaut
Mons
Lodelinsart
Charleroi
Sambre R.
Farciennes
Marcinelle
Beaumont
Bouvignes
NAMUR
Meuse R.
ANVERS
Hemixem
Escaut R.
Rupel R.
Nethe R.
Malines
Dyle R.
Marly
Vilvorde
Wilsele
Louvain
LIMBOURG
Kermpt
Curange
Hasselt
Liege
Sclessin
Angleur
Eupen
Dolhain
Ampsin
Meuse R.
St. Servais
Namur
Ourthe R.
Stavelot
Vielsalm
Marloie
LUXEMBOURG
Graide
Bertrix
Longlier
GRANDE DUCHÉ DE LUXEMBOURG
Diekirch
Arlon
Bertrange
Luxembourg
Hollerich
NETHERLANDS
GERMANY
MAP SHOWING
PETROLEUM FACILITIES
AND TRANSPORTATION
ROUTES OF
BELGIUM AND
THE GRANDE DUCHY
OF LUXEMBOURG
0 5 10 15 20 MILES
0 10 20 30 40 KMS
INLAND WATERWAYS
RAILROADS
INLAND BULK PLANTS
PACKAGE PLANTS

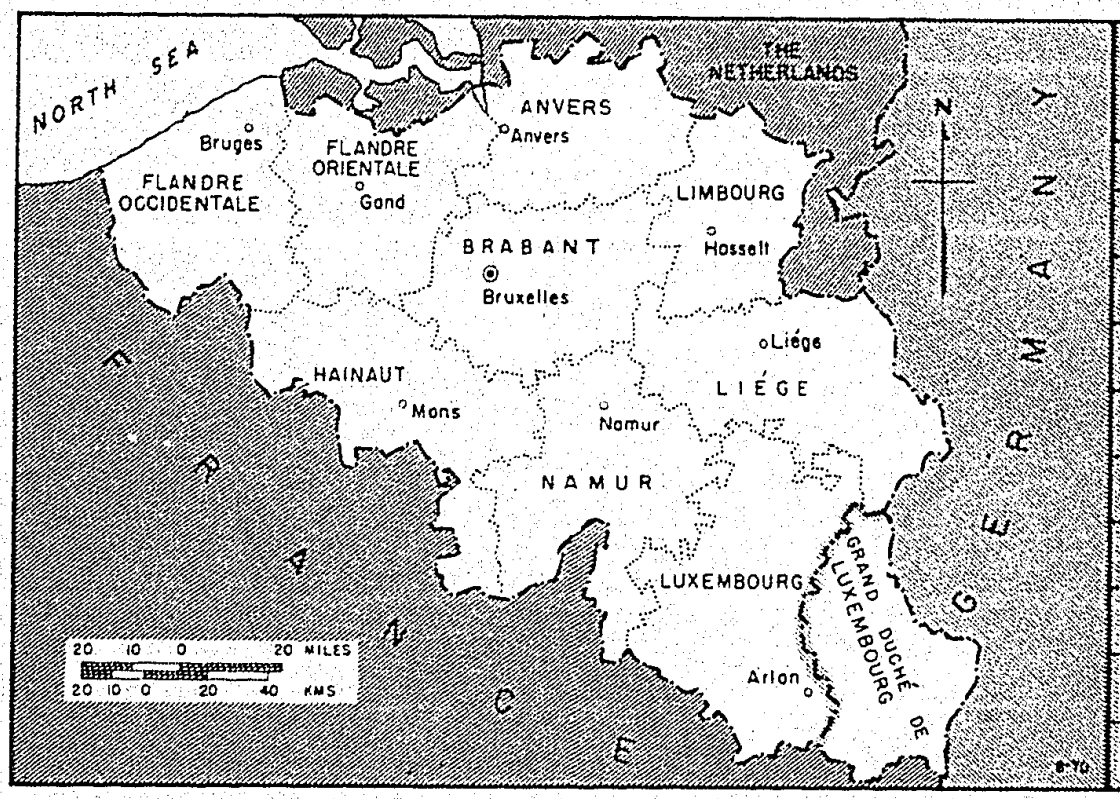
4.0 DISTRIBUTING

4.1 INTRODUCTION

4.1.1 Scope and Plan of this Section

In this section of the report is presented all the available information on the distributing facilities of Belgium and Luxembourg. With the exception of storage capacities of interior bulk plants of the Standard American Petroleum Company and those of small Belgian distributors, neither of which were available, the distributing information is rather complete.

For convenience in study, distributing facilities have been grouped by provinces, followed by a section on the Grand Duchy of Luxembourg.



PROVINCES OF BELGIUM

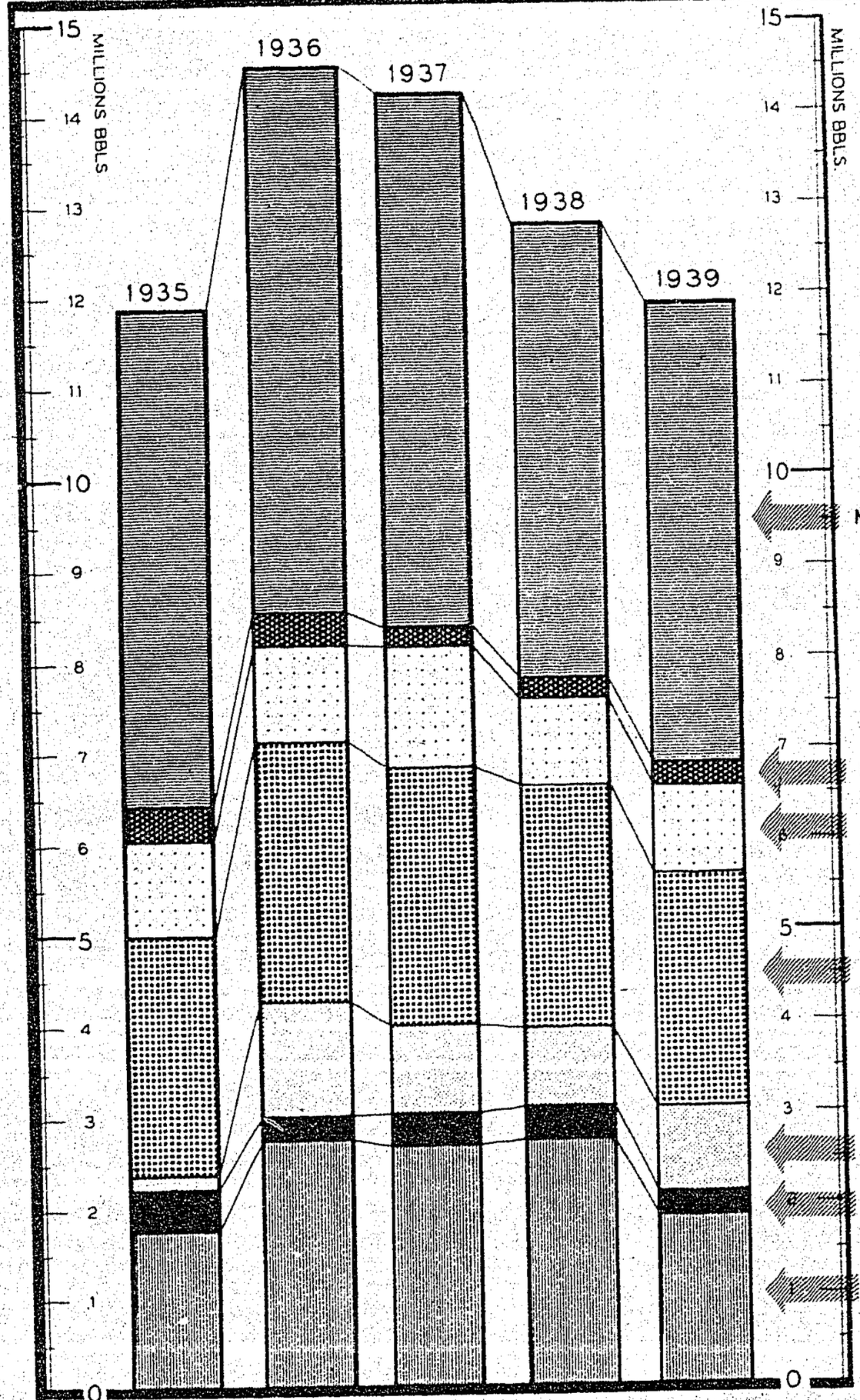
FRENCH	FLEMISH	ENGLISH
Anvers	Antwerpen	Antwerp
Brabant	—	—
Flandre Occidentale	West Vlaanderen	West Flanders
Flandre Orientale	Oost Vlaanderen	East Flanders
Hainaut	Henegouwen	—
Liége	Luik	—
Limbourg	Limburg	—
Luxembourg	Luxemburg	—
Namur	Namen	—

4.1.2 Strategic Considerations

Storage facilities are, of course, essential to the enemy's operations. However, it is not likely that the enemy would rely greatly upon aboveground storage in an area so exposed to attack from England. Furthermore, oil storage has not proven an especially good target for aerial bombardment: isolated attacks generally fail to destroy the entirety of an installation and damage from bombardments is often of a type that can be repaired relatively quickly.

Denial operations.- Nothing less than complete denial operations should be expected from the enemy as he quits any area.

Susceptibility to sabotage.- (1) Oil storage. Owing to the inflammable nature of the contents oil storage naturally is susceptible to sabotage, but not to the extent that is commonly supposed. Large units usually have a water seal which would have to be drawn off before a fire could be started and, except possibly for an active refinery installation, spectacular results from ordinary sabotage operations should not be expected. Acids or abrasives, properly introduced, might be effective, but probably not widely so. (2) Transport. Transport is perhaps the weakest point in the Axis oil economy and likewise one of the most important. Unfortunately, transport is both a difficult and highly dispersed target and successful operations generally do not result in permanent damage. Even temporary results are well worth while, however, in terms of effect on the enemy oil economy. The same remarks are equally applicable to sabotage of transport equipment. As regards denial operations of transport equipment, it may confidently be assumed that tank cars and rolling stock will be sent out of the country before Allied occupation, and that roads and rights-of-way will be seriously damaged, and that no marine equipment will be left.



SUPPLIES OF CRUDE & PRODUCTS BELGIUM, 1935 - 1939

(Figures in Barrels)

	Production	Benzol Blended	Imports	Total
1935				
Motor Fuel	558,000	40,000	4,846,000	5,444,000
Kerosine	116,000	-	264,000	380,000
Lubricating	-	-	1,024,000	1,024,000
Gas Oil & Dist. Fuel	523,000	-	2,089,000*	2,612,000
Residuel Fuel Oil	109,000	-	76,000	185,000
Other Products	346,000	-	107,000	453,000
Total Products	1,652,000	40,000	8,406,000	10,098,000
Crude Oil	-	-	1,785,000	1,785,000
1936				
Motor Fuel	624,000	209,000	5,155,000	5,988,000
Kerosine	162,000	-	234,000	396,000
Lubricating	-	-	1,069,000	1,069,000
Gas Oil & Dist. Fuel	320,000	-	2,553,000*	2,873,000
Residual Fuel Oil	967,000	-	306,000	1,273,000
Other Products	204,000	-	72,000	276,000
Total Products	2,277,000	209,000	9,389,000	11,875,000
Crude Oil	-	-	2,738,000	2,738,000
1937				
Motor Fuel	513,000	268,000	4,928,000	5,809,000
Kerosine	126,000	-	81,000	207,000
Lubricating	-	-	1,341,000	1,341,000
Gas Oil & Dist. Fuel	426,000	-	2,424,000*	2,850,000
Residual Fuel Oil	757,000	-	231,000	988,000
Other Products	214,000	-	145,000	359,000
Total Products	2,136,000	268,000	9,150,000	11,554,000
Crude Oil	-	-	2,696,000	2,696,000
1938				
Motor Fuel	670,000	230,000	4,077,000	4,977,000
Kerosine	146,000	-	88,000	234,000
Lubricating	-	-	987,000	987,000
Gas Oil & Dist. Fuel	547,000	-	2,129,000*	2,676,000
Residual Fuel Oil	705,000	-	167,000	872,000
Other Products	225,000	-	159,000	384,000
Total Products	2,293,000	230,000	7,607,000	10,130,000
Crude Oil	-	-	2,702,000	2,702,000
1939				
Motor Fuel	523,000	288,000	4,176,000	4,987,000
Kerosine	125,000	-	135,000	260,000
Lubricating	-	-	994,000	994,000
Gas Oil & Dist. Fuel	407,000	-	2,167,000*	2,574,000
Residual Fuel Oil	534,000	-	402,000	936,000
Other Products	135,000	-	132,000	267,000
Total Products	1,724,000	288,000	8,006,000	10,018,000
Crude Oil	-	-	1,888,000	1,888,000

* Does not include quantity re-run.

4.1.3 Summary Description of Pre-War Distributing Facilities

The excellent water communications and the central location of Belgium made that country a useful transshipment point for products for neighboring countries, in some cases even for Germany and England. Also, some Governmental encouragement for local refining was afforded in the form of a reduced import duty on crude oil. Thus, Belgium was a more important petroleum distributing center than would have been expected from the viewpoint of domestic consumption. The great system of waterways was fully utilized in the transportation of petroleum products and accordingly the most important distributing facilities were water-fed. The largest storage and distributing facilities were located at Anvers (Antwerpen), where, in addition to the ocean terminals of the companies, four refineries were located. The center next in importance is that of Gand (Gent), where, besides a number of important water-fed terminals, the three remaining refineries of the country are found.

Retail marketing.- The Belgian market was abundantly served by pumps located in every town and village of importance in the country. On December 31, 1938, the total number of pumps, of all types, in the country was as follows:

Pumps in Belgium, 1938

Group	Premium Grade	Ordinary Grade	Gas Oil	Total
Standard Oil Co. (N.J.)	635	5,866	74	6,575
Royal Dutch Shell	439	5,061	5	5,505
Anglo-Iranian Oil Co., Ltd.	99	3,866	11	3,978
The Texas Company	74	2,132	3	2,209
Purfina, S.A.	18	1,952	2	1,972
T o t a l	1,265	18,879	95	20,239

4.1.4 Current Physical Condition and Activity of Installations

The few reports received indicate that, in general, the pertroleum installations in Belgium have suffered but little damage, that all can be operated, and finally, that most of them are, at present, inactive.

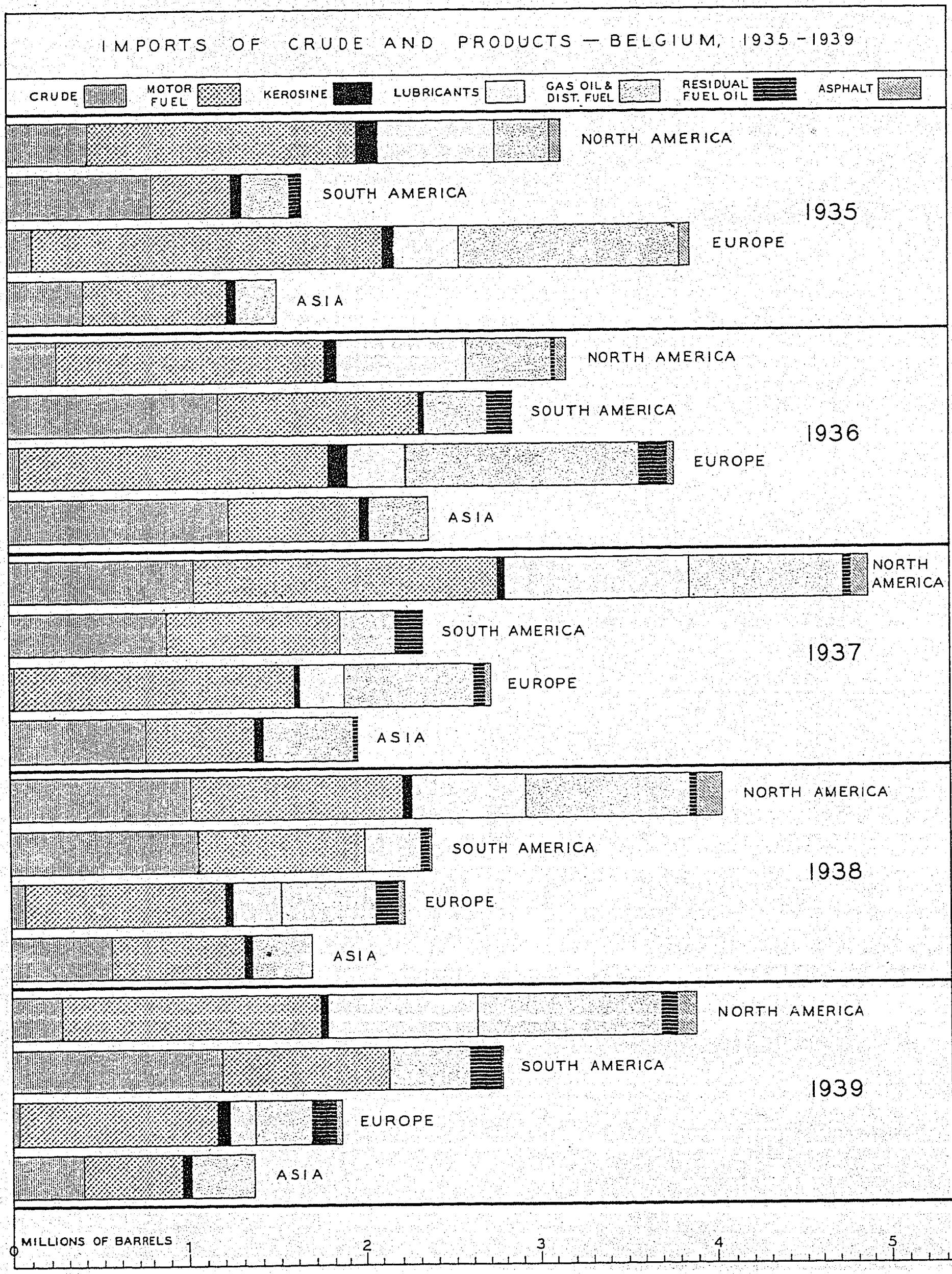
4.1.5 The Current Petroleum Supply Situation

By the end of 1941, stocks of petroleum products in Belgium were exhausted. Since that time essential civilian requirements have been supplied by importation from Germany and by substitute fuels. The exportation of gasoline from Germany to Belgium ceased entirely in September 1943, but some of the Belgium benzol production is still available as motor fuel.

The change-over to substitute fuels has been rapid. In the early part of 1941 there were in service approximately 50,000 vehicles running on liquid fuels. At the end of 1942, the number had been reduced to about 35,000, of which a fourth were running on substitute fuels. For the year 1943, no official figures as to the number of motor vehicles in service are as yet available. Compressed illuminating gas is the most popular substitute for fuel for private motor cars. It is also extensively used for light trucks. For heavy trucks, gas generators, mainly using anthracite as fuel, are used.

The total sales of lubricating oils in Belgium have dropped from about 20,000,000 gallons in 1939 to 5,100,000 gallons in 1942. A preliminary figure for the year 1943 gives the total sales of lubricating oils as 4,600,000 gallons. Most of the lubricating oils imported from Germany in 1942 were of a reasonably good quality. Recently, however, the quality of these imports has been very poor and has given users much trouble.

The importation and distribution of petroleum products for the Armed Forces are handled by the Germans--the services of the oil companies not being utilized.


IMPORTS OF CRUDE AND PRODUCTS — BELGIUM, 1935 - 1939
CRUDE
MOTOR FUEL
KEROSINE
LUBRICANTS
GAS OIL & DIST. FUEL
RESIDUAL FUEL OIL
ASPHALT
NORTH AMERICA
SOUTH AMERICA
1935
EUROPE
ASIA
NORTH AMERICA
SOUTH AMERICA
1936
EUROPE
ASIA
NORTH AMERICA
SOUTH AMERICA
1937
EUROPE
ASIA
NORTH AMERICA
SOUTH AMERICA
1938
EUROPE
ASIA
NORTH AMERICA
SOUTH AMERICA
1939
EUROPE
ASIA
MILLIONS OF BARRELS
0
1
2
3
4
5

IMPORTS OF CRUDE AND PRODUCTS — BELGIUM, 1935 - 1939

(Figures in Barrels)

1935

Origin	Crude	Motor Fuel	Kerosine	Lubricants	Gas Oil & Dist. Fuel	Residual Fuel Oil	Asphalt	Total
United States	153,760	1,553,790	120,800	664,350	324,810	-	28,000	2,845,510
Mexico	282,360	-	-	-	-	-	13,740	296,100
Total North America	436,120	1,553,790	120,800	664,350	324,810	-	41,740	3,141,610
Total South America	810,940	467,390	41,970	-	261,200	75,600	-	1,657,100
France	61,250	280,620	-	-	45,660	-	2,880	390,410
Germany	-	53,790	17,370	16,860	45,190	-	5,730	138,940
Great Britain	25,860	116,290	-	54,960	-	-	390	197,500
Netherlands, The	-	199,210	-	3,500	4,440	-	54,220	261,370
Rumania	22,210	687,380	26,530	40,100	216,900	-	1,950	995,130
Russia	21,210	653,960	12,300	244,190	972,240	-	-	1,903,920
Total Europe	130,530	1,991,270	56,200	359,670	1,284,430	-	65,170	3,887,270
Iran	-	834,010	45,290	-	218,770	-	-	1,098,070
Iraq	174,730	-	-	-	-	-	-	174,730
Other Countries	232,460	-	-	-	-	-	-	232,460
Total Asia	407,210	834,010	45,290	-	218,770	-	-	1,505,280
Total Imports	1,784,800	4,846,460	264,260	1,024,020	2,089,210	75,600	106,910	10,191,260

1936

United States	84,120	1,525,310	61,460	743,390	531,320	2,990	8,000	2,956,590
Mexico	174,910	-	-	-	-	-	42,340	217,250
Total North America	259,030	1,525,310	61,460	743,390	531,320	2,990	50,340	3,173,840
Total South America	1,194,840	1,132,400	27,790	-	348,720	139,390	-	2,843,140
France	15,850	381,660	17,300	-	36,120	106,920	4,280	565,130
Germany	-	51,400	7,730	15,100	-	-	520	74,750
Great Britain	-	40,930	-	920	16,300	-	-	58,150
Netherlands, The	-	181,610	-	3,180	14,820	-	17,240	216,850
Rumania	24,350	884,970	79,560	5,870	441,980	45,640	-	1,482,370
Russia	-	207,760	3,260	300,730	851,810	10,940	-	1,374,490
Total Europe	43,200	1,748,330	107,850	325,790	1,361,030	163,500	22,040	3,771,740
Iran	1,240,670*	748,420	36,560	-	326,280	-	-	2,351,950
Total Asia	1,240,670	748,420	36,560	-	326,280	-	-	2,351,950
Total Imports	2,737,740	5,154,460	233,680	1,069,180	2,567,350	305,880	72,380	12,140,670

1937

United States	462,300	1,724,620	26,940	1,090,440	875,790	23,720	23,380	4,227,190
Mexico	574,150	-	-	-	-	-	86,340	660,490
Total North America	1,036,450	1,724,620	26,940	1,090,440	875,790	23,720	109,720	4,887,680
Total South America	694,230	975,150	-	-	303,890	130,040	-	2,303,310
France	-	401,080	-	-	105,640	29,430	5,670	541,820
Germany	-	110,200	-	2,130	2,220	-	1,790	116,340
Great Britain	6,180	42,130	-	19,790	-	-	1,160	69,260
Netherlands, The	-	285,160	-	7,240	76,190	19,470	25,080	413,140
Rumania	-	588,760	12,970	-	50,510	12,440	1,330	666,010
Russia	-	165,310	-	221,230	506,970	2,330	-	895,840
Total Europe	6,180	1,592,640	12,970	250,390	741,530	63,670	35,030	2,702,410
Iran	759,120**	636,030	40,610	-	514,200	13,260	-	1,963,220
Total Asia	759,120	636,030	40,610	-	514,200	13,260	-	1,963,220
Total Imports	2,695,980	4,928,440	80,520	1,340,830	2,435,410	230,690	144,750	11,856,620

1938

United States	407,045	1,208,212	26,160	688,508	865,113	16,940	15,410	3,227,388
Mexico	609,030	-	-	-	85,100	-	103,809	797,939
Total North America	1,016,075	1,208,212	26,160	688,508	950,213	16,940	119,219	4,025,327
Total South America	1,064,020	948,668	-	-	302,301	39,710	7,880	2,362,579
France	51,150	388,797	-	-	123,456	30,128	250	593,781
Germany	-	23,440	-	3,760	-	-	2,240	29,460
Great Britain	-	27,140	3,800	71,720	-	-	-	102,660
Netherlands, The	-	104,170	1,540	4,730	156,696	80,670	17,640	365,446
Rumania	16,330	568,787	19,120	-	223,482	-	-	827,719
Russia	-	29,980	-	198,510	56,090	-	-	284,580
Total Europe	67,480	1,142,314	24,460	278,740	559,724	110,798	20,130	2,203,646
Iran	-	777,512	37,471	-	327,961	-	-	1,142,944
Iraq	554,350	-	-	-	-	-	-	554,350
Total Asia	554,350	777,512	37,471	-	327,961	-	-	1,697,294
Unknown	-	-	-	19,969	-	-	11,459	31,428
Total Imports	2,701,925	4,076,706	88,091	987,217	2,140,199	167,448	158,688	10,320,274

1939

United States	267,870	1,491,100	22,720	850,720	1,080,360	84,900	23,610	3,821,280
Mexico	-	-	-	-	-	-	72,500	72,500
Total North America	267,870	1,491,100	22,720	850,720	1,080,360	84,900	96,110	3,893,780
Total South America	1,199,660	957,630	-	-	450,860	190,090	2,010	2,800,250
France	21,730	260,990	15,920	-	15,610	7,450	-	321,600
Germany	-	-	-	6,840	-	-	2,090	8,930
Great Britain	-	-	-	41,480	-	-	-	41,480
Netherlands, The	-	252,310	-	23,420	225,390	119,290	31,530	651,940
Rumania	-	602,280	53,680	-	16,650	-	-	672,610
Russia	-	20,440	-	71,700	56,680	-	-	148,820
Total Europe	21,730	1,136,020	69,500	143,440	314,330	126,740	33,620	1,845,380
Iran	-	591,130	43,090	-	329,850	-	-	964,070
Iraq	398,430	-	-	-	-	-	-	398,430
Total Asia	398,430	591,130	43,090	-	329,850	-	-	1,362,500
Unknown	-	-	-	-	-	-	250	250
Total Imports	1,887,690	4,175,880	135,310	994,160	2,175,400	401,730	131,990	9,902,160

* Includes Iraq crude

** Includes Iraq and Bahrein crude.

4.1.6 Regional Movements of Oil

General considerations.- It is estimated that the total civilian and military consumption of petroleum products in France and Belgium during 1943 amounted to 1,562,200 metric tons (10,935,400 barrels). Of this quantity an estimated 645,000 metric tons (4,517,800 barrels) were produced within France and Belgium, leaving 916,800 metric tons (6,417,600 barrels) to be obtained from imports. From a transportation viewpoint all current French and Belgian imports of oil may be considered to originate in western Germany, even though they may have reached the latter area from other sources.

Belgium and northern France, which together contain the chief sources of indigenous liquid fuel supplies of the two countries, form also, because of their industrial development, the largest consuming district within the two countries--the local civilian supply and demand largely balancing one another. Thus, the greater part of the oil imported is for military and naval use in western and southern France.

Canal routes, western Germany to northern France and Belgium.-

(a) Via Rhine barge to a point near Basel, thence via canal over Mulhouse and Besancon to the Saône River and via the latter to Châlon-sur-Saône and the waterways of northern France.

(b) By barge from Rhine ports up the Rhine to Strasbourg, thence via the French canal system over Nancy and Châlons to Paris and canal ports of northern France. The Seine and the Marne waterways carry the bulk of this traffic.

(c) By barge down the Rhine to Nijmegen, in Holland, thence via the Dutch and Belgian canal system over Liége to Namur and connections with the canal systems of western Belgium and northern France.

Railroad routes, western Germany to northern France and Belgium.- The following are the main routes of oil transport by rail:

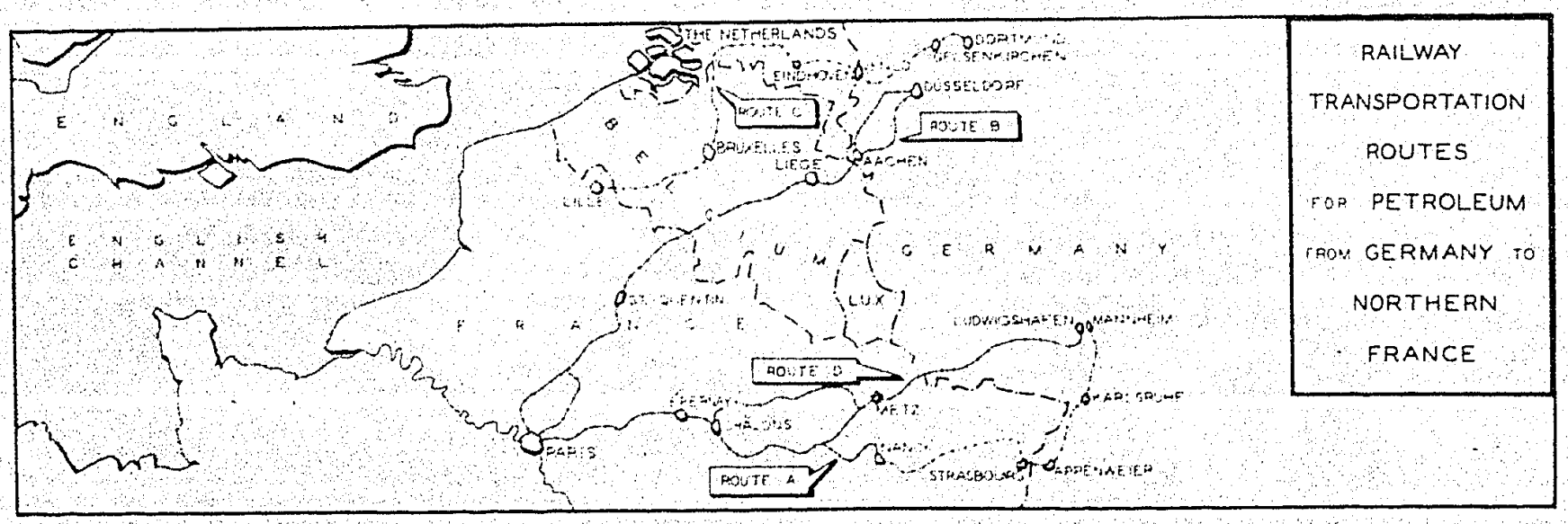
(a) Mannheim-Karlsruhe-Appenweier-Strasbourg-Nancy-Épernay-Paris.

(b) Düsseldorf-Aachen-Liége-St. Quentin-Paris.

(c) Dortmund-Gelsenkirchen-Venloo-Eindhoven-Bruxelles-Lille.

(d) Ludwigshafen-Metz-Châlons-Paris.

All of the above listed railroads are multi-tracked freight routes, and there are other parallel routes available. The choice of railroad routing between western Germany and Belgium is controlled chiefly by the bridges over the Rhine, which are at Duisberg, Düsseldorf, Köln, Coblenz, Mainz, Ludwigshafen and Strasbourg.



ROAD MAP OF BELGIUM AND GRAND DUCHY OF LUXEMBOURG

ROAD SIGNS

- HOLLOW
- SHARP TURN
- CROSSING
- SECONDARY ROAD
- GUARDED GRADE CROSSING
- UNGUARDED GRADE CROSSING
- DANGER
- CAUTION

0 10 20 30 40 KILOMETERS
0 10 20 30 MILES

AXIAL ROUTE NOS. 1 TO 10
ROUTE NOS. 11 TO 72

THE NETHERLANDS
GERMANY
FRANCE
NORTH SEA
Dunkerque
ZEEBRUGES
Blankenberghe
Ostende
BRUGES
Nieuport
Furnes
Dixmude
Loo
Thielt
Thourout
Eecloo
Ertvelde
Selzaete
Dournzeele
Langerbrugge
Wondelghem
GAND
Roulers
Iseghem
Ypres
Poperinghe
Courtrai
Wevelghem
Mouscron
Herseaux
Lille
Tournai
Chercq
Mons
Valenciennes
Maubeuge
Beaumont
Philippeville
Chimay
Couvin
Binche
Lodelinsart
Farciennes
Charleroi
Marcinelle
Ath
Soignies
Nivelles
Renaix
Grammont
Audenarde
Ninove
Alost
Termonde
Hofstade
Merly
Vilvorde
Wilsele
Haren
BRUXELLES
Anderlecht
Hal
Wavre
Gembloux
St.-Servais
Namur
Bouvignes
Dinant
Wuestwezel
Oostmalle
Turnhout
ANVERS
St.-Nicolas
Hemixem
Lierre
Herenthal
Malines
Aerschot
Diest
Beeringen
Leopold
Bree
Maeseyck
Asch
Curange
Kermpt
Hasselt
Louvain
St.-Trond
Tirlemont
Hannut
Waremme
Tongres
Visé
Liege
Sclessin
Angleur
Verviers
Battice
Eupen
Dolhain
Huy
Ampsin
Aywaille
Spa
Stavelot
Malmedy
Durbuy
Pessoux
Marche
Marloie
Laroche
Houffalize
Fraiture
St.-Vith
Clervaux
Bastogne
St.-Hubert
Graide
Recogne
Bertrix
Neufchateau
Longlier
Wiltz
GRAND
Diekirch
Vianden
Ettelbruck
Redange
DUCHE DE
Mersch
LUXEMBOURG
Echternach
Arlon
Bertrange
Hollerich
Luxembourg

Quantitative aspects of oil movements.- It is estimated that around 258,000 metric tons or 1,806,000 barrels of petroleum products were imported in 1943 into northern France and Belgium from western Germany via the rail and canal routes described above. To this total should be added some 425,000 metric tons or 2,975,000 barrels of liquid fuels produced locally, making a total of 684,000 metric tons or 4,788,000 barrels of oil to be distributed in Belgium and northern France by rail, canal and tank truck.

4.1.7 Industrial and Civilian Consumption of Liquid Fuels and Lubricants

Estimated Industrial and Civilian Consumption of Liquid Fuels and Lubricants in Belgium, 1938

(In metric tons)

	Light Motor Fuel (Including Benzol)	Kerosine	Lubricants	Gas Oil	Fuel Oil	Total
Motor Cycles	16,000	--	1,000	--	--	17,000
Private Cars	130,000	--	5,000	--	--	135,000
Busses	13,000	--	1,000	4,000	--	18,000
Trucks	220,000	--	8,000	8,000	--	236,000
Total Road Transport	379,000	--	15,000	12,000	--	406,000
Railways	2,000	--	3,000	4,000	--	9,000
Inland Shipping	--	--	3,000	26,000	3,000	32,000
Bunkers	--	--	--	8,000	48,000	56,000
Commercial Aviation	5,000	--	--	--	--	5,000
Agriculture	3,000	12,000	3,000	3,000	--	21,000
Industry	6,000	--	37,000	70,000	40,000	153,000
Household	--	10,000	--	--	4,000	14,000
Total	395,000	22,000	61,000	123,000	95,000	696,000

Overall consumption.- Total industrial and civilian consumption of petroleum in 1943 has been estimated on the basis of actual oil supplies and their allocation to the various uses in Belgium for the early months of 1943. Consumption of motor fuel, including 70-90 per cent benzol, has been estimated at 25,000 metric tons or 175,000 barrels. Gas oil (which frequently consisted of a 60 per cent gas oil--40 per cent coal tar oil mixture, or of gas oil mixed with 70 per cent of gasoline) has been estimated at 31,000 metric tons or 217,000 barrels, and fuel oil, including domestic tar oil, has been placed at 9,000 metric tons or 63,000 barrels.

Road transportation.- Estimates of liquid fuel requirements for road transportation have been reduced by about 25 per cent as compared with the estimate for 1942. A reduction of the number of vehicles in use and rapid progress in the conversion to substitute fuels were responsible for this reduction. Moreover, the rations for vehicles not yet converted were reduced continually and preference was given to small-powered units. Lubricating oil rations amounted to 1 liter of lubricants per 40-50 liters of gasoline and for substitute fuel-using vehicles to 1 liter of lubricants per 40-50 kilometers or 24-31 miles performed.

Inland shipping.- The estimates for 1943 for the oil requirements of the 900 motor vessels and 200 tugs available in Belgium have been reduced by about 20 per cent as compared with the estimates for 1942. Barges were frequently laid up for lack of oil. Fishing, too, is severely handicapped by an oil shortage.

Agriculture and industry.- The shortage of industrial lubricants in 1943 is even more severe than was the case in 1942. Industries were allowed little more than 15 per cent of their pre-war requirements. A German office for Oil Regeneration was set up; all used lubricants were collected and regenerated. Tar oils have replaced fuel oil in industry. However, even tar oil has become increasingly scarce and city gas has been used in some industries.

Household.- Kerosine rations have been issued to households lacking gas or electricity. In February, 1943, 4 liters per household were issued.

Estimated Industrial and Civilian Consumption of Liquid Fuels and Lubricants in Belgium, 1943

(In metric tons)

	Light Motor Fuel	Kerosine	Lubricants	Gas Oil	Fuel Oil	Total
Road Transport	21,000	--	2,000	2,000	--	25,000
Railways	--	--	2,000	1,000	--	3,000
Inland Shipping and Fishing	--	--	2,000	7,000	--	9,000
Bunkers	--	--	--	--	--	--
Commercial Aviation	--	--	--	--	--	--
Agriculture	1,000	--	1,000	1,000	--	3,000
Industry	3,000	--	9,000	20,000	9,000	41,000
Household	--	1,000	--	--	--	1,000
Total	25,000	1,000	16,000	31,000	9,000	82,000

4.1.8 The Use of Substitute Fuels in Belgium in 1943

Road transportation.- Official statistics on the number of motor vehicles in use in Belgium have been published in the Belgian press. The increase in the number of substitute-using vehicles and the decline in those driven by liquid fuel between September 1942 and February 1943 is shown in the following table:

Belgian Motor Vehicles in Operation

Fuel Used	Vehicles in Operation	
	February 1943	September 1942
Gasoline	13,777	21,351
Diesel Oil	2,332	2,674
Compressed Gas	9,572	7,377
Wood	3,423	2,806
Charcoal	69	114
Anthracite	6,603	5,521
Electric Cars	16	109
Creosote	7	9
Ammonia	12	6
Other Fuels	100	21
Total	35,911	39,988

The total number of substitute-driven vehicles early in 1943 amounted to nearly 20,000 units as compared with 10,000 units in September, 1942. For several reasons it is probable that there was but little progress during 1943: the number of convertible vehicles was limited, the available workshops (400 in 1942) were primarily working to equip German army trucks with generators and, finally, the quantities of fuel available were not sufficient to cover the requirements of vehicles already converted. In the spring of 1943 it was actually reported that all new generators were reserved for the German army. By June 1943 the total number of generator vehicles of all kinds, including 2,000 tractors, probably amounted to less than 22,000. In the autumn of 1943 it was decreed that private cars and small trucks should be equipped with coal-gas generators and that vehicles with over 12 h.p. would receive no more gasoline.

Supplies of generator fuels have been strictly rationed. Although no information on the size of such rations is available, it may be expected that the utilization of generator vehicles has been considerably below that of liquid-fuel-driven cars in pre-war times. Lubricating oil allowances amount to about 1 liter of lubricants per 40-50 kilometers, or 24-31 miles, travelled.

In the middle of 1942 there were some 12,000 substitute-fueled vehicles in Belgium, accounting for some 30 per cent of the road haulage and saving about 25,000 metric tons of light motor fuel and diesel oil a year. In 1943 the number of substitute vehicles was 60 per cent higher. The quantity of liquid fuel replaced by substitutes in road transportation during 1943 has been increased by the same percentage to 40,000 metric tons, or 280,000 barrels.

Railways.- An increasing number of railway cars have been converted to substitute fuels. By the beginning of 1942, of 164 railway cars, 103 were equipped with generator motors and travelled 8,900 kilometers, or 5,526 miles, daily. No data more recent are available but it is reasonable to assume that all railway cars susceptible to conversion were converted by July 1943. The total has tentatively been put at 125. It is believed that very few oil-driven railway cars are still in use.

Inland shipping.- About 6,500 Belgian inland waterway vessels were registered with the Centrale Belge de Navigation Intérieure, which controlled inland shipping including transport to Holland and Germany. This included about 900 motor vessels of an average size of 260 to 270 tons d.w.t. and some 250 diesel-powered tugs. Early in 1942 it was planned to convert 1,000 motor ships and tugs, or practically all available motor shipping, to the use of substitute fuels. By June 1942 only 3 ships had been converted, and early in 1943 it was reported that only a small number of barges were actually using substitute fuels. A decree issued by the German Military Commander in Belgium on June 24, 1943 prescribed that Belgian ships and small vessels must install generator engines forthwith. If the owners should fail to effect the alteration voluntarily the work was to have been carried out by the authorities at the expense of the owner. Subsidies covering the whole cost of conversion were provided. (Luxemburger Wort, August 24, 1943). Press notices of August, 1943 indicated that large scale conversion of shipping in Belgium had not yet begun (Deutsche Zeitung in Norwegen, August 21, 1943). During the whole of 1943 probably less than 10 per cent of the fuel requirements for inland and coastal shipping were replaced by substitute fuels.

Agriculture.- The number of tractors converted to substitute fuels increased from 1,000 (of a total of 3,500) in June 1942 to about 1,800 early in 1943.

4.1.9 Distributing Companies

The main distributing companies operating in Belgium are shown on the following page.

Main Distributing Companies, Belgium

Company	Address of Head Office of Company	Owner Company or Control	
		Name	Address
Belgian Shell, S. A.	Shell Building, 47, rue Cantersteen, Bruxelles	Royal Dutch Shell group	London
L'Alliance, S. A. B.	44 Kipdorf, Anvers (Antwerpen)	Anglo-Iranian Oil Co. Ltd.	London
Standard American Petroleum Company	101, avenue de France, Anvers (Antwerpen)	Standard Oil Co. (N.J.)	New York
The Texas Company, S.A.B.	47, avenue des Arts, Bruxelles	The Texas Company	New York

4.1.10 Marketing Positions of Companies

Complete gallonage figures were not available (a). However, it is known that the business was divided about as follows:

	Percentage of Business
Standard Oil Co. (N.J.) group	33
Royal Dutch Shell group	33
Anglo-Iranian Oil Co. Ltd.	12.5
The Texas Company, S. A. B.	6.5
Small Independents	15
	100

4.2 PROVINCE OF ANVERS (ANTWERPEN)

4.2.1 General Remarks

The interior points of distribution of the Province of Anvers are supplied with petroleum products from the numerous deep water terminals in the vicinity of the city of Anvers. Without the city of Anvers area, the only petroleum facilities of importance in this province are those at Malines.

4.2.2 Anvers (Antwerpen) District

The most important petroleum storage facilities in Belgium, both in size and in number, are the deep-water terminals and refineries located in the Anvers district in northern Belgium.

Petroleum Harbor at Anvers.-Most of these plants are crowded together at a point on the east bank of the Escaut (Schelde) River about two miles above the city of Anvers, called Installations Pétrolifères, or Petroleum Harbor. The plants, built on property belonging to the city, are supplied by ocean tankers and distribute products by barge, railway tank cars and tank trucks.

(a) A statement of sales of the companies in Belgium for the year 1939 is given as Appendix II. It is known that these figures include resales in the country, hence do not represent sales for interior consumption alone.

STATISTICAL SUMMARY OF DATA ON OCEAN AND RIVER TERMINALS

BELGIUM

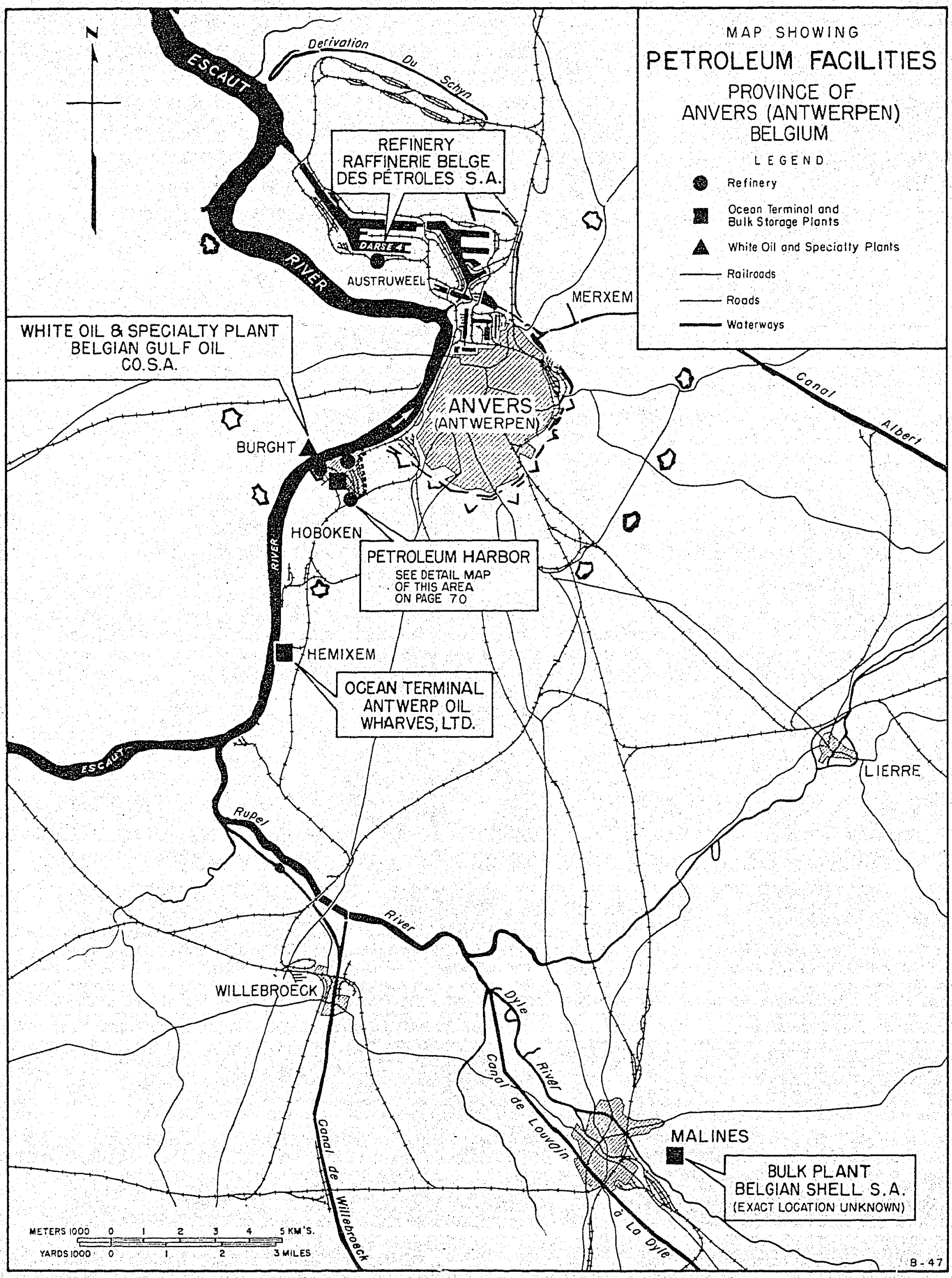
x = Data Unknown — - = Not applicable

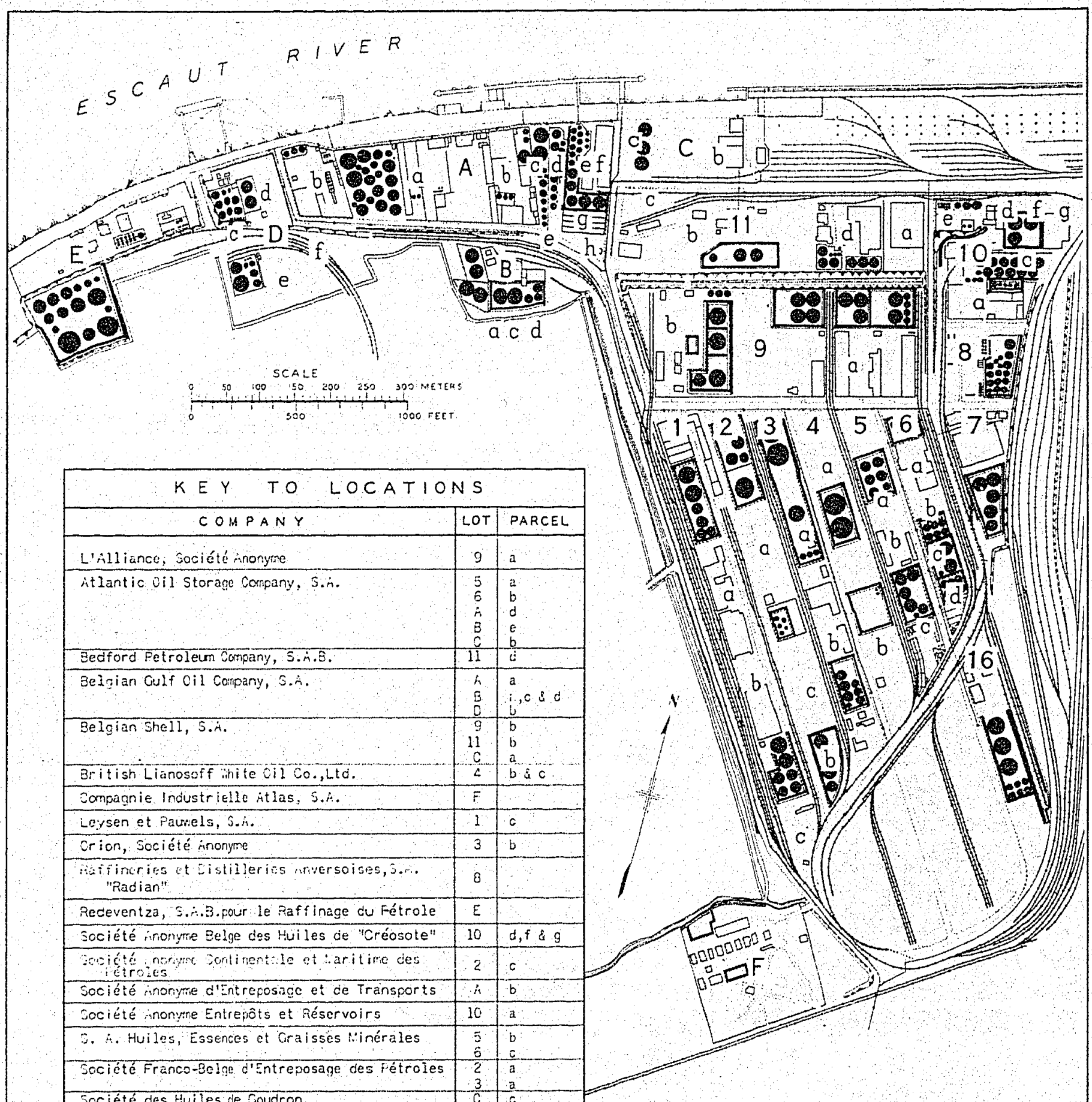
IDENTIFICATION	IDENTIFICATION OF PLACE AND PLANT	Identification of Place	Place		Anvers (Antwerpen)	Hemixem, near Anvers (Antwerpen)
			Location: Lat.		51° 12' N	51° 9' N
			Long.		4° 23' E	4° 20' E
		Identification of Plant	Name		Petroleum Harbor area	Antwerp Oil Wharves, Ltd.
			Location		S. bank Escaut (Schelde) River, 1 mile W. of Anvers	(d)
			Owner		City of Anvers	Antwerp Oil Wharves, Ltd.
			Nature		Petroleum Center - Ocean Terminals	Ocean Terminal - public storage
STORAGE DATA	SITUATION OF TANKS		Underground		None	None
			Aboveground		All	All
	TYPES OF TANKS				ALL COMPANIES	x
	CAPACITY OF STORAGE TANKS	Black	Number		WITH TERMINALS	42
			M³		in the	43,650
			Barrels		PETROLEUM	274,995
		White	Number		DISTRICT	27
			M³		used the	27,150
			Barrels		MUNICIPAL PIER	171,045
		Total Plant	Number			77(e)
			M³			70,800
			Barrels			446,040
		Total Place	Number		-	-
			M³		520,113	-
			Barrels		3,276,796	-
	STORAGE FOR CASED GOODS				-	Ample--see text
	FIRE PROTECTION				-	x
	CAMOUFLAGE				-	x
	DAMAGE				-	x
SUPPLY & DISTRIBUTION	DESCRIPTION OF PUMPING EQUIPMENT				-	Steam pumps - oil burning boilers
	LOADING RACKS				-	Yes
	CASE & CAN PLANT				-	None
	SUPPLY				Ocean tankers	Ocean tankers
	DISTRIBUTION				By barge, rail, road	By barge, rail, road
BERTHS	Common Name of Berth				Municipal Pier	Antwerp Oil Wharves, Ltd.
	Used by				All companies, leased from city	Same
	Length of Pier				957 feet	(f)
	Width of Pier				15 feet	(f)
	Fresh water supply at dock?				Yes--rainwater to reservoir	x
	Ships Accommodated:					
	Maximum length of vessel in feet				Unlimited	Unlimited
	Maximum beam of vessel in feet				Unlimited	Unlimited
	Maximum draft of vessel in feet				26' M L W (a)	The deepest
	DWT accommodated				17,800	17,800

DISCHARGE DATA	DISCHARGE DATA	Products:	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Light Fuel Oil	Gas Oil & Diesel
	PIPE LINES	Number of pipe lines	Numerous Lines						x	x	x	x
		Length of pipe lines: meters	6 to 12 inch Capacity						x	x	x	x
		feet							x	x	x	x
		Diameter of pipe lines: inches	To Various Terminals (b)						x	x	x	x
		Pressure allowed in pounds	125	125	125		125		x	x	x	x
		Discharge rate, long tons per hour.	300	300	150		300		200	70	300	300
	Side or stern discharge		Side					x				
	Steam		Ships'(c)					x				
PORT	PORT PARTICULARS											
	Tugs required docking		Yes					x				
	Tugs required undocking		Yes					x				
	Bottom		Sand					x				

REMARKS

(a) Numerous lighters normally available, 300 - 1,500 tons.
(b) Public lines.
(c) Limited quantity shore steam (3 inch line) available for discharging low flash products.
(d) Hemixem: S. bank Escaut (Schelde) River, 5 miles upstream from Anvers.
(e) Exclusive of a few cylindrical tanks, lubricating oil blending plant, and 3 small clarifying tanks of 15 M³ and 2 of 20 M³.
(f) Floating pontoon, 200 feet from river bank.


MAP SHOWING
PETROLEUM FACILITIES
PROVINCE OF
ANVERS (ANTWERPEN)
BELGIUM
LEGEND
Refinery
Ocean Terminal and Bulk Storage Plants
White Oil and Specialty Plants
Railroads
Roads
Waterways
N
ESCAUT
Derivation Du Schyn
REFINERY
RAFFINERIE BELGE
DES PÉTROLES S.A.
DARSE 1
AUSTRUWEEL
RIVER
MERXEM
WHITE OIL & SPECIALTY PLANT
BELGIAN GULF OIL
CO.S.A.
ANVERS
(ANTWERPEN)
Canal Albert
BURGHT
HOBOKEN
RIVER
PETROLEUM HARBOR
SEE DETAIL MAP
OF THIS AREA
ON PAGE 70
HEMIXEM
OCEAN TERMINAL
ANTWERP OIL
WHARVES, LTD.
ESCAUT
LIERRE
Rupel
River
WILLEBROECK
Dyle
River
Canal de Louvain
Canal de Willebroeck
MALINES
BULK PLANT
BELGIAN SHELL S.A.
(EXACT LOCATION UNKNOWN)
à La Dyle
METERS 1000 0 1 2 3 4 5 KM'S.
YARDS 1000 0 1 2 3 MILES
B-47



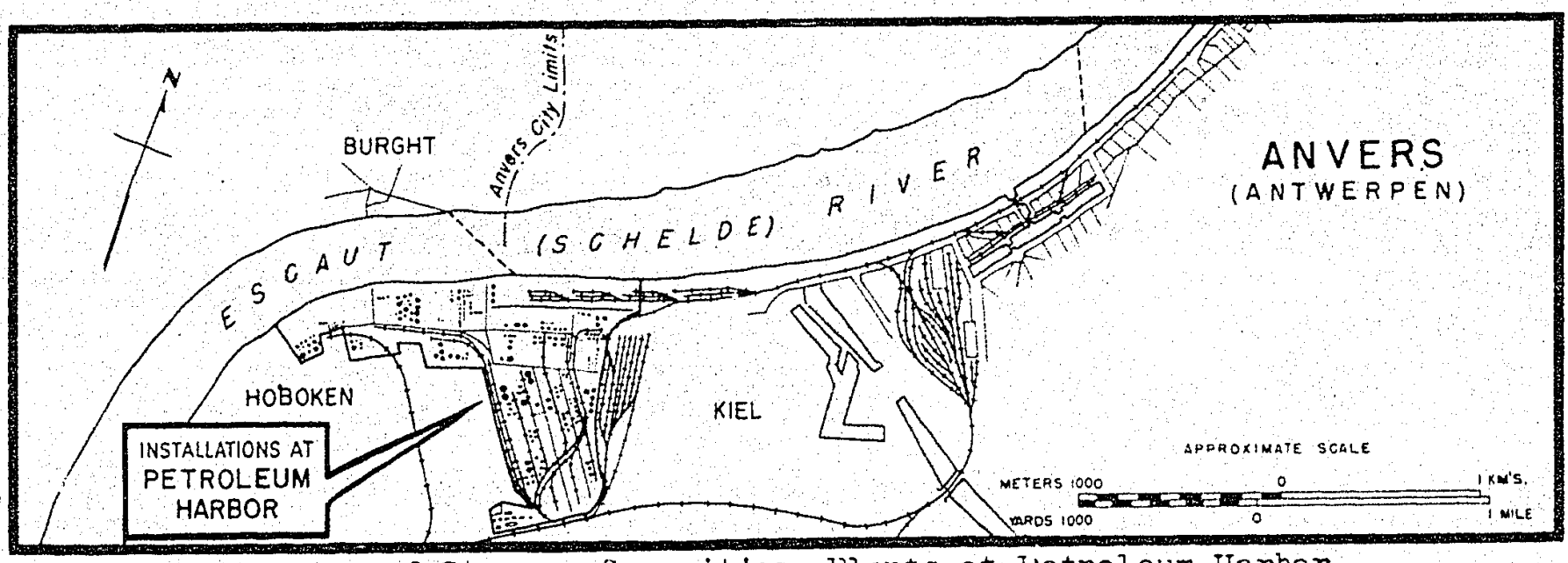
KEY TO LOCATIONS		
COMPANY	LOT	PARCEL
L'Alliance, Société Anonyme	9	a
Atlantic Oil Storage Company, S.A.	5 6 A B C	a b d e b
Bedford Petroleum Company, S.A.B.	11	d
Belgian Gulf Oil Company, S.A.	A B D	a c & d b
Belgian Shell, S.A.	9 11 C	b b a
British Lianosoff White Oil Co.,Ltd.	4	b & c
Compagnie Industrielle Atlas, S.A.	F	
Leysen et Pauwels, S.A.	1	c
Orion, Société Anonyme	3	b
Raffineries et Distilleries Anversoises,S.A. "Radian"	8	
Redeventza, S.A.B.pour le Raffinage du Pétrole	E	
Société Anonyme Belge des Huiles de "Créosote"	10	d,f & g
Société Anonyme Continentale et Maritime des Pétroles	2	c
Société Anonyme d'Entreposage et de Transports	A	b
Société Anonyme Entrepôts et Réservoirs	10	a
S. A. Huiles, Essences et Graisses Minérales	5 6	b c
Société Franco-Belge d'Entreposage des Pétroles	2 3	a a
Société des Huiles de Goudron	C	c
Standard American Petroleum Company	1 2 6 7 A	a & b b a c & h
Tankage et Transport, S.A.	8 10 16	 e & c e
The Texas Company, S.A.B.	4 5 6 A 11	a c d e & f c
Transport and Trading Company	D	c,d,e & f
Vacuum Oil Company	11	a

MAP SHOWING LOCATIONS OF
PETROLEUM FACILITIES

PETROLEUM HARBOR

ANVERS (ANTWERPEN)

BELGIUM



Summary of Storage Capacities, Plants at Petroleum Harbor

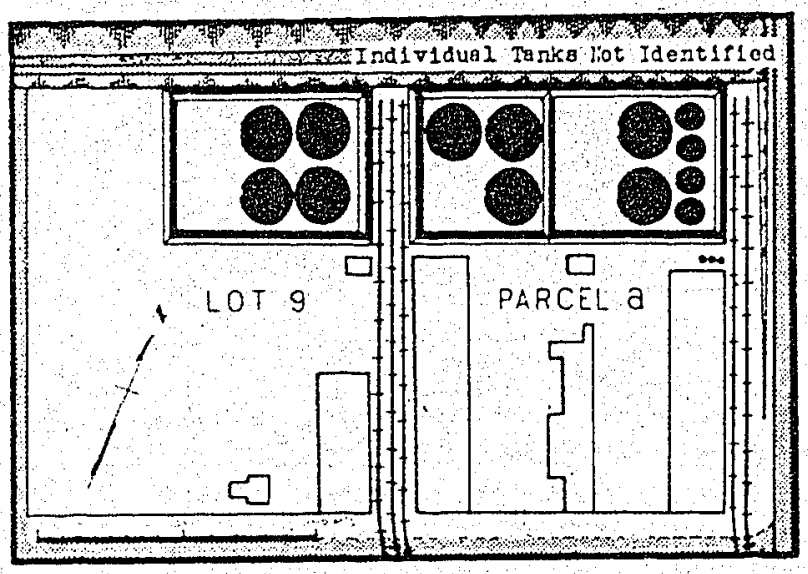
Company	Owner Company or Control	Storage Capacity M3	Storage Capacity Bbls.
Atlantic Oil Storage Co., S.A.	The Atlantic Refining Co. Philadelphia	24,349	153,479
Bedford Petroleum Company, S.A.B.	Standard Oil Co. (N.J.) New York	9,440	59,472
Belgian Gulf Oil Co., S.A.	Gulf Oil Corp.,Pittsburgh	73,145	460,813
Belgian Shell, S.A.	Royal Dutch Shell group London	34,825	219,400
Compagnie Industrielle Atlas,S.A.	Standard Oil Co. (N.J.) New York	16,000	100,800
L'Alliance, Societe Anonyme	Anglo-Iranian Oil Co., Ltd. London	37,680	237,378
Leysen et Pauwels, S.A.	Independent	125	788
Orion, S.A.	Phoenix Oil Products, Ltd. London	7,788	49,063
"Redeventza", S.A. Belge pour le Raffinage de Petrole	Redeventza, S.A., Bucharest	46,000	289,800
S.A.d'Entreposage et de Transports	European Naval Stores	2,165	13,640
S.A. Entrepots et Reservoirs	Independent	760	4,788
S.A. Belge des Huiles de"Creosote"	Independent	19,155	120,676
S.A. Huiles, Essences et Graisses Minerales	Anglo-Iranian Oil Co., Ltd. London	7,130	44,919
Societe Franco-Belge d'Entreposage de Petrole	Purfina, S.A., Anvers	28,213	177,742
Standard American Petroleum Co.	Standard Oil Co. (N.J.) New York	89,012	560,776
Tankage et Transport, S.A.	C. T. Davidis	53,465	336,829
The Texas Company, S.A.B.	The Texas Co., New York	45,295	285,364
Transport & Trading Company	Coal Trading Association	25,030	157,689
Vacuum Oil Company, S.A.B.	Socony-Vacuum Oil Co., Inc. New York	536	3,380
Total		520,113	3,276,796

Damage and demolition.- Reports indicate that approximately one fifth of the total capacity of the Petroleum Harbor installations has been destroyed.

4.2.3 L'Alliance, Société Anonyme

Identification.- This company, affiliated with Anglo-Iranian Oil Co., Ltd. occupies parcel "a" of lot No. 9 at Petroleum Harbor, with an area of 38,904 M^2.

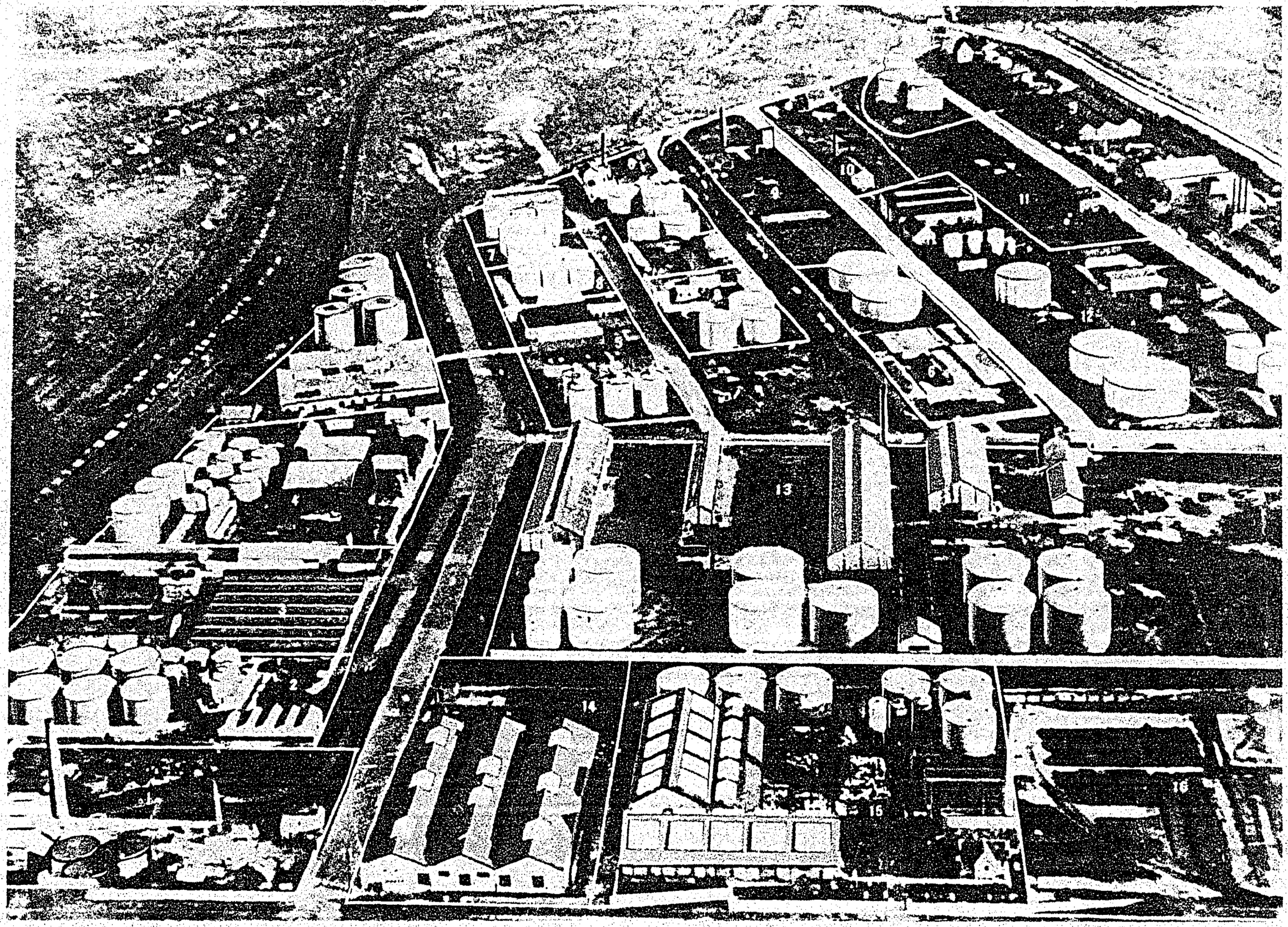
Description.- Both white and black products were handled at this plant. There were separate pump rooms for gasoline, kerosine, and heavy oils. Principal pumps are steam-driven. Three gasoline tanks of 20 M^3 each are located on the roof of the gasoline pumphouse. In the gasoline filling house are 3 tanks, 1 of 6,000 liters and 2 of 2,000 liters, a can repair shop with compressed air testing machine and electric soldering equipment, a paint shop and drying room. The kerosine filling room contains service tanks for can and drum filling. There are outside filling racks for tank trucks and railway tank cars. Other equipment consists of: a boilerhouse with two oil-fired boilers--pressure 8 kilograms; engine room containing a steam engine, compressor, dynamo and electric control panel, and a small fuel oil tank; a separate room containing two stand-by diesel motors with generators (another auxiliary oil engine is located in the auto paint shop); a forge and machine shop; a garage, a repair shop for automobiles and pumps, a tank truck repair shop, and auto and tank truck paint shops; paint shops for railway tank cars and for advertising signs; carpenter shops; storehouses and stables. There were also offices, residences, and dining rooms. Fire protection consisted of portable Foamite carts and 3 inch water lines with seven hydrants.



Tankage.- Tanks for gasoline, kerosine and fuel oil are grouped in separate basins surrounded by fire walls. The capacity of the basins amount to one half the total tank capacities. The total storage capacity is 37,680 M^3 (237,384 barrels) of which 15,172 M^3 is for black products and 22,508 M^3 is for white products.

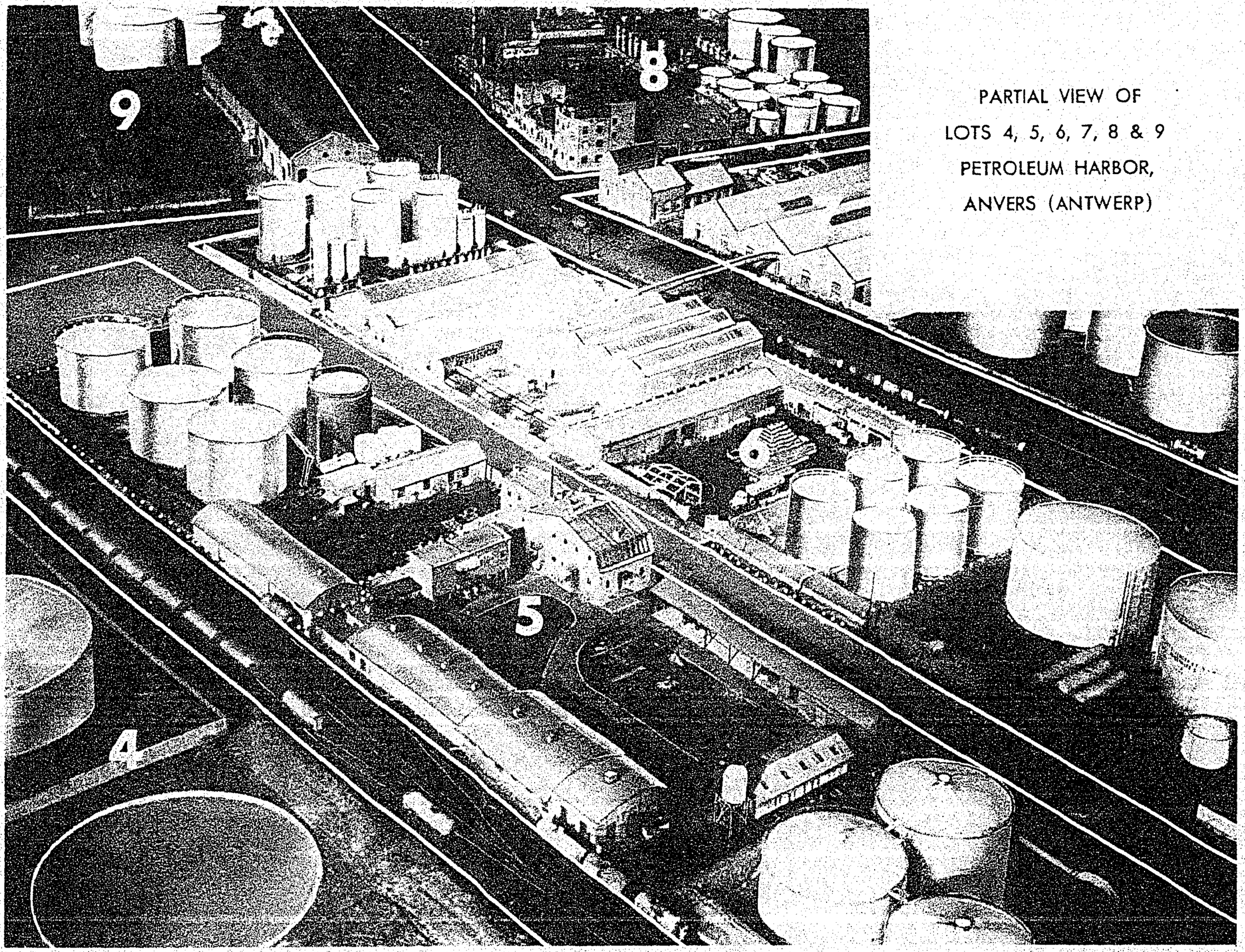
Detailed Tank Identification

Tank No.	Capacity		Product
	M^3	Barrels	
1	942	5,934	Gasoline
2	942	5,934	Gasoline
3	942	5,934	Gasoline
4	942	5,934	Gasoline
5	3,768	23,738	Gasoline
6	3,768	23,738	Gasoline
9	3,768	23,738	Kerosine
10	3,768	23,738	Kerosine
11	3,768	23,738	Kerosine
13	3,768	23,738	Gas oil or fuel oil
14	3,768	23,738	Gas oil or fuel oil
15	3,768	23,738	Gas oil or fuel oil
16	3,768	23,738	Gas oil or fuel oil
Total	37,680	237,378	

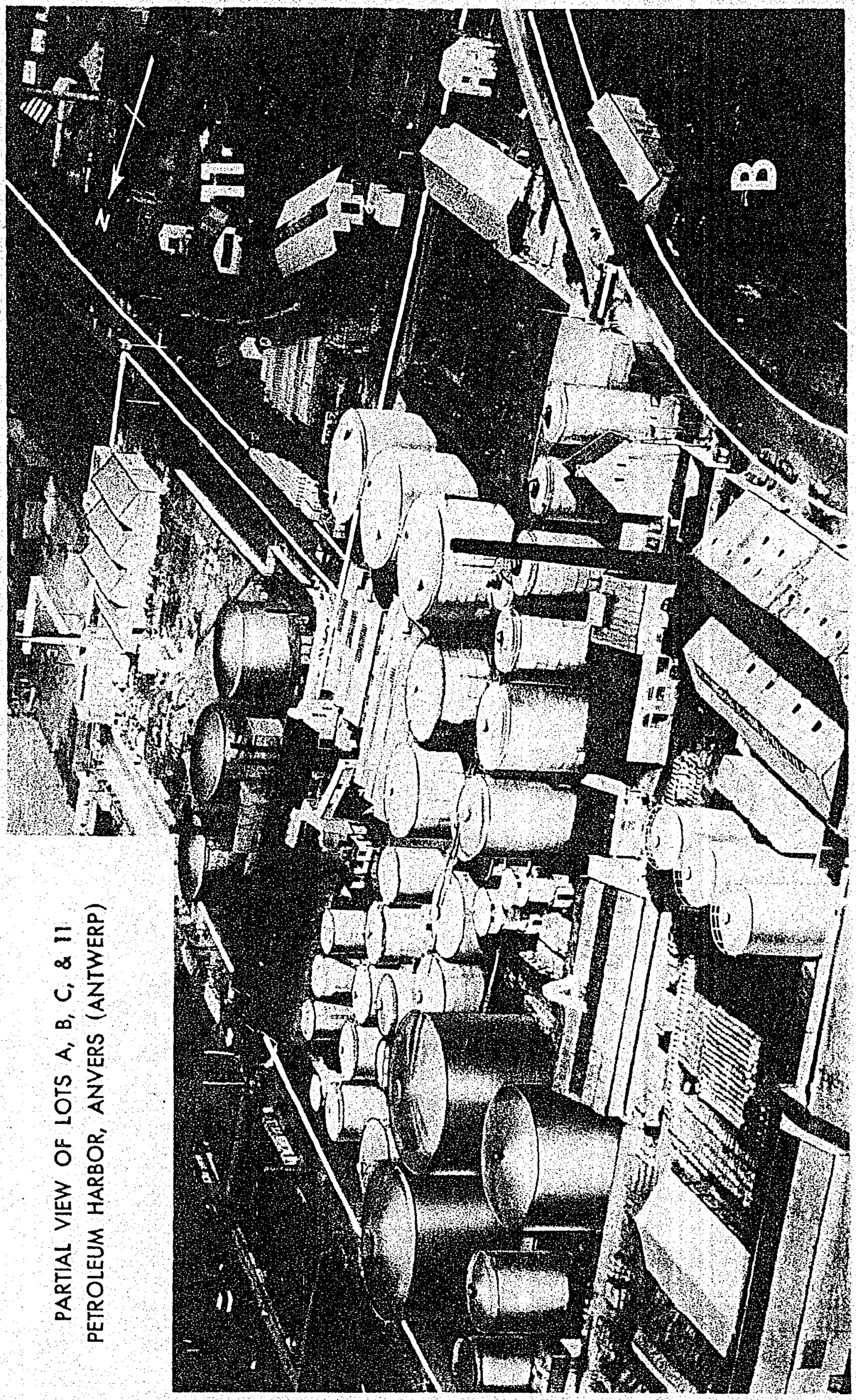


PARTIAL VIEW OF PETROLEUM HARBOR, ANVERS (ANTWERPEN), BELGIUM

1. S.A.B. des HUILES de "CRÉOSOTE"
2. TANKAGE et TRANSPORT, S.A.
3. S.A. ENTREPOTS et RÉSERVOIRS
4. RAFFINERIES et DISTILLERIES ANVERSOISES, S.A., "RADIAN"
5. STANDARD AMERICAN PETROLEUM CO.
6. THE TEXAS COMPANY, S.A.B.
7. S.A. HUILES, ESSENCES et GRAISSES MINÉRALES
8. ATLANTIC OIL STORAGE COMPANY, S.A.
9. BRITISH LIANOSOFF WHITE OIL CO., LTD.
10. ORION, S.A.
11. S.A. CONTINENTALE et MARITIME des PÉTROLES
12. SOCIETE FRANCO-BELGE, d'ENTREPOSAGE de PÉTROLE
13. L'ALLIANCE, S.A.
14. VACUUM OIL COMPANY, S.A.B.
15. BEDFORD PETROLEUM CO., S.A.B.
16. BELGIAN SHELL COMPANY, S.A.

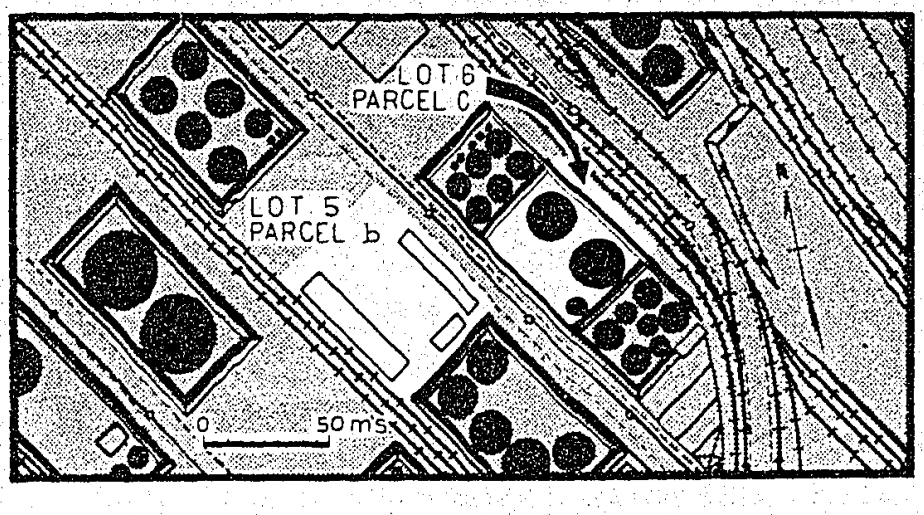


PARTIAL VIEW OF
LOTS 4, 5, 6, 7, 8 & 9
PETROLEUM HARBOR,
ANVERS (ANTWERP)



PARTIAL VIEW OF LOTS A, B, C, & 11
PETROLEUM HARBOR, ANVERS (ANTWERP)

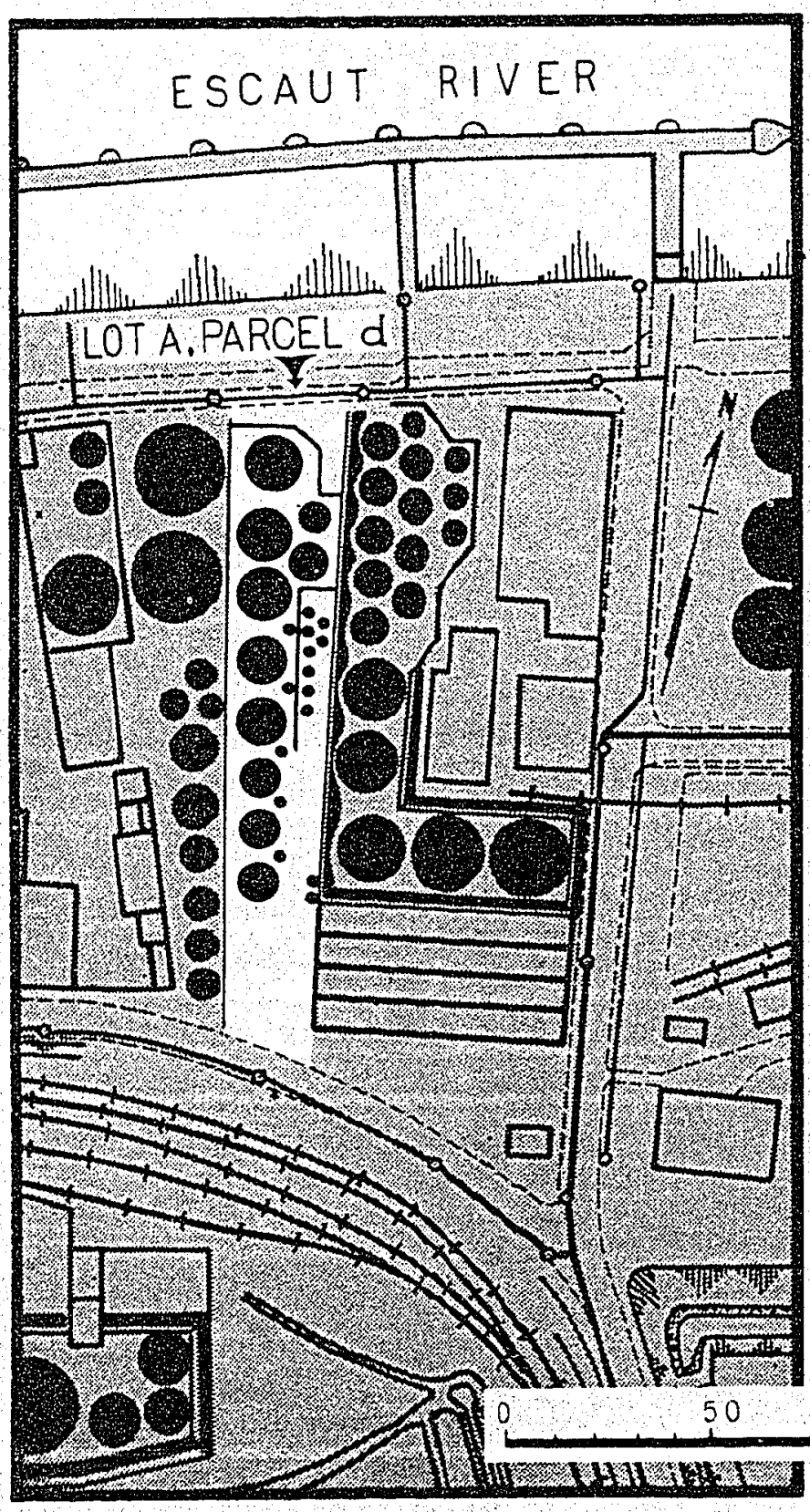
4.2.4 S. A. Huiles, Essences et Graisses Minérales

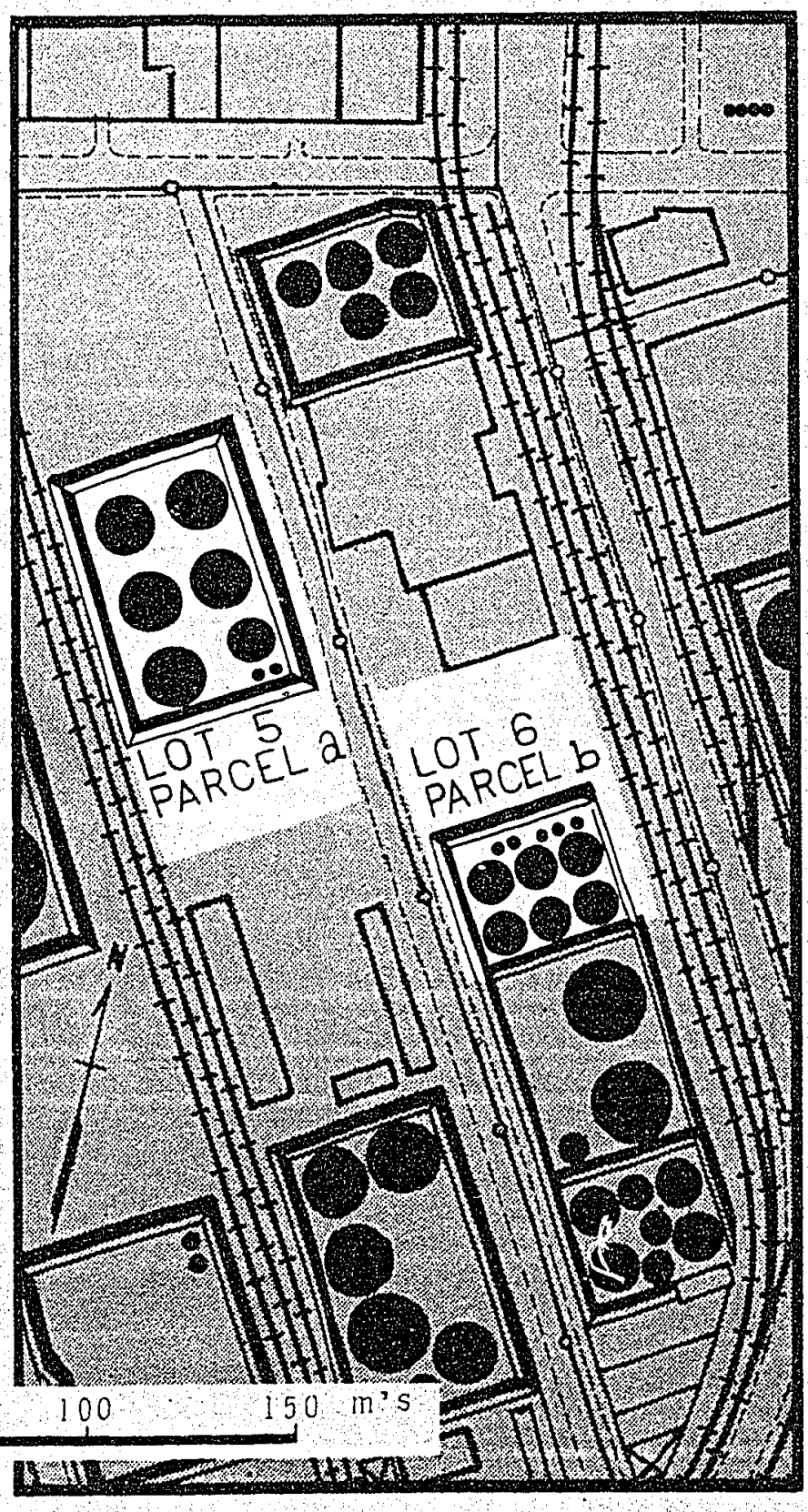


This company, controlled by the Anglo-Iranian Oil Co. Ltd., owned an installation at the Petroleum Harbor and occupied parcel "b" of lot 5 and parcel "c" of lot 6, a total area of 5,663 M^2. The tankage consisted of 2 tanks each of 3,500 M^3 (22,050 barrels) capacity and one tank of 130 M^3 (819 barrels) capacity, a total of 7,130 M^3 (44,919 bbls.).

4.2.5 The Atlantic Oil Storage Company, S.A.

This company, affiliated with the Atlantic Refining Company, Philadelphia, owned plants at the Petroleum Harbor. Some of these formerly were the property of



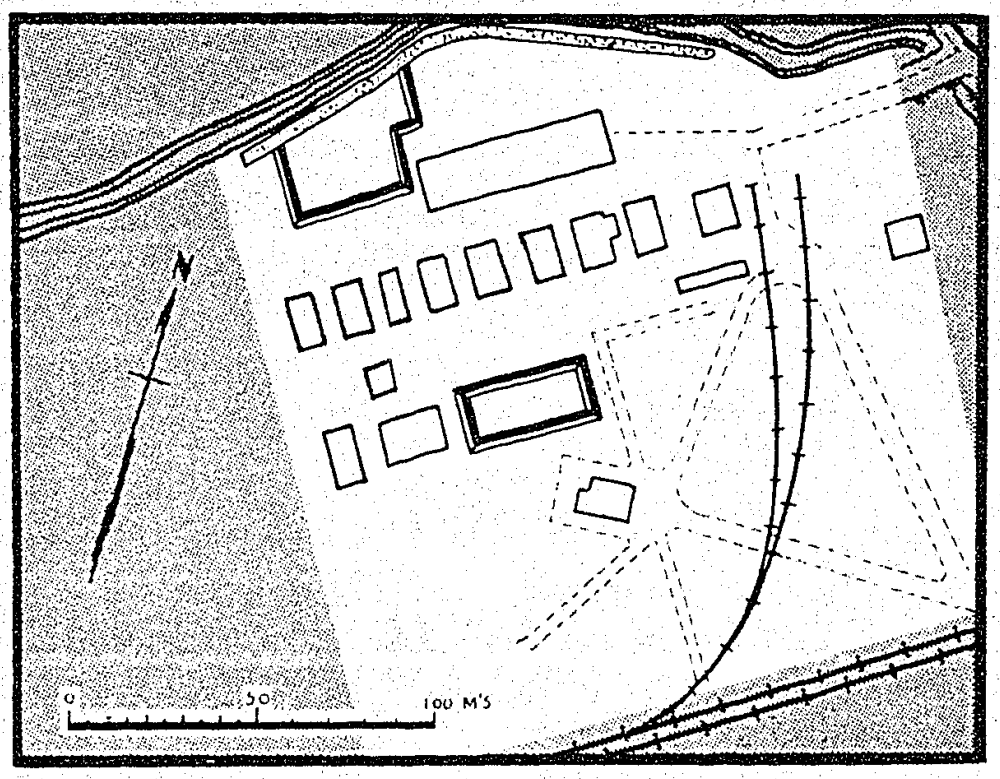


the Cities Service Oil Storage Company, and on many of the earlier maps are so marked. The plant had a garage for 10 trucks, a blending plant, a filling house for packages and a repair shop for drums. It was connected to the municipal pier by a pipe line for gasoline and lubricating oils. Details of the installations are as follows:

Tank Storage Capacity of Atlantic Oil Storage Company, S. A.

Lot	Parcel	Product	Storage Tanks	Capacity Each		Total Capacity	
				M^3	Barrels	M^3	Barrels
5	"a"	Gasoline	5	1,767	11,132	8,825	55,660
6	"b"		1	785	4,946	785	4,946
			6	785	4,946	4,710	29,676
		Total Gasoline Storage Tanks				14,320	90,282
A	"d"	Lube	1	1,767	11,132	1,767	11,132
			4	1,028	6,476	4,112	25,904
			2	579	3,648	1,158	7,296
			2	785	4,946	1,570	9,892
			1	350	2,205	350	2,205
		Total Lube Oil Storage Tanks				8,957	56,429
			Blending Tanks				
5	"a"	Gasoline	2	35	220	70	440
			2	24	151	48	302
			1	9	56	9	56
			1	2.5	16	2.5	16
			1	15	94	15	94
6	"b"		1	35	220	35	220
			3	9	56	27	168
			1	20	126	20	126
			3	27	170	81	510
		Total Gasoline Blending Tanks				307.5	1,932
A	"d"	Lube	1	5.5	34	5.5	34
			1	9	56	9	56
			1	6.5	40	6.5	40
			1	36	226	36	226
			1	24	151	24	151
			7	7.5	47	52.5	329
			1	1	39	1	39
			10	34.7	218	347	2,180
			1	25	158	25	158
			2	13.5	85	27	170
			3	36.1	227	108.3	681
			2	25.4	160	50.8	320
			4	18	113	72	452
		Total Lube Oil Blending Tanks				764.6	4,836
		Total Storage Capacity				24,349.1	153,479(a)

(a) 61,265 barrels for black and 92,214 barrels for white products.

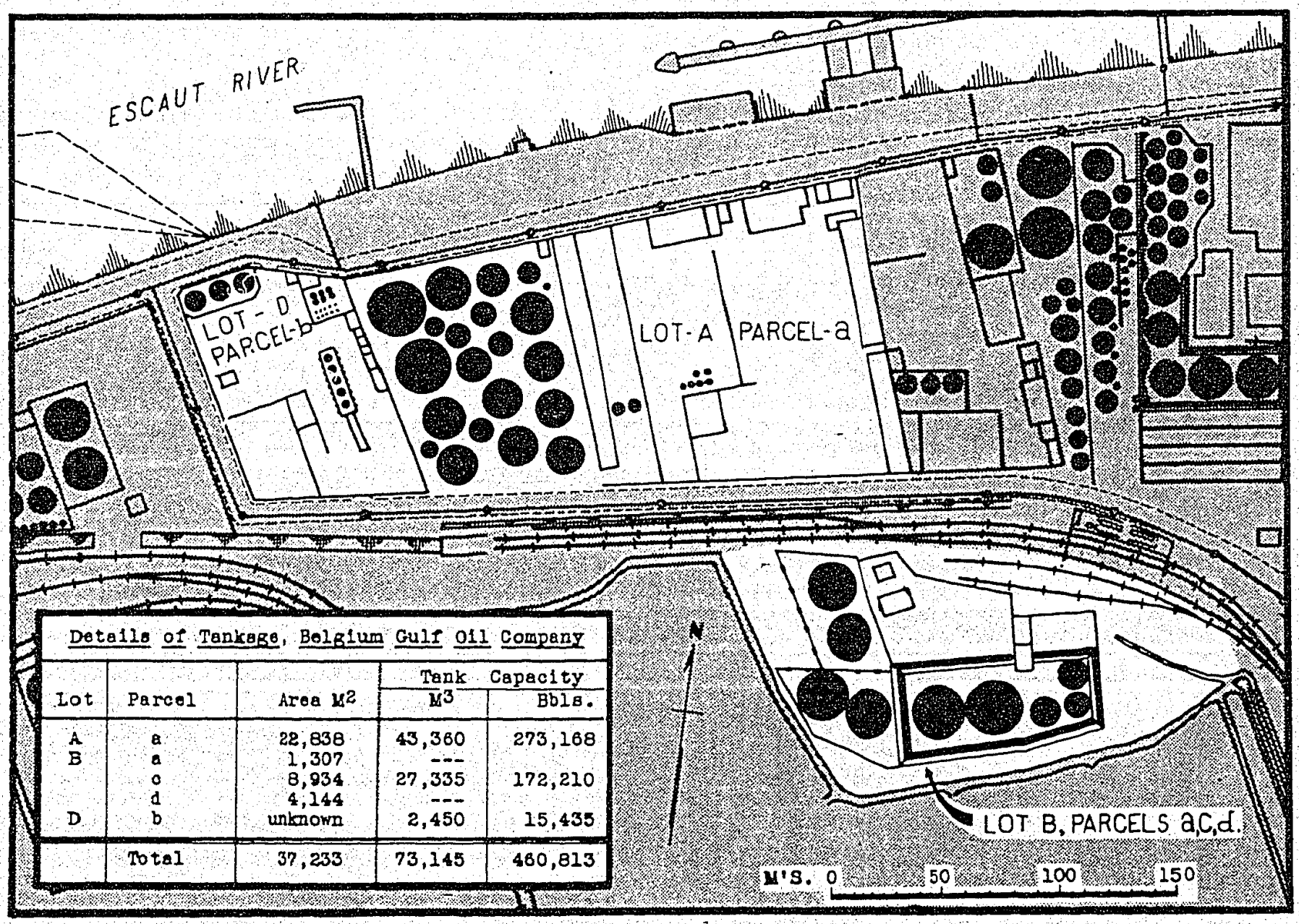


4.2.6 Compagnie Industrielle Atlas, S. A.

This company, affiliated with Standard Oil Company (N.J.), owns a small refinery at the extreme southern end of the Petroleum Harbor installations. Layout plans and description of this refinery appear in the Refinery section of this report. The pre-war tankage was approximately 16,000 M^3 (100,800 barrels). The facilities include a power plant, materials warehouse, first-aid station, office, bonded warehouse, laboratory, machine shop, boiler house, electric pumps, and portable Foamite fire fighting apparatus.

4.2.7 Belgian Gulf Oil Co., S. A.

This company, affiliated with Gulf Oil Corporation of Pittsburgh, Pa., occupies land at Petroleum Harbor, with areas and tank capacities as shown on the table next below.



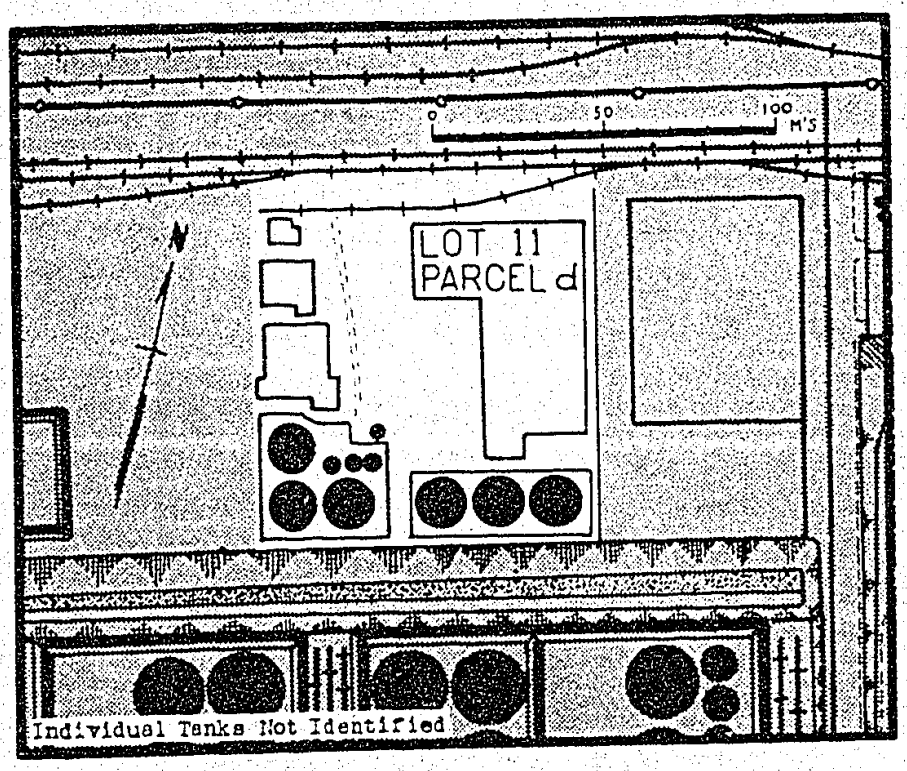
Details of Tankage, Belgium Gulf Oil Company

Lot	Parcel	Area M^2	Tank Capacity M^3	Tank Capacity Bbls.
A	a	22,838	43,360	273,168
B	a	1,307	---	
	c	8,934	27,335	172,210
	d	4,144	---	
D	b	unknown	2,450	15,435
	Total	37,233	73,145	460,813

The plant includes a canning plant, blending plant, a diesel-powered dynamo, electric pumps, dwelling, office, garage, small boiler house. Gas oil, fuel oil, gasoline and kerosine are stored in bulk.

4.2.8 Bedford Petroleum Company, S.A.B.

Identification.- This company, affiliated with Standard Oil Company (N.J.), occupies parcel "d" of lot 11 at Petroleum Harbor, with an area of 9,516 M^2.



Description.- There was a lubricating oil barrel-storage and filling house with 8 rectangular tanks having a total capacity of 250 M^3 or 1,575 barrels; an empty barrel warehouse with apparatus for washing barrels, electric motor, small tank for caustic soda, vapor heaters and motor-driven ventilators, and hot-air barrel drying equipment. There was a pumphouse and a powerhouse with two coal-fired boilers--maximum pressure 10.5 kilograms--,and a steam-driven engine and dynamo. There was also a small forge, a garage and repair shop, a paint shop, a laboratory and offices. Storage tankage was as follows:

Tankage Capacity, Bedford Petroleum Company, S.A.B.

Tank No.	Capacity		Tank No.	Capacity	
	M^3	Bbls.		M^3	Bbls.
1	1,500	9,450	4	1,500	9,450
2	1,500	9,450	5	1,500	9,450
3	1,500	9,450	6	1,500	9,450
			10	30	189
7	40	252	11	30	189
8	40	252		250	1,575
9	50	315			
			Total	9,440	59,472

4.2.9 Belgian Shell, S.A.

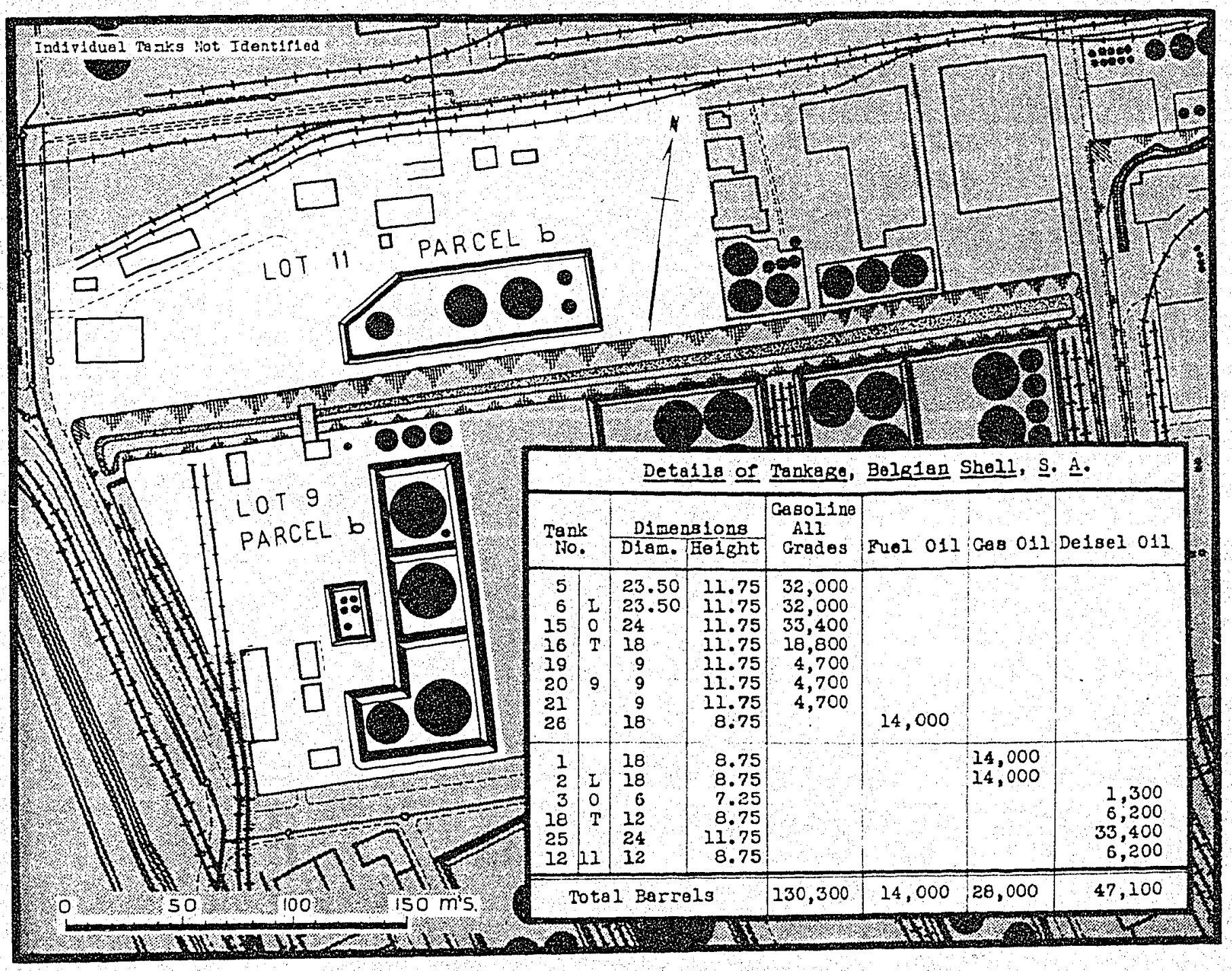
Identification.- This company, affiliated with the Royal Dutch Shell group, occupies the following parcels in the Petroleum Harbor:

Details of Tankage, Belgian Shell, S.A.

Lot	Parcel	Area in M^2
9	b	20,185
11	b	26,145
C	a	170
	Total	46,500

Description.- Lot 9, parcel "b": Includes Customs Office, open shed for empty packages, lube oil and gasoline packaging facilities, steam driven pumps, drum repairs, truck painting. Lot 11, parcel "b": Includes garage, lube oil package warehouse, pumphouse, truck repair shop, boilerhouse, can cleaning facili-

ties, office. Tankage capacity was 130,300 barrels for gasoline and 89,100 barrels for black oils. Details of tankage are given on the plan below.



Details of Tankage, Belgian Shell, S. A.

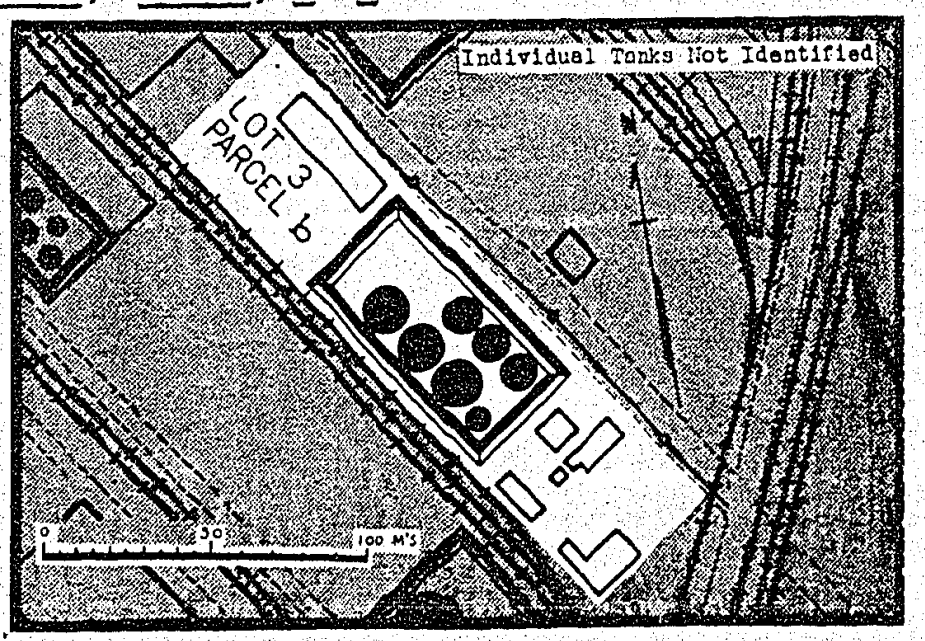
Tank No.		Dimensions Diam.	Height	Gasoline All Grades	Fuel Oil	Gas Oil	Deisel Oil
5		23.50	11.75	32,000			
6	L	23.50	11.75	32,000			
15	O	24	11.75	33,400			
16	T	18	11.75	18,800			
19		9	11.75	4,700			
20	9	9	11.75	4,700			
21		9	11.75	4,700			
26		18	8.75		14,000		
1		18	8.75			14,000	
2	L	18	8.75			14,000	
3	O	6	7.25				1,300
18	T	12	8.75				6,200
25		24	11.75				33,400
12	11	12	8.75				6,200
Total Barrels				130,300	14,000	28,000	47,100

4.2.10 Orion, S. A.

The plant of this company, affiliated with Phoenix Oil & Transport Co., Ltd., London, is on lot 3, parcel b of the Petroleum Harbor installations.

Tank Identification, Orion, S. A.

Tank No.	Storage Capacity M^3	Barrels
1	264	1,663
2	784	4,939
3	1,724	10,861
4	784	4,939
5	1,724	10,861
6	784	4,939
7	1,724	10,861
Total	7,788	49,063

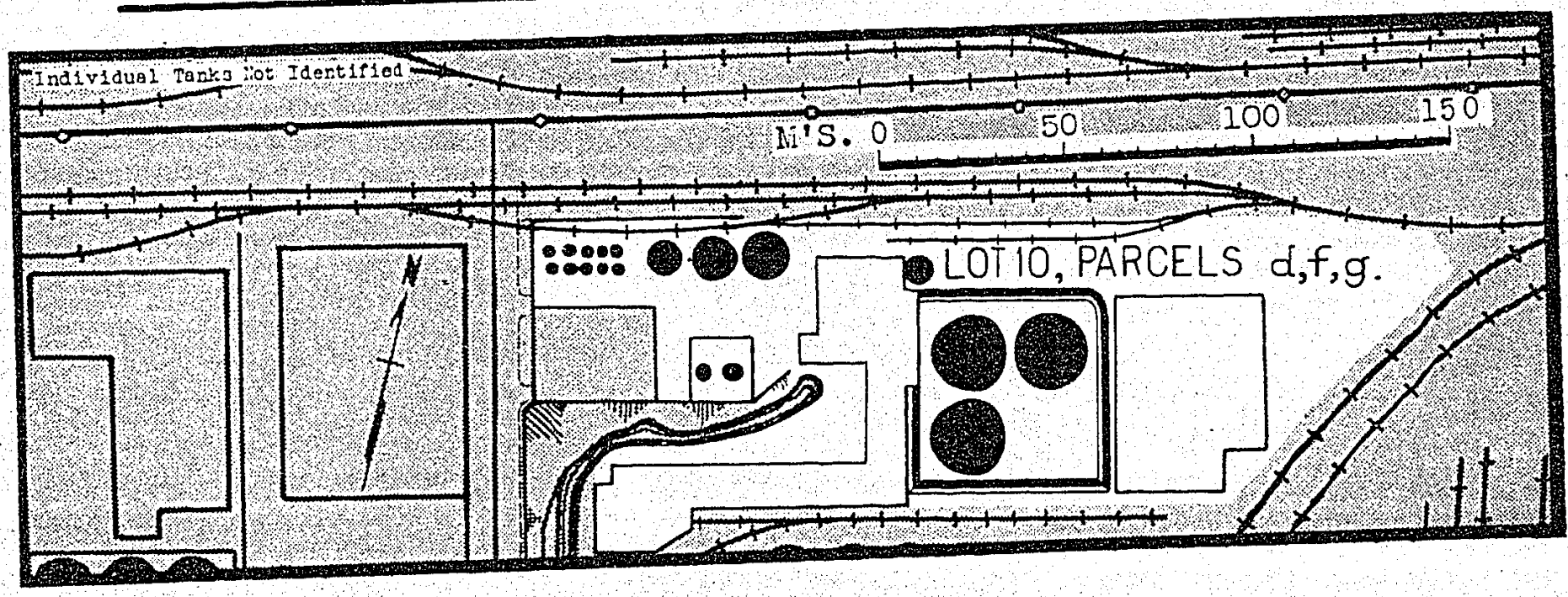


4.2.11 Société Anonyme Belge des Huiles de "Créosote"

This firm is affiliated with the Société Anversoise des Asphaltes et Bitumes. It handles creosote and has a small still producing naphthalene. The plant is on parcels d, f and g of lot 10 and on parcel d of lot C at Petroleum Harbor, with a total area of 11,895 M^2 and a total tankage capacity of 19,155 M^3 (120,676 barrels)

Detailed Tank Identification, Société Anonyme des Huiles de "Créosote"

Tank No.	Capacity M^3	Capacity Barrels	Remarks
1	5,500	34,650	Concrete foundations
2	5,500	34,650	" "
3	6,000	37,800	" "
11	700	4,410	Fire wall of reinforced concrete
12	700	4,410	" " " " "
12a	475	2,992	" " " " "
13	50	315	" " " " "
	230	1,449	Underground tanks, numbers 14 to 23 (both inc.) @ 50 M^3 each
Total	19,155	120,676	

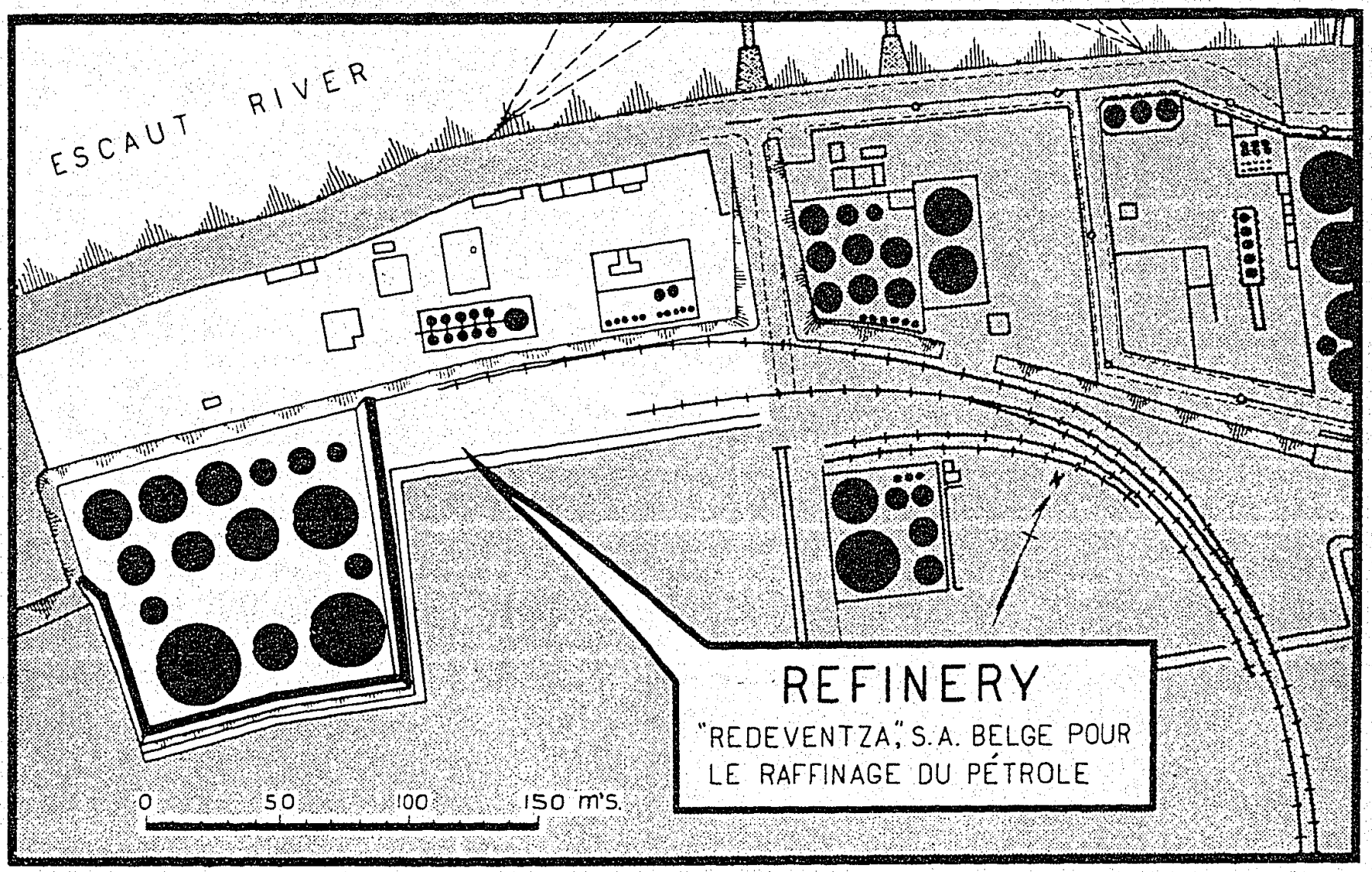


4.2.12 The Redeventza Refinery

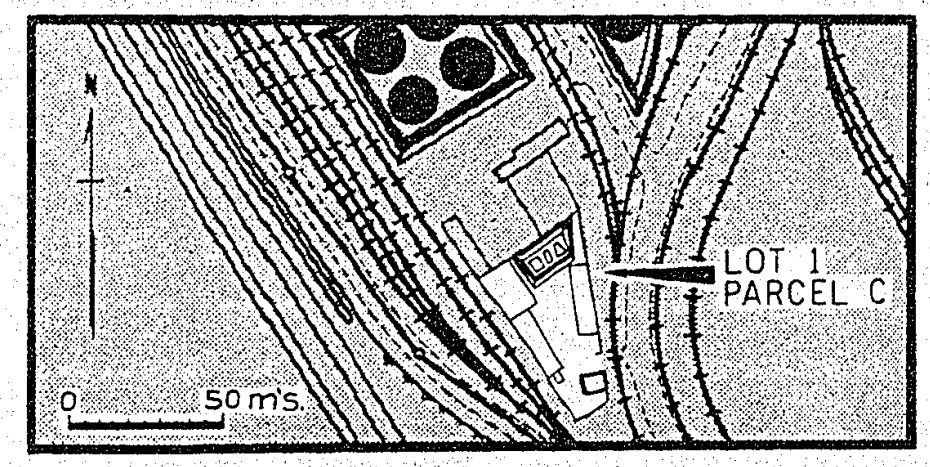
This refinery belongs to "Redeventza", S.A. Belge pour le Raffinage du Pétrole and is at the extreme western end of the Petroleum Harbor area.

Description.- This plant is described in the Refining section of this report, where a layout plan is shown on pages 32 and 33.

Tankage.- The pre-war capacity totalled 46,000 M^3 (289,800 barrels). There are five pipe lines from the plant to the loading dock. There is also a loading rack for railway tank cars.



4.2.13 Leysen et Pauwels, S. A.



Location.- In Lot No. 1, parcel c, at Petroleum Harbor, occupying an area of 1,411 M^2.

Description.- This small plant was utilized for storage of gas oil.

Tankage.- Total tankage, 125 M^3 (788 barrels).

4.2.14 S. A. d'Entreposage et de Transports

Identification.- This company is affiliated with European Naval Stores and occupies parcel "b" of lot "A" at the Petroleum Harbor, a total area of 5,877 M^2.

Description.- The main business of this company is storage of, and commerce in, resins. The tanks are small and of no importance as regards petroleum storage. There is a large filling room containing eight reservoirs--flat and rectangular--, barrel repair shop, open air warehouse with underground tank 1 meter below the surface. Barrels of turpentine were emptied into this tank by gravity. There are a spare parts warehouse, a dining room for workers, and a storehouse for resinous products.

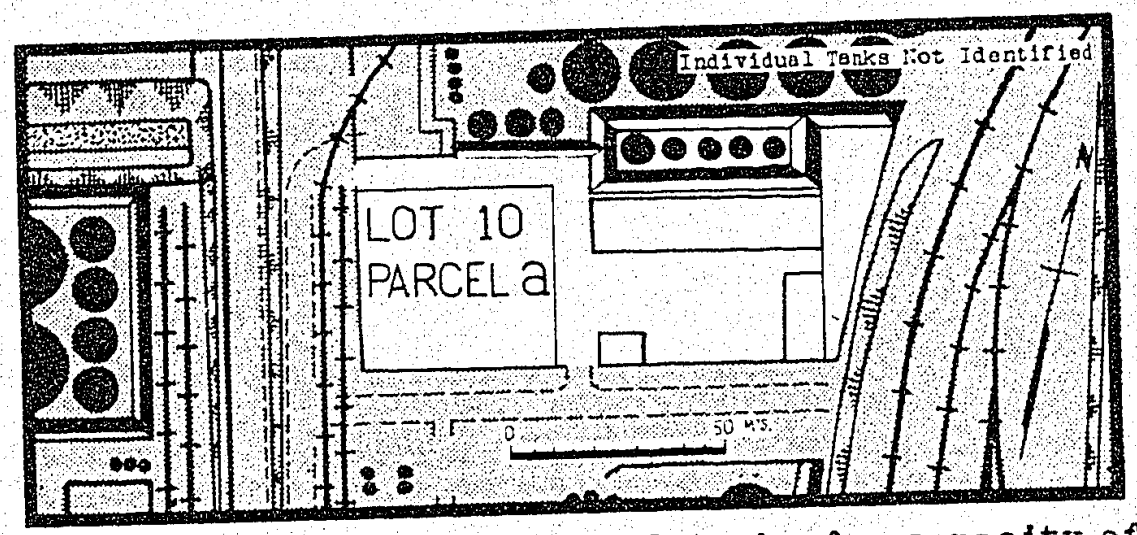
Tankage.- Tank park surrounded by a concrete wall 3 meters high. Total capacity 2,165 M^3 (13,640 barrels). The tank list appears on the following page.

Tankage Capacity, S. A. d'Entreposage et de Transports

Rectangular Tanks	Capacity		Product
	Volume M3	Barrels	
1	30	189	Turpentine
2	25	157	"
3	27	170	"
4	27.5	174	"
9	50	315	"
10	30	189	"
11	30	189	"
12	58	365	"
20	520	3,276	"
19	520	3,276	"
21	520	3,276	"
5	82	516	"
6	82	516	"
7	82	516	"
8	82	516	"
Total	2,165.5	13,640	

4.2.15 Entrepôts et Réservoirs, S. A.

This firm, the main business of which is resins, occupies lot 10, parcel "a", at Petroleum Harbor.



Description.- This plant did not handle petroleum products. There was a warehouse for barrels of resin and for empty barrels (wood and steel), and a filling house containing three flat rectangular tanks of a respective capacity of 20, 15 and 11 M3. The filling was done by means of cocks and funnels. There was also a small pump and a certain amount of flexible hoses. Turpentine barrels were emptied by gravity into a rectangular underground tank of a capacity of 31 barrels. Turpentine was then pumped from the underground tank into larger tanks. There is a repair shop for barrels, a dining room for workers, offices, and a residence for foremen.

Tankage.- Five tanks, well protected by walls approximately 6 feet high, of a total capacity of 760 M3 (4,788 barrels).

Detailed Tank Identification, Entrepôts et Réservoirs

Tank No.	Capacity		Product
	Volume M3	Barrels	
1	125	788	Turpentine
2	125	788	"
3	125	788	"
4	125	788	"
5	260	1,636	"
Total	760	4,788	

4.2.16 Tankage et Transport, Société Anonyme

This firm and its associated company, the Raffineries et Distilleries Anversoises, S.A. "Radian", controlled by the C. T. Davidis group, own storage and a white oil plant at Petroleum Harbor, occupying the following space:

Storage and White Oil Plant, Tankage et Transport, Société Anonyme, and Radian Refinery

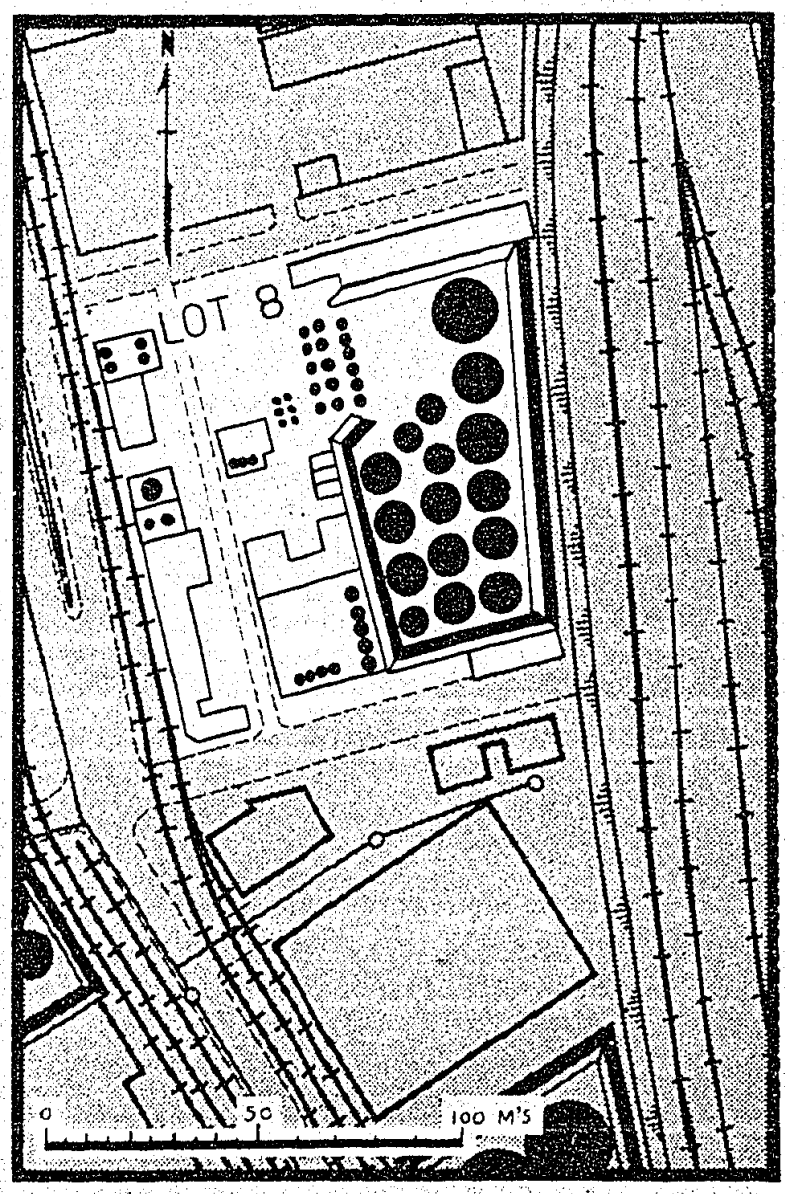
Lot	Area, M^2	
8	9,565	
10	6,577	Parcel "e"
10	653	Parcel "c"
16	9,027	(Soc. An. Tankwagon)
Total	25,822	

The total storage capacity is 53,465 M^3 (336,829 barrels), making it one of the most important of the storage plants in the Petroleum Harbor area. The refinery, a white oil plant, is described in the Refining section of this report (3.4).

Lot No. 8.- On this lot are located offices, dining room for workers, laboratory, power plant, an old still no longer used, rectification columns, one still for the distillation of white products, a can-filling shop, scales, emergency diesel motor, pumphouse, warehouses, garage for passenger cars, several tanks for unfinished products, painting shop, loading racks for tank trucks with 10 tanks of 49 M^3 each, a large garage for tank trucks, package warehouse and a new distillation unit erected in 1936. The total tankage capacity on this lot is 12,644.5 M^3 (79,660 barrels). Detailed tank identification was as follows:

Tankage Capacity, Lot No. 8

Tank No.	M^3	Barrels	Remarks
1	2,450	15,435	Storage tanks on reinforced concrete platform, surrounded by fire walls of earth 3 meters high.
2	1,325	8,348	
3	1,320	8,316	
10	255	1,607	
11	255	1,607	
12	255	1,607	
13	575	3,623	
14	575	3,623	
15	575	3,623	
16	615	3,874	
17	615	3,874	
18	615	3,874	
19	615	3,874	
20	615	3,874	
21	615	3,874	
22	255	1,606	
4-9	432	2,722	6 of 72 M^3 work & service tanks
23-28	165	1,039	6 of 27.5 M^3
29	27	173	
30-39	490	3,087	10 of 49 M^3
Total	12,644.5	79,660	

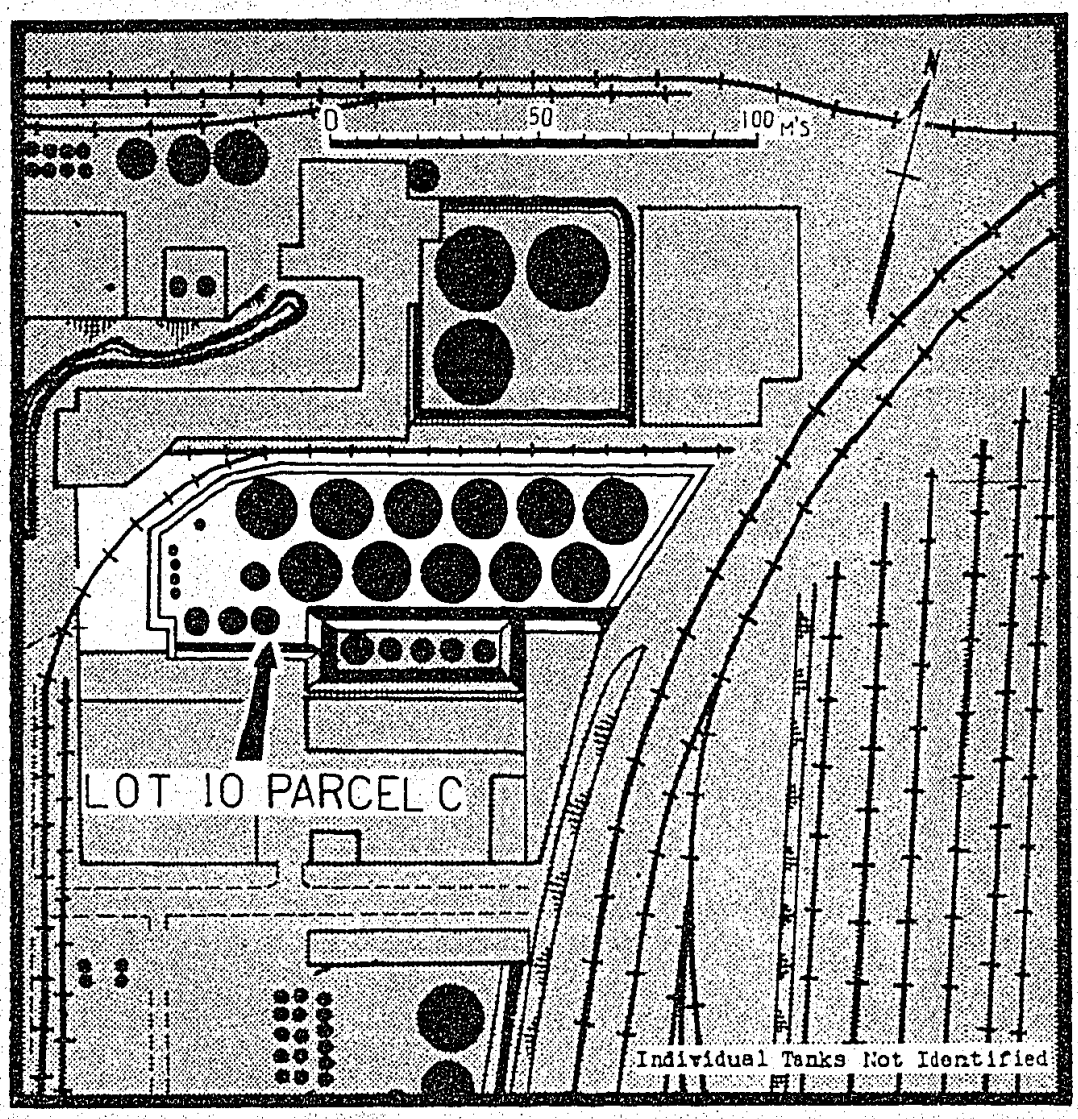


Damage.- None has been reported.

Lot No. 10, Parcel "c".- On this lot there is a repair shop with forge and soldering facilities, tool shop, warehouse, pumphouse, loading rack for tank trucks. The products stored were mostly gasoline and other white products. The total tankage on this lot was 17,480.5 M^3 (110,127 barrels). Detailed tank identification is as follows:

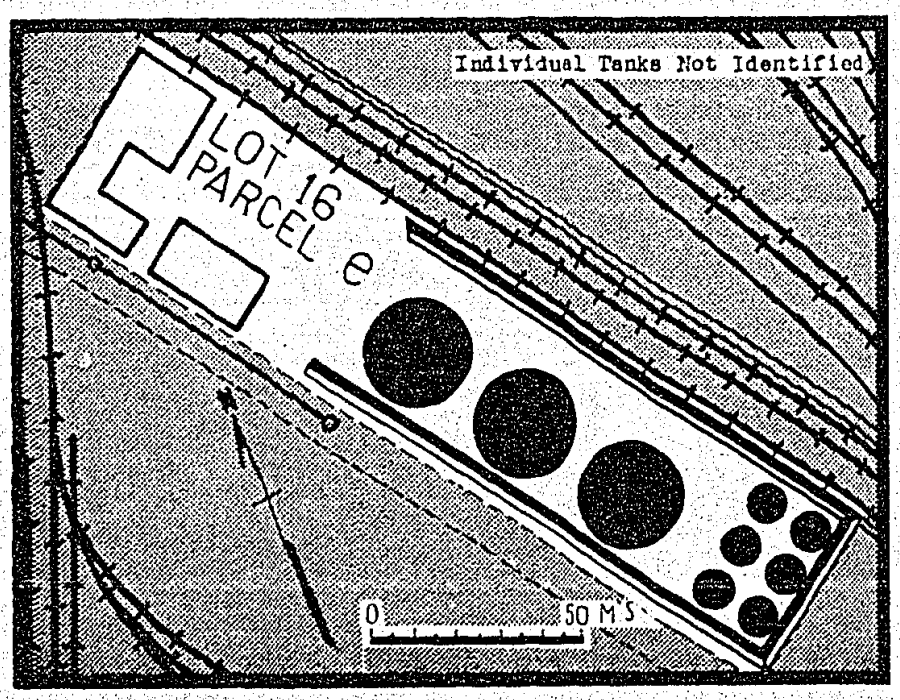
Tankage Capacity, Lot No. 10

Tank No.	M^3	Barrels
53	1,400	8,820
54	1,400	8,820
55	1,400	8,820
56	1,400	8,820
57	1,500	9,450
58	1,950	12,285
59	1,500	9,450
60	1,400	8,820
61	1,410	8,883
62	1,410	8,883
63	1,410	8,883
64	255	1,607
65	255	1,607
66	255	1,607
67	255	1,607
68	35	220
69	35	220
70	35	220
71	35	220
72	35	220
74	26	164
75	26	164
76	26	164
73	27.5	173
Total	17,480.5	110,127



Lot No. 16, Parcel "e".- The installations on this lot consist of storage tanks, a garage for tank trucks, a garage for tractors, a dining room for workers, dwellings, a pumphouse and truck loading racks with 12 tanks of 50 M^3 capacity each.

Tankage.- For white products, has a total capacity of 23,340 M^3 (147,042 barrels). Detailed tank identification is as follows:



Tankage Capacity, Lot No. 16

Tank No.	M^3	Barrels
151	4,500	28,350
152	4,500	28,350
153	4,500	28,350
170	1,540	9,702
171	1,540	9,702
172	1,540	9,702
173	1,540	9,702
174	1,540	9,702
175	1,540	9,702
154 to 165 12 of 50 M^3	600	3,780
Total	23,340	147,042

4.2.17 Société Franco-Belge d'Entreposage de Pétrole

This company, affiliated with Purfina, S.A., occupies the following area at Petroleum Harbor:

Lot 2, parcel "a"	12,362 M2
Lot 3, parcel "a"	14,334 M2
Total	26,696 M2

Description.- On Lot 2 are located one dwelling, a garage and electric pumps. The tanks on this lot are as follows:

Detailed Tankage Capacity

Tank No.	Capacity		Usually contains
	M^3	Barrels	
7	4,506	28,388	Gasoline
8	1,200	7,560	Gasoline
9	1,540	9,702	Fuel oil
10	2,000	12,600	Fuel oil
Total	9,246	58,250	

On Lot 3 are located the machine shop, repair shop, an open shed, an office. Pumps are driven by electric power. The tanks contain kerosine, gasoline and gas oil and capacities are as follows:

Detailed Tankage Capacity, Lot 3

Tank No.	Capacity		Remarks
	M^3	Barrels	
1	500	3,150	
2	500	3,150	
3	500	3,150	
4	4,015	25,294	
5	6,650	41,895	
6	6,650	41,895	
	152	958	4 service tanks without numbers
Total	18,967	119,492	

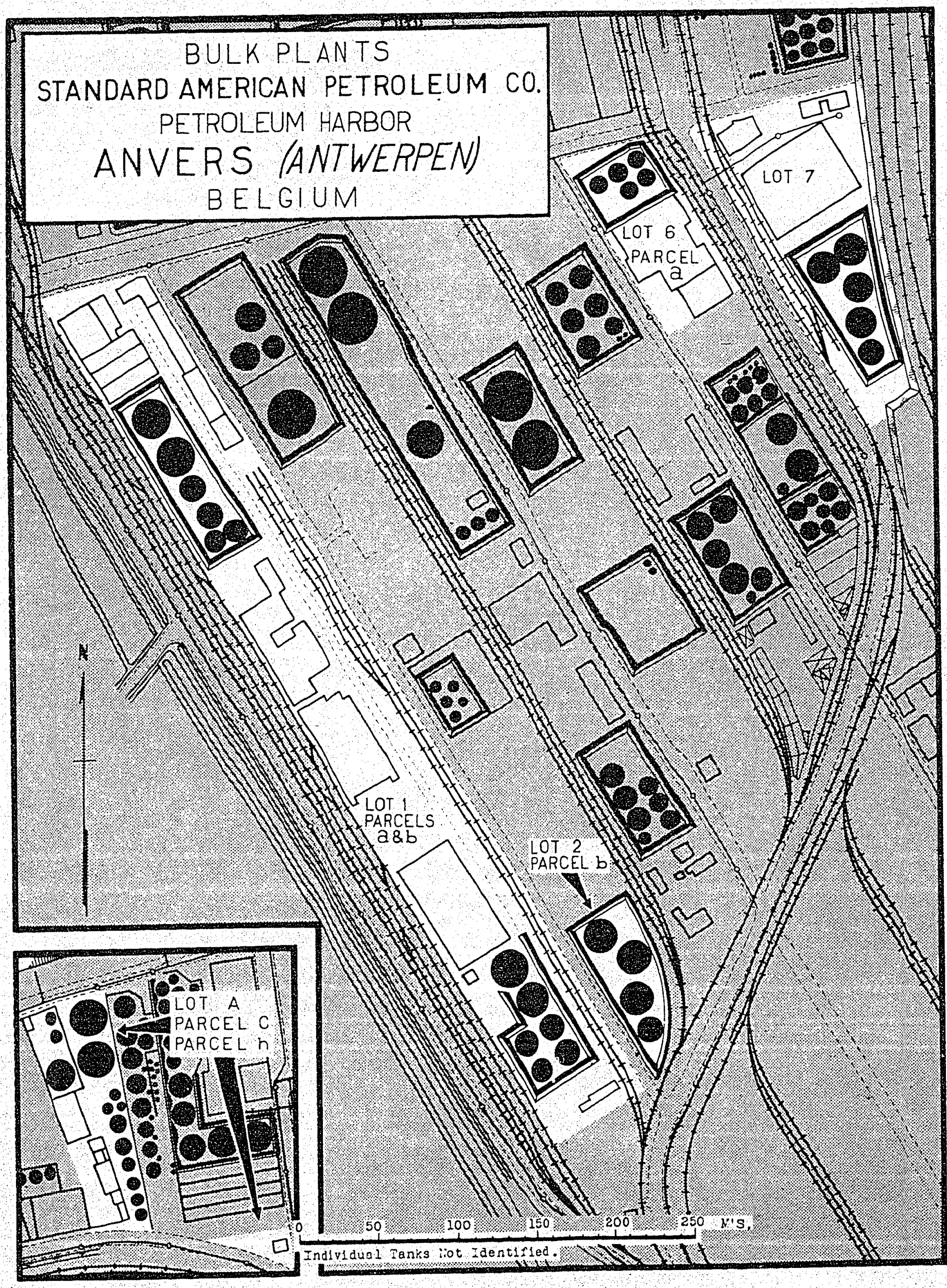
Thus, the total storage capacity is 28,313 M^3 (177,742 barrels).

4.2.18 British Lianosoff White Oil Co., Ltd.

Location.- Lot No. 4, Section (b) and (c) at Petroleum Harbor. Total area occupied by the plant , 11,776 M^2.

Description.- The plant had no bulk storage in tanks--only barrels being handled.

BULK PLANTS
STANDARD AMERICAN PETROLEUM CO.
PETROLEUM HARBOR
ANVERS *(ANTWERPEN)*
BELGIUM



Individual Tanks Not Identified.

4.2.19 Standard American Petroleum Company

This company, which until August 17, 1938 was known as the "American Petroleum Company, Societe Anonyme Belge", is affiliated with Standard Oil Company (N.J.) and its Anvers installations are at Petroleum Harbor.

General remarks.- The American Petroleum Company's plant was composed of six different plants occupying a total area of 59,928 M^2, exclusive of the Atlas Refinery which is described separately.

General location.- The six different bulk storage installations are as follows:

Lot No. 1, Parcel (a)	27,699 M^2
Lot No. 1, Parcel (b)	6,367 M^2
Lot No. 2, Parcel (b)	3,521 M^2
Lot No. 6, Parcel (a)	5,300 M^2
Lot No. 7	10,362 M^2
Lot A, Parcel (c),(h)	6,679 M^2
Total	59,928 M^2

Description.- These six plants stored and distributed all types of petroleum products including paraffins, insecticides, and other specialties. Electric current was produced on Lots 1 and 7. Each plant had a diesel motor and dynamo. The electrical installation was of the "Mines" type.

Tankage.- All tanks were constructed of steel. Gasoline tanks were painted light gray, oil tanks were painted dark gray. Tanks of Lot No. 7 had floating roofs. The total capacity of all six plants amounted to approximately 89,012 M^3 (560,776 barrels), of which 50,268 M^3 was for black and 38,744 M^3 was for white products.

Lot No. 1, Parcel (a)

Location.- A road 8 meters wide separates this installation from the plant in Lot No. 2, owned by the Societe Franc-Belge d'Entreposage de Petrole. The distance between the tanks belonging to the American Petroleum Company and the Franco-Belge Company was 45 meters.

Description.- This plant was used primarily for the storage and handling of gas oil. Extensive garages and repair shops were located there. Principal equipment was as follows: two garages for cars and tank trucks and a repair shop for vehicles; a barn for railway tank cars, a tank car painting shop, and a repair shop for railway tank cars and other heavy machinery; a forge and a tool room; an electric plant with semi-diesel motor and dynamo, a boiler plant--average pressure 7 kilograms--, a central heating plant, and a storehouse for coal and oil; pumphouses and loading racks for both tank trucks and railway tank cars; a welding shop (acetylene-oxygen) for metallic barrels; cleaning painting, and repair shops for wooden barrels. Warehouses were extensive and included two two-story lubricating oil warehouses. There were also offices, a residence, a dining room, a dormitory for six men, two stables and a storehouse for fodder.

Tankage.- Total bulk storage capacity amounted to 14,408 M^3 (90,770 barrels). A table of individual tank capacities appears on the following page.

Detailed Tank Identification, Lot No. 1, Parcel "a"

No. of Tanks	Capacity		Product
	M^3	Barrels	
1	4,578	28,841	Gas oil
2	3,912	24,646	" "
3	1,924	12,121	" "
4	1,924	12,121	" "
5	960	6,048	" "
6	960	6,048	" "
3 rectangular	150	945	" "
Total	14,408	90,770	

Lot No. 1, Parcel "b"

Location.- Adjacent to section of Lot No. 1 owned by the firm Leysen et Pauwels.

Description.- This plant was used mostly for the storage of crude oil, some kerosine, and white spirit. It consisted of: a pumphouse with electric motor, a decantation plant for gas oil with seven rectangular tanks of 50 M^3 each, and warehouses.

Tankage.- Total tankage 16,050 M^3 (101,115 barrels).

Detailed Tank Identification, Lot No. 1, Parcel "b"

No. of Tanks	Capacity		Product
	M^3	Barrels	
1	4,252	26,788	Crude oil
2	3,960	24,948	" "
3	1,105	6,962	Kerosine
4	1,105	6,962	White spirit
5	2,814	17,728	Crude oil
6	2,814	17,728	" "
Total	16,050	101,116	

Lot No. 2, Parcel "b"

Location.- At a distance of 10 meters from an open-air material storage belonging to the city. At 17 meters distance from a city warehouse containing petroleum products.

Description.- This tank park is allocated to kerosine and gasoline. There is only one building, a pumphouse with electric motor.

Tankage.- Fire wall, made of earth 3 meters high, protects the tanks. Total capacity 14,915 M^3 (93,964 barrels).

Detailed Tank Identification, Lot No. 2, Parcel "b"

No. of Tanks	Capacity		Product
	M^3	Barrels	
1	4,181	26,340	Gasoline or kerosine
2	4,181	26,340	" " "
3	4,398	27,707	" " "
4	2,155	13,577	" " "
Total	14,915	93,964	

Lot No. 6, Parcel "a"

Location.- Adjacent to parcel "b" of Lot No. 6 owned by the Atlantic Oil Storage Company, separated by a road, about 15 meters wide, from another plant of the Atlantic Oil Storage Company in Lot No. 5.

Description.- This plant was allocated to white products. It included a pumphouse with electric pumps (in the pumphouse there are four small tanks of 50 M^3 for operating purposes), large scales, ethyl blending plant, stock of special products (insecticides and other specialties), barrel testing plant, filling room with filling system operating by gravity, warehouse for lubricating oil barrels and paraffins, central heating unit, and tank truck loading racks operating by gravity.

Tankage.- 5,274 M^3 (33,226 barrels).
The tanks are surrounded by earth walls 3 meters high, and also exterior cement wall protection.

Detailed Tank Identification, Lot No. 6, Parcel "a"

No. of Tanks	Capacity		Product
	M^3	Barrels	
1	900	5,670	Gasoline or other light products
2	1,200	7,560	" " " " "
3	900	5,670	" " " " "
4	900	5,670	" " " " "
5	900	5,670	" " " " "
6-15	474	2,986	" " " " "
Total	5,274	33,226	

Lot No. 7

Location.- The east side of this plant is adjacent to the railroad yards--Antwerp-Kiel.

The plant is located at 10 meters distance from a plant in Lot No. 8 owned by the S. A. Tankage et Transport.

Description.- This plant was utilized for the storage of gasoline. There are warehouses for lubricating oils, a residence--two floors, offices, dining rooms for women and men, pumphouse, power plant with semi-diesel motor and dynamo, boilerhouse with two horizontal boilers, filling house for gasoline barrels and for cans, paint shop for cans, cleaning installation, soldering installation, a large number of rectangular tanks for all grades of lubricating oils, electric motor for automatic brushes, etc.

Tankage.- All tanks had floating roofs and were constructed of steel, surrounded by an earth wall 3 meters high. Total capacity, 17,345 M^3 (109,272 barrels).

Detailed Tank Identification, Lot No. 7

No. of Tanks	Capacity		Product
	M^3	Barrels	
1	3,435	21,640	Gasoline
2	3,435	21,640	"
3	3,435	21,640	"
4	4,250	26,775	"
5	2,790	17,577	
Total	17,345	109,272	

Lot A, Parcel "c"

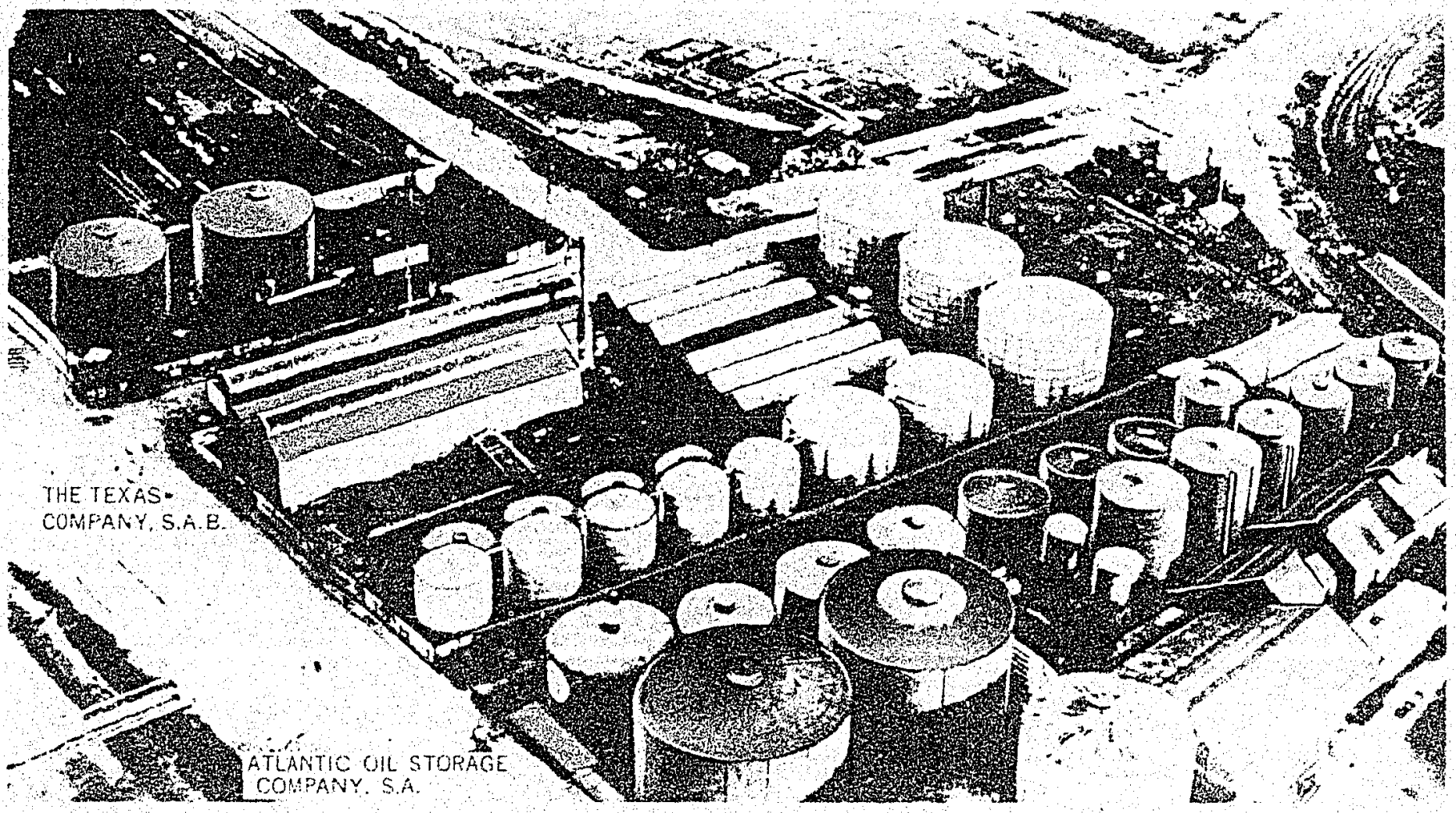
Location.- In the black product area at Petroleum Harbor. Adjacent to the S. A.d'Entreposage et de Transports which was a subsidiary of the American Petroleum Company. Adjacent to the Parcel "d" occupied by Atlantic Oil Storage Company.

Description.- This plant was used exclusively for fuel oil and lubricating oils. The lubricating oils were handled by the Bedford Petroleum Company, a subsidiary of the Standard Oil Co. (N.J.). The Bedford Petroleum Company rented tanks 1 to 9 from the American Petroleum Company. The plant consisted of: a foreman's residence--two floors, two horizontal boilers, barrel repair shop, pumphouse, lubricating oil filling room with several rectangular tanks, open air warehouse, and pumphouse (electric motor).

Tankage.- Total capacity 22,020 M^3 (138,726 barrels). Tanks 1 to 6 protected by fire wall 1 meter high, rented to B. P. C. Tanks 7 to 9--decantation tanks for lubricating oils, rented to B.P.C. Tanks 1, 2, 3 (A.P. Co.) surrounded by wall 1 meter high.

Detailed Tank Identification, Lot A, Parcel "c"

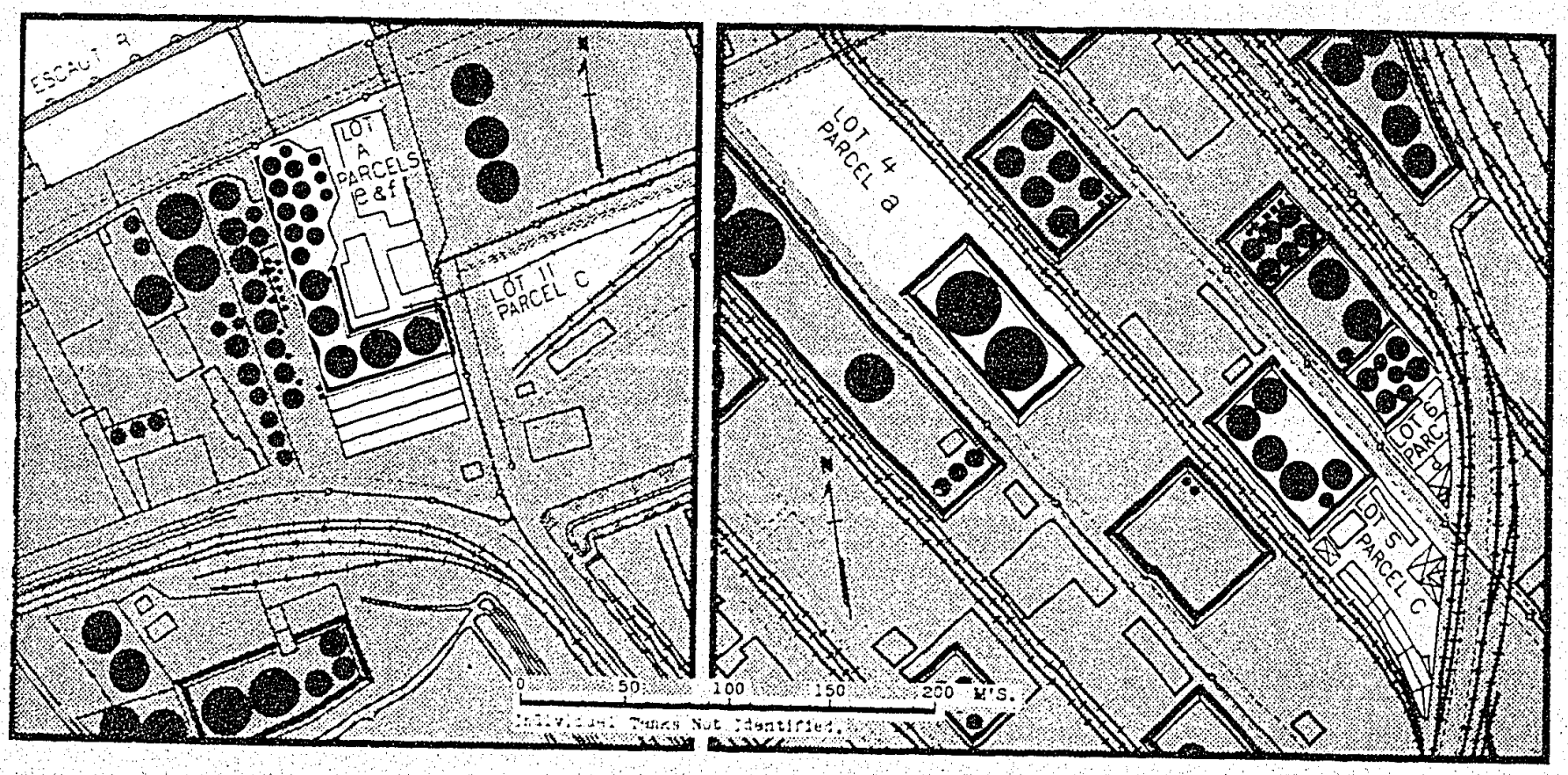
No. of Tanks	Capacity		Product
	M^3	Barrels	
1 B.P.C.	1,200	7,560	Lubricating Oil
2 B.P.C.	1,200	7,560	" "
3 B.P.C.	800	5,040	" "
4 B.P.C.	800	5,040	" "
5 B.P.C.	600	3,780	" "
6 B.P.C.	600	3,780	
7 B.P.C.	50	315	Lube Oils
8 B.P.C.	50	315	" "
9 B.P.C.	50	315	" "
1 A.P.C.	800	5,040	Fuel Oil
2 A.P.C.	800	5,040	" "
3 A.P.C.	3,000	18,900	" "
X	70	441	" "
4 A.P.C.	6,000	37,800	" "
5 A.P.C.	6,000	37,800	" "
Total	22,020	138,726	



TANKS AND DOCK OF THE TEXAS COMPANY, S.A.B., PETROLEUM HARBOR, ANVERS (ANTWERPEN), BELGIUM

4.2.20 The Texas Company, Société Anonyme Belge

This company, affiliated with The Texas Company, is spread over five separate lots at Petroleum Harbor. Total tankage capacity was 112, 284 barrels for black and 173,080 barrels for white products, a total of 285,364 barrels.



Detailed Tankage Identification, The Texas Company

Company Terminal Name and Acreage	Tank No.	Dimensions	Product	Capacity Bbls.
The Texas Company, S.A.B.			-	
Lot 4 Area: 2.12 acres	15	95'5" x 29'8"	Gasoline	37,500
	16	95'5" x 29'8"	Gasoline	37,500
Lot 5 Area: 1.73 acres	3	52'6" x 24'11"	Gas Oil	9,100
	4	52'6" x 24'11"	Gas Oil	9,100
	5	52'6" x 24'11"	Gas Oil	9,100
	6	62'4" x 32'9"	Kerosine	7,000
	7	52'6" x 32'9"	Gasoline	12,200
	8	26'3" x 32'9"	Gas Oil	3,000
	11	9'10" x 13' 1"	Gas Oil	176
	12	9'10" x 13' 1"	Gas Oil	176
	13	15'6" x 4'1" x 5'8"	Kerosine	62
	14	15'6" x 4'1" x 5'8"	Kerosine	62
Lot 6 Area: 0.66 acres	31	39'4" x 39'4"	Gasoline	8,200
	32	39'4" x 39'4"	Gasoline	8,200
	33	26'3" x 32'9"	Benzol	3,000
	34	32'9" x 39'4"	Gasoline	5,800
	35	32'9" x 39'4"	Gasoline	5,800
	36	39'4" x 39'4"	Gasoline	8,200
	37	39'4" x 39'4"	Gasoline	8,200
	38	9'10" x 13'1"	Gasoline	176
	39	9'10" x 13'1"	Gasoline	176
	40	9'10" x 13'1"	Gasoline	176
	41	9'10" x 13'1"	Gasoline	176
Total White Products				173,080

Detailed Tankage Identification, The Texas Company (continued)

Company Terminal Name and Acreage	Tank No.	Dimensions	Product	Capacity Bbls.
Lot A Area: 2.385 acres	42	8'2" x 9'10"	Lube Oils	72
	51	50'10" x 24'7"	Lube Oils	8,800
	52	50'10" x 24'7"	Lube Oils	8,800
	53	31'10" x 24'7"	Lube Oils	3,400
	54	31'10" x 24'7"	Lube Oils	3,400
	55	31'10" x 24'7"	Lube Oils	3,400
	56	31'10" x 24'7"	Lube Oils	3,400
	57	31'10" x 24'7"	Lube Oils	3,400
	58	31'10" x 9'2"	Lube Oils	1,250
	59	31'10" x 9'2"	Lube Oils	1,250
	60	31'10" x 9'2"	Lube Oils	1,250
	61	31'10" x 9'2"	Lube Oils	1,250
	62	62' 4" x 39'4"	Lube Oils	21,000
	63	62' 4" x 39'4"	Lube Oils	21,000
	64	62' 4" x 39'4"	Lube Oils	21,000
	65	21' 4" x 24'11"	Lube Oils	1,500
	66	23'11" x 24'11"	Lube Oils	2,000
	67	23'11" x 24'11"	Lube Oils	2,000
	68	23'11" x 24'11"	Lube Oils	2,000
	71	9'10" x 13'1"	Lube Oils	176
	72	9'10" x 13'1"	Lube Oils	176
	73	9'10" x 13'1"	Lube Oils	176
	74	9'10" x 13'1"	Lube Oils	176
	75	9'10" x 13'1"	Lube Oils	176
	76	9'10" x 13'1"	Lube Oils	176
	77	9'10" x 13'1"	Lube Oils	176
	78	9'10" x 13'1"	Lube Oils	176
	79	9'10" x 13'1"	Lube Oils	176
	80	9'10" x 13'1"	Lube Oils	176
	81	9'10" x 13'1"	Lube Oils	176
	82	9'10" x 13'1"	Lube Oils	176
Total Black Products				112,284
Lot 11 Area: 0.818 acres		Shed only		
Grand Total (White and Black Products)				285,364

4.2.21 Transport and Trading Company

This company, affiliated with Coal Trading Association, owns 25,030 M^3 (157,689 barrels) tankage, situated just to the east of the Redeventza refinery. Detailed tankage capacities follow.

Tankage Capacities, Transport and Trading Company

		Tank No.	Capacity M3	Capacity Bbls.
Lot D	Parcel f	No tanks		
	Parcel e	1	1,000	6,300
		2	1,000	6,300
	Gasoline	3	500	3,150
		4	500	3,150
		5	3,000	18,900
		6	5,200	32,760
		101	20	126
		102	20	126
		103	20	126
		Total	11,260	70,938
Lot D	Parcels c & d	A	1,000	6,300
		B	1,000	6,300
	Lubricating	C	1,000	6,300
		D	1,000	6,300
	Oils	E	1,000	6,300
		F	1,000	6,300
		G	1,000	6,300
		H	500	3,150
		I	150	945
		K	3,000	18,900
		L	3,000	18,900
		21	20	126
		22	20	126
		23	20	126
		24	20	126
		25	20	126
		26	20	126
		Total	13,770	86,751
Grand Total			25,030	157,689

4.2.22 Vacuum Oil Co., S.A.B.

Affiliated with Socony-Vacuum Oil Co. Inc., of New York, this company owns a lubricating and grease storage plant on parcel "a" of lot 11 at Petroleum Harbor, occupying an area of 6,020 M2.

Description.- The warehouse and storehouse building is of one story, 63 meters by 48 meters, and contains facilities for filling and cleaning cans and barrels, as well as storage for drums and cases. Packages are filled by hand. Fire protection consists of portable extinguishers and water mains. Tanks as follows:

	Capacity in Bbls.
4 of 500 barrels each	2,000
1 of 680 " "	680
2 of 350 " "	700
Total	3,380

MAP SHOWING
LOCATION OF OCEAN TERMINAL
OF
ANTWERP OIL WHARVES LTD.
AT
HEMIXEM (HEMIKSEM)
BELGIUM

FORT 8
ANVERS
ESCAUT (SCHELDE) RIVER
DIKE
HEMIXEM
N
APPROXIMATE SCALE
0 500 1000 M'S
0 500 1000 YARDS
B-72

4.2.23 Anvers: Plants Outside of the Petroleum Harbor Area

There are three important plants near Anvers and located outside of the Petroleum Harbor area, as follows:

Location	Type of Installation	Company	Storage Capacity	
			M^3	Bbls.
Hemixem (4 mi. above Anvers 51 9'N, 4 20'E	Public oil storage	Antwerp Oil Wharves, Ltd. affiliated with several international oil groups	70,800	446,040
Burght (across Escaut River from Petroleum Harbor)	Water-fed shallow draft specialty plant	Belgian Gulf Oil Co., S.A.	x (small)	x
Darse 4 (Austruweel, Anvers)	Refinery	Raffinerie Belge de Pétroles, S.A., affiliated with British Lianosoff White Oil Co., Ltd.	51,904	327,000

x = Unknown

4.2.24 Antwerp Oil Wharves, Ltd.

Identification.- The interests of this company are confined to one plant, located at Hemixem, (Hemiksem), (51°9'N, 4°20'E), about five miles upstream from Anvers and on the same side of the Escaut (Schelde) River. The company is affiliated with several international oil groups. The plant is a public storage plant handling both petroleum and vegetable oils. A layout plan is shown on page 102.

Damage.- No reports indicating that there was any damage to this plant have been received.

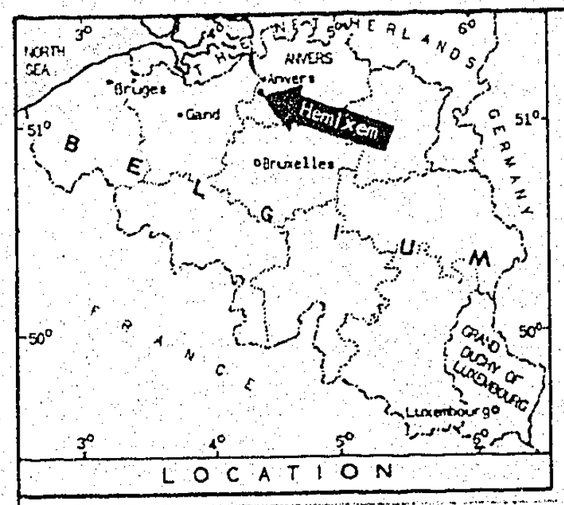
Description.- This large plant is located on the Escaut (Schelde) River. The depth of water at the plant's floating pontoon, about 200 feet out from the river bank, is sufficient for the largest tankers. Depth of water at low tide is between 31½ and 34 feet. There is a tidal rise and fall of from 10 to 12 feet.

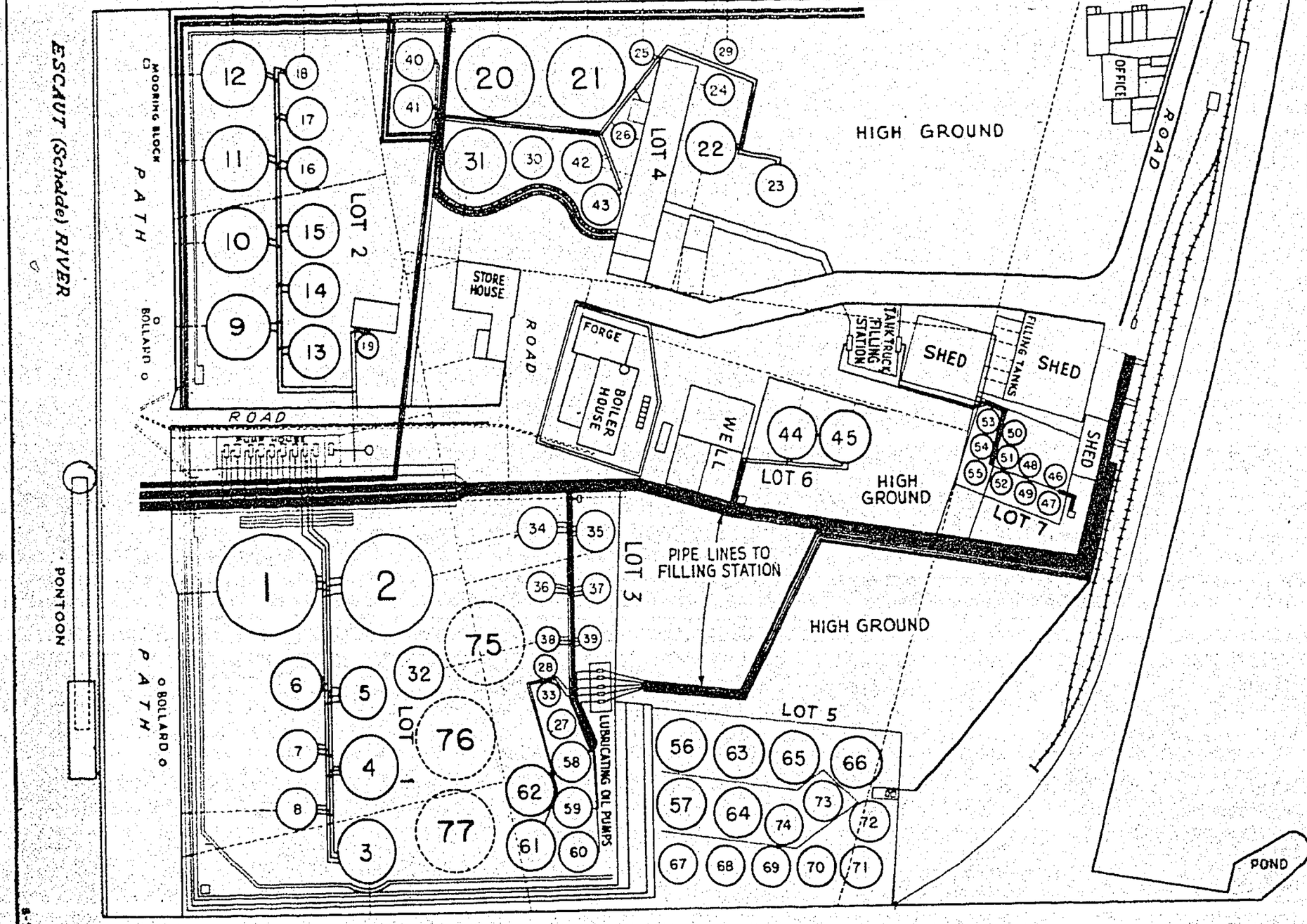
Vessels can come up at high tide and moor fore and aft to special pile driven anchors in the river with couplings on floating buoys and shore moorings fore and aft. These were designed to moor ships of large tonnage.

The plant had 77 storage tanks, with a total capacity of 70,800 M^3. This is apart from a few cylindrical tanks and the lubricating oil blending plant. There were three small clarifying tanks of 15 M^3 and two of 20 M^3.

All pumping was done by steam pumps operating on three boilers, Lancashire type, and one Babcock & Wilcox boiler, tube type--all oil-fired.

LAYOUT PLAN
ANTWERP OIL WHARVES, LTD.
(AFFILIATED WITH VARIOUS MAJOR OIL COMPANIES)
HEMIXEM (ANVERS)
BELGIUM







TANKS				
No	CAPACITY		TOTAL CAPACITY	
	M³	BBLS	M³	BBLS.
1, 2	5,000	31,500	10,000	63,000
3,4	2,000	12,600	4,000	25,200
5,6	1,000	6,300	2,000	12,600
7,8	500	3,150	1,000	6,300
9, 10, 11, 12	2,000	12,600	8,000	50,400
13, 14, 15	1,000	6,300	3,000	18,900
16, 17, 18	500	3,150	1,500	9,450
19	100	630	100	630
20, 21	3,000	18,900	6,000	37,800
22	1,000	6,300	1,000	6,300
23	500	3,150	500	3,150
24	250	1,575	250	1,575
25, 26	100	630	200	1,260
27	250	1,575	250	1,575
28, 29	100	630	200	1,260
30	500	3,150	500	3,150
31	2,000	12,600	2,000	12,600
32	1,000	6,300	1,000	6,300
33	100	630	100	630
34, 35	500	3,150	1,000	6,300
36, 37	250	1,575	500	3,150
38, 39	100	630	200	1,260
40, 41, 42, 43	500	3,150	2,000	12,600
44, 45	1,000	6,300	2,000	12,600
46, 47, 48, 49, 50, 51, 52, 53, 54, 55	100	630	1,000	6,300
56, 57	1,000	6,300	2,000	12,600
58, 59, 60	100	630	300	1,890
61, 62, 63, 64, 65, 66	1,000	6,300	6,000	37,800
67, 68, 69, 70, 71, 72, 73, 74	500	3,150	4,000	25,200
75, 76, 77	3,000	18,900	9,000	56,700
TOTAL			69,600	438,480

The installation had facilities for loading of tank trucks and drums, as well as tankers and tank barges. There is a railway siding on the wharf and a loading rack. This siding is connected with the Belgian railway company's line close to Hemixem (Hemiksem) station.

The installation acted as general public bulk wharfingers and the plant was laid out with the object of handling, and did handle, toluol and all classes of petroleum goods, including heavy fuel oil and lubricating oils (a large amount of lubricating oil was imported by the Sun Oil of America and blended for them), as well as creosote, whale oil and vegetable oils, such as palm kernel oil, cocoanut and soya bean oil, etc., and molasses. The pumps. therefore, were numerous and the tank farm was provided with a number of pipe lines. Many of the tanks and pipe lines were heated. There were two pumphouses, and also a few subsidiary pumps.

The main pumphouse consisted of some nine Weisse & Monski pumps. There were also: Leigh Howell pump in the boilerhouse for dealing with fuel oil; six small Eureka pumps in lubricating oil pumphouse; Hayward Tylor pump at the fuel station; Worthington & Leigh Howell pump at Lot No. 7; Leigh Howell pump at Lot No. 6; Eureka pump at Lot No. 1; Leigh Howell pump at quay.

The lines were blown by compressed air and lubricating oil was blended by compressed air. There were two efficient air compressors.

All tanks had inlet and outlet valves and there were many manifolds throughout the plant. Many of the tanks were fitted with swing pipes.

The plant made its own electric current by two Petter engines and their dynamos--D.C.

The plant was not connected with the town's electricity, though a transformer station was not more than 400 yards away from the entrance to the plant.

Boiler water was partially supplied by rain water fed into a reservoir and there aerated. This supply was supplemented by water from the Escaut (Schelde) River. Care was taken to always draw water from the river when it was most fresh, and from a number of years' experience it was found that no damage to the boilers was caused by the utilization of the river water.

There was a deep air-raid shelter constructed into the side of the hill about 20 feet underground, reinforced by Baldwin's steel casement, such as are used in coal mines. The entrance was well protected. The size of the shelter was sufficient for some 20 to 30 men.

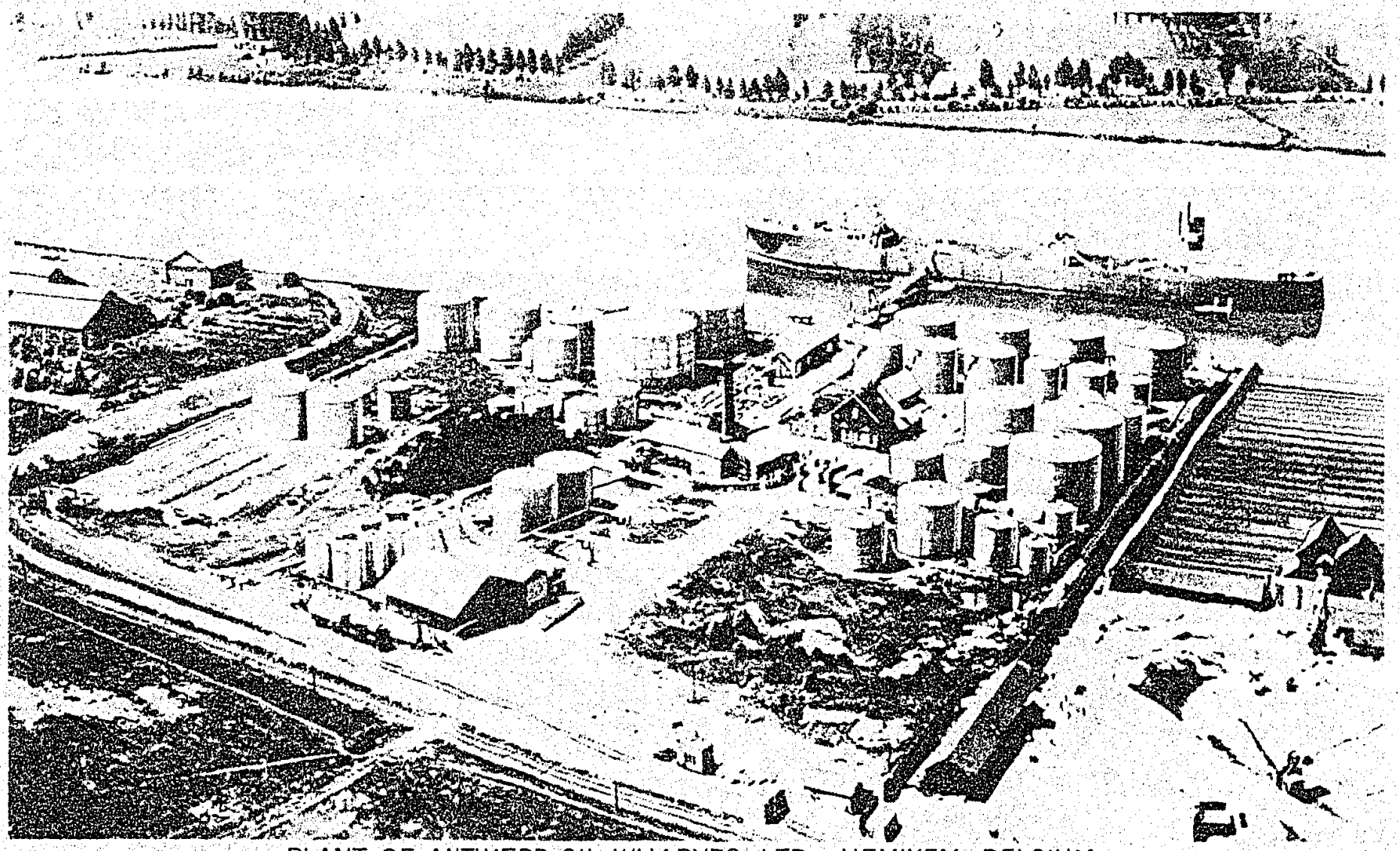
The average loading rates to barges were gasoline 200 long tons per hour; gas oil, diesel oil and light fuel oil 300 long tons per hour; lubricating oil 70 long tons per hour.

The installation was primarily designed for loading bulk products to barges but facilities were also available for handling drums, railway tank cars and tank trucks.

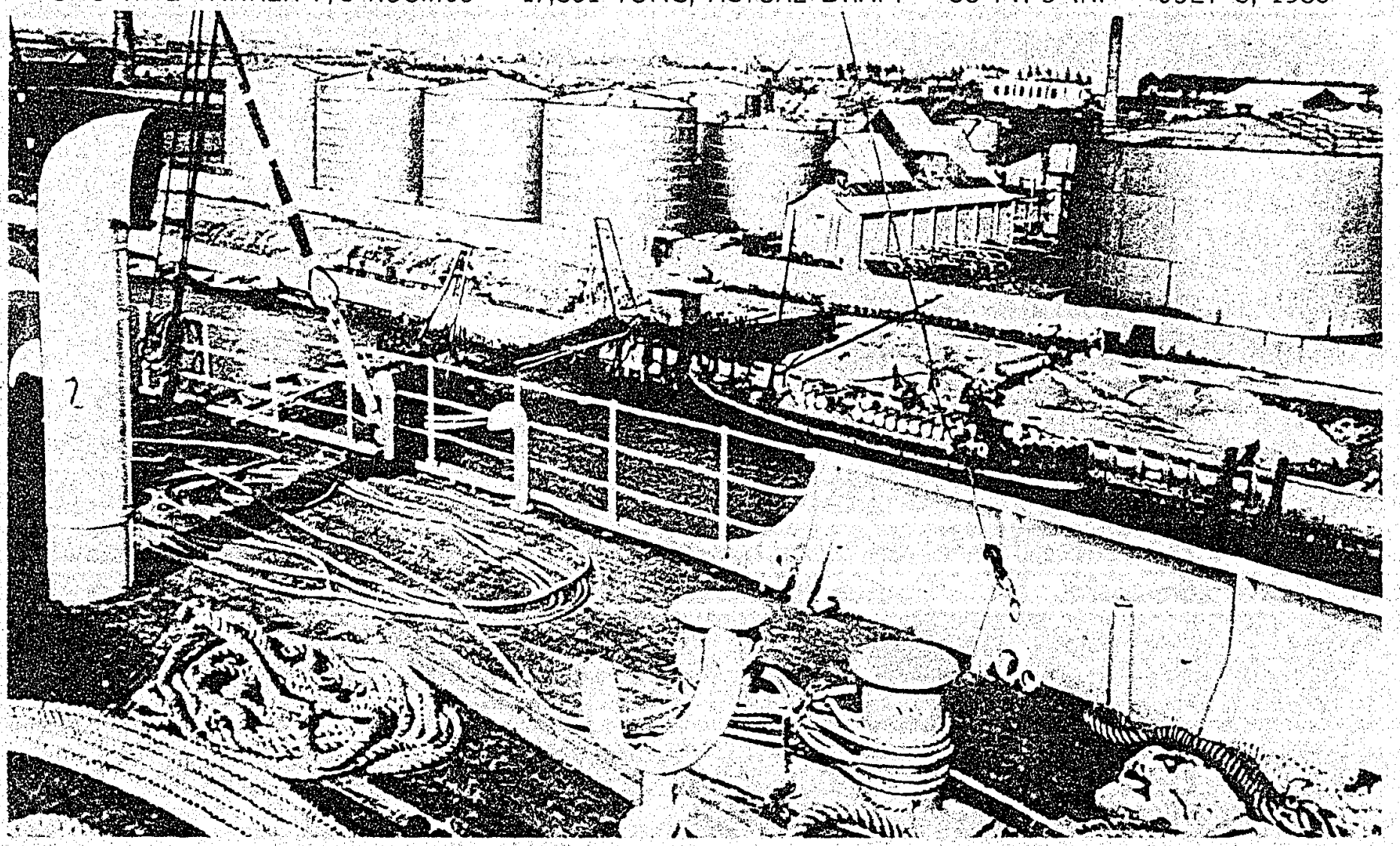
Detailed Tankage Capacity, Antwerp Oil Wharves, Ltd.

Lot No. 1: Fuel, Gas, Diesel

Tank No.	Capacity M³	Capacity Barrels	Tank No.	Capacity M³	Capacity Barrels
1	5,000	31,500	7	500	3,150
2	5,000	31,500	8	500	3,150
3	2,000	12,600	32	1,000	6,300
4	2,000	12,600	75	3,000	18,900
5	1,000	6,300	76	3,000	18,900
6	1,000	6,300	77	3,000	18,900
		Total		27,000	170,100
		Lot No. 2: Gasoline			
9	2,000	12,600	15	1,000	6,300
10	2,000	12,600	16	500	3,150
11	2,000	12,600	17	500	3,150
12	2,000	12,600	18	500	3,150
13	1,000	6,300	19	100	630
14	1,000	6,300			
		Total		12,600	79,380
		Lot No. 3: Lubricating Oil			
61	1,000	6,300	27	250	1,575
62	1,000	6,300	36	250	1,575
60	500	3,150	37	250	1,575
59	500	3,150	33	100	630
58	500	3,150	28	100	630
34	500	3,150	38	100	630
35	500	3,150	39	100	630
		Total		5,650	35,595
		Lot No. 4: Gasoline			
20	3,000	18,900	30	500	3,150
21	3,000	18,900	43	500	3,150
31	2,000	12,600	23	500	3,150
22	1,000	6,300	24	250	1,575
40	500	3,150	26	100	630
41	500	3,150	25	100	630
42	500	3,150	29	100	630
		Total		12,550	79,065
		Lot No. 5: Lubricating Oil			
67	500	3,150	74	500	3,150
68	500	3,150	66	1,000	6,300
69	500	3,150	65	1,000	6,300
70	500	3,150	64	1,000	6,300
71	500	3,150	63	1,000	6,300
72	500	3,150	56	1,000	6,300
73	500	3,150	57	1,000	6,300
		Total		10,000	63,000



PLANT OF ANTWERP OIL WHARVES, LTD., HEMIXEM, BELGIUM
SHOWING TANKER F/S KOSMOS — 17,801 TONS; ACTUAL DRAFT — 33 FT. 9 IN. JULY 3, 1933



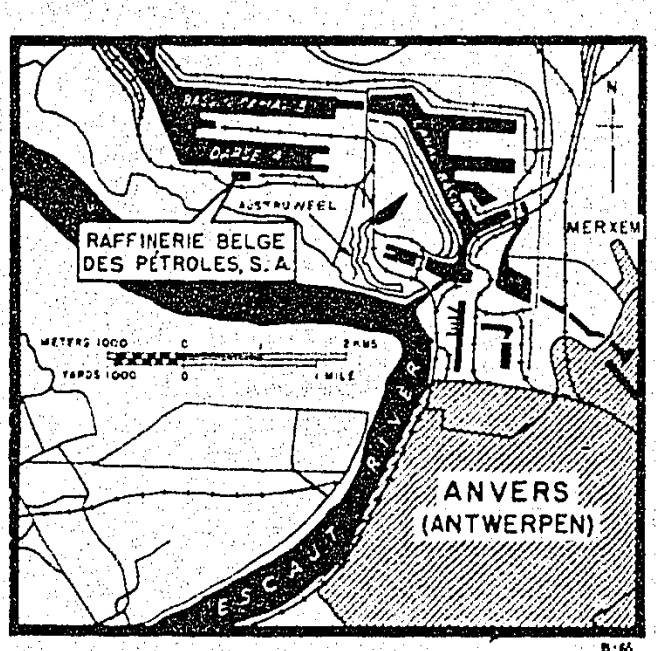
VIEW OF PLANT OF ANTWERP OIL WHARVES, LTD., HEMIXEM, BELGIUM

Detailed Tankage Capacity, Antwerp Oil Wharves, Ltd. (Continued)

Lot No. 6: Palm Oil

Tank No.	Capacity M³	Capacity Barrels	Tank No.	Capacity M³	Capacity Barrels
44	1,000	6,300	45	1,000	6,300
		Total		2,000	12,600
Lot No 7: Filling Tanks for All Products					
46	100	630	51	100	630
47	100	630	52	100	630
48	100	630	53	100	630
49	100	630	54	100	630
50	100	630	55	100	630
		Total		1,000	6,300
		Grand Total		70,800	446,040

Although the above tanks have been described by products, the installation in fact was very flexible and, generally speaking, any tank could be used for any product.



4.2.25 Raffinerie Belge

Belonging to the Raffinerie Belge des Pétroles, S.A., affiliated with British Lianosoff White Oil Co., this refinery is located at Darse 4, Anvers, and has an area of 51,800 M².

Damage.- None. The plant is reported to be intact but inactive.

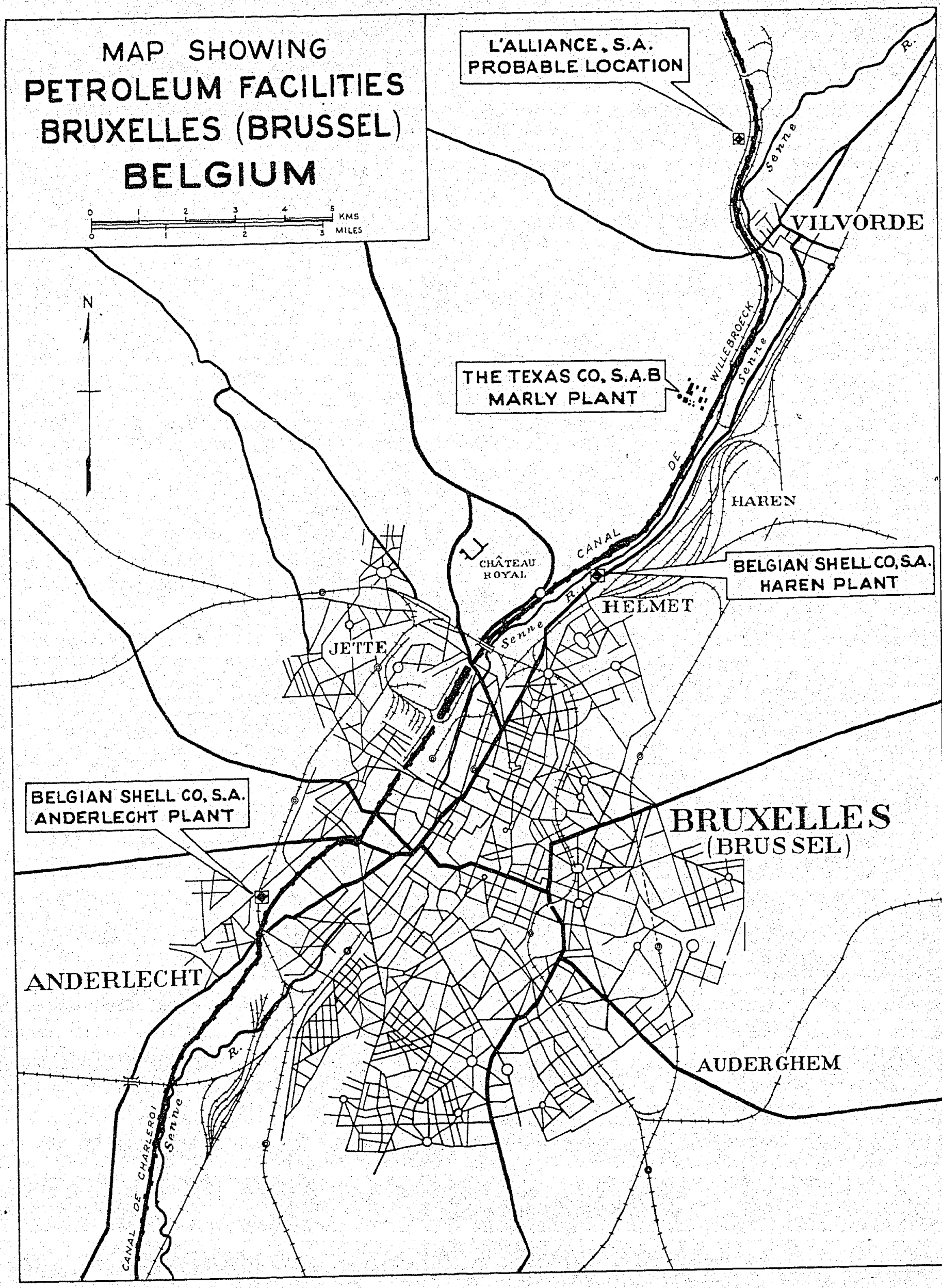
Description.- This refinery is described in the Refining section of this report. A layout plan is shown on page 43.

Tankage.- Pre-war tankage capacity was 51,904 M³ (327,000 barrels.)

4.2.26 Malines (Mechelen)

At this place, (latitude 51°2'N, longitude 4°29'E), Belgian Shell Co., S.A. has a gasoline bulk plant with a capacity of 200 M³ (1,260 barrels).

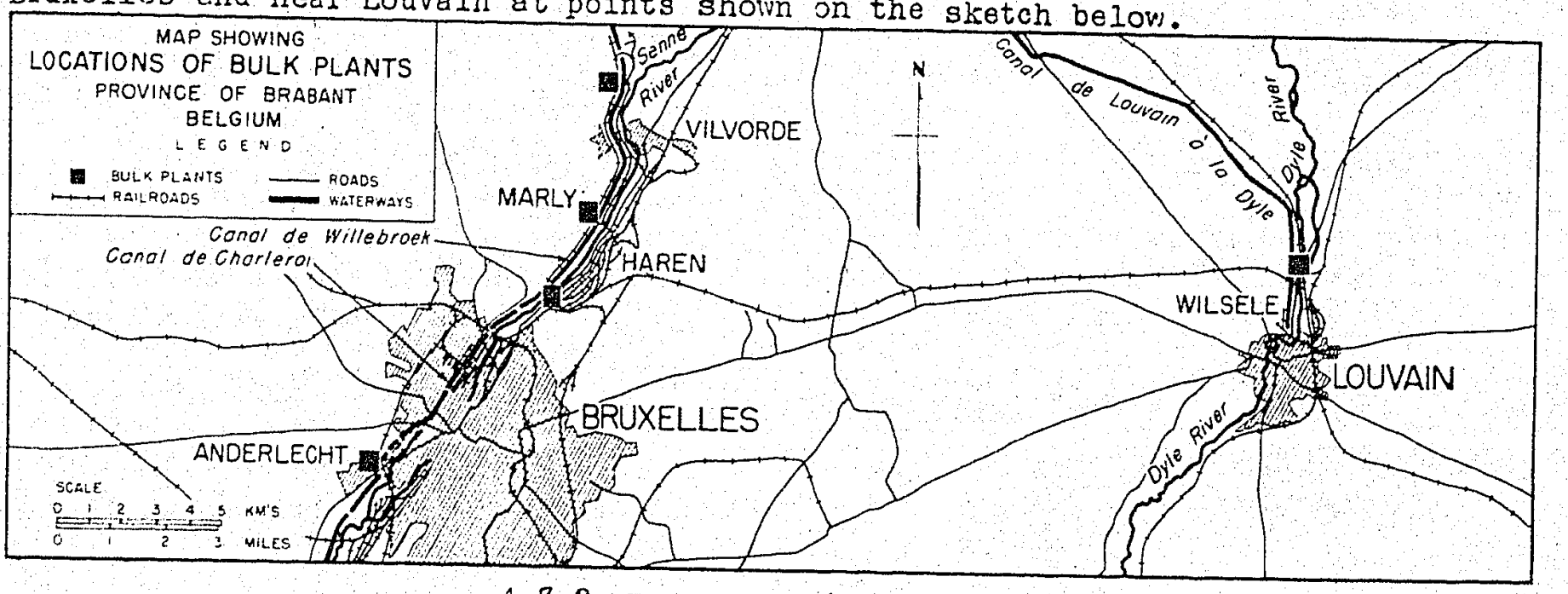
There are drum and tank truck filling facilities.


MAP SHOWING
PETROLEUM FACILITIES
BRUXELLES (BRUSSEL)
BELGIUM
0 1 2 3 4 5 KMS
0 1 2 3 MILES
L'ALLIANCE, S.A.
PROBABLE LOCATION
THE TEXAS CO, S.A.B
MARLY PLANT
BELGIAN SHELL CO, S.A.
ANDERLECHT PLANT
BELGIAN SHELL CO, S.A.
HAREN PLANT
N
VILVORDE
HAREN
HELMET
JETTE
CHÂTEAU ROYAL
BRUXELLES
(BRUSSEL)
ANDERLECHT
AUDERGHEM
WILLEBROECK
CANAL DE CHARLEROI
Senne R.
Senne
CANAL

4.3 PROVINCE OF BRABANT

4.3.1 General Remarks

Most of the petroleum storage in the Province of Brabant is located around Bruxelles and near Louvain at points shown on the sketch below.



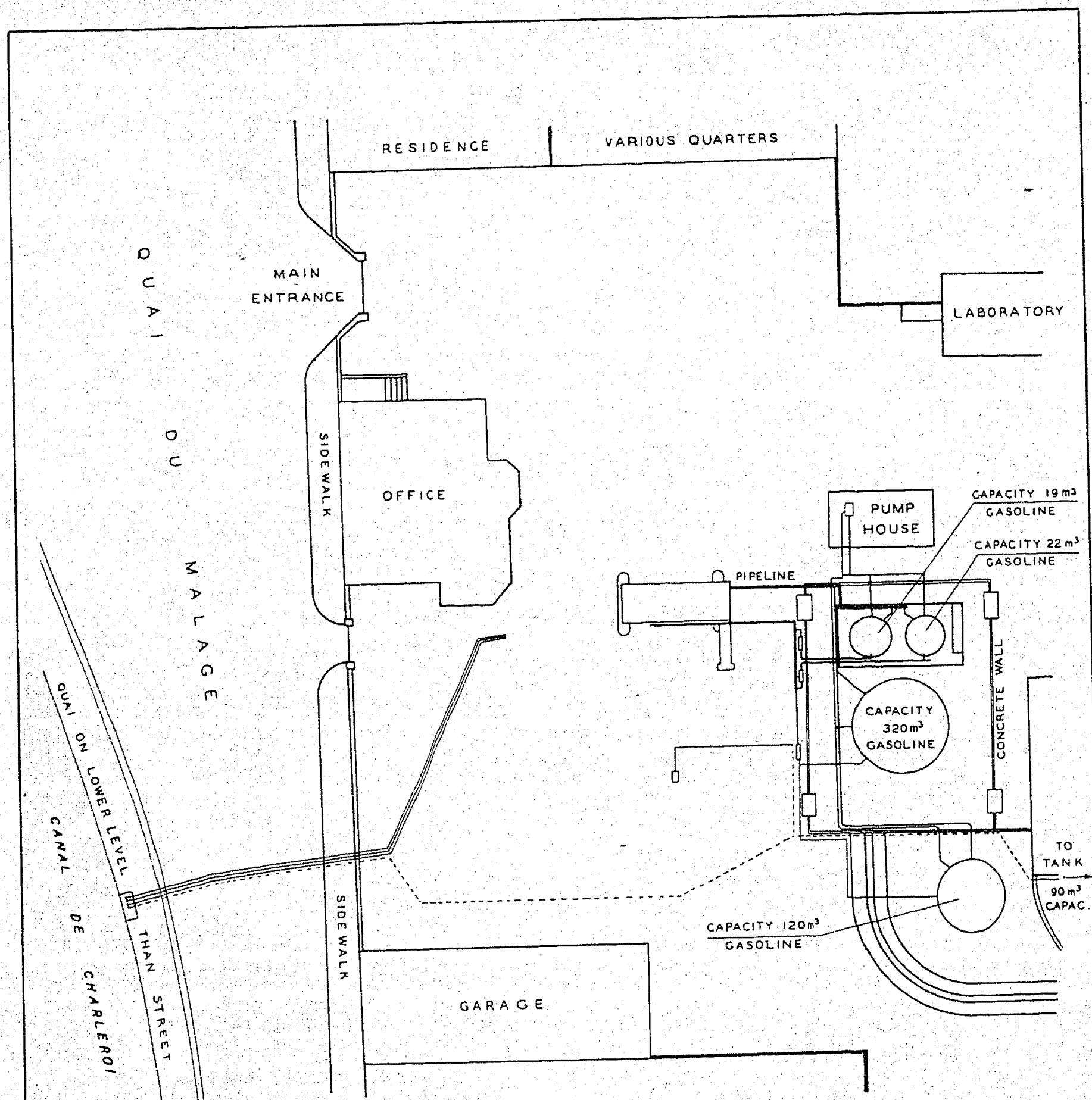
4.3.2 Bruxelles (Brussel)(a)

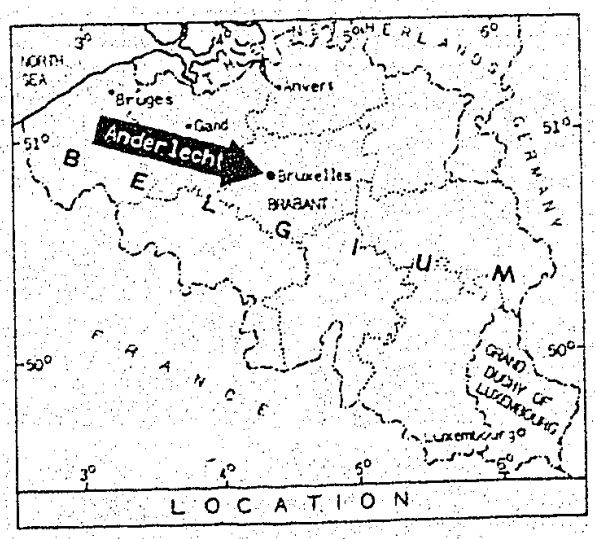
Bruxelles (latitude 50°52'N, longitude 4°22'E) is an important storage center. The capacities of the plants, described in the following pages, are summarized below.

Summary of Capacities, Storage Plants at Bruxelles

Location	Company	Owner Company or Affiliation	Storage Capacity M³	
Anderlecht (On Canal to Charleroi just south of Bruxelles)	Belgian Shell, S.A.	Royal Dutch Shell group	571	3,597
Haren (N. of Bruxelles)	Belgian Shell, S.A.	Royal Dutch Shell group	6,305	39,722
Haren	Standard American Petroleum Company	Standard Oil Co. (N.J.)	x(b)	x
Marly	The Texas Company S.A.B.	The Texas Company	3,680	23,185
Vilvorde	L'Alliance, S.A.	Anglo-Iranian Oil Co., Ltd.	1,270	8,001
Vilvorde	Belgium Shell, S.A.	Royal Dutch Shell group	7,000	44,100
x	Belgium Gulf Oil Co., S.A.	Gulf Oil Corp.	x	x
		Total	18,826	118,605

x - Unknown
(a) English: Brussels
(b) Large Plant





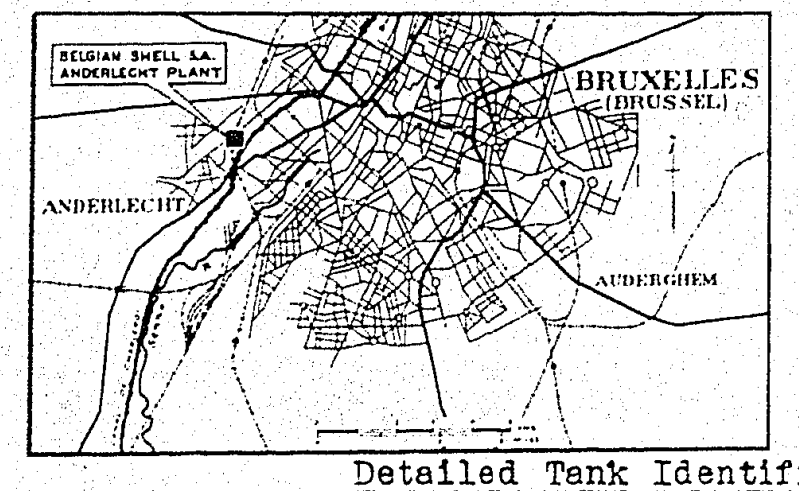
WATER-FED INLAND BULK PLANT

BELGIAN SHELL, S.A.

ANDERLECHT, BRUXELLES

BELGIUM

B 10



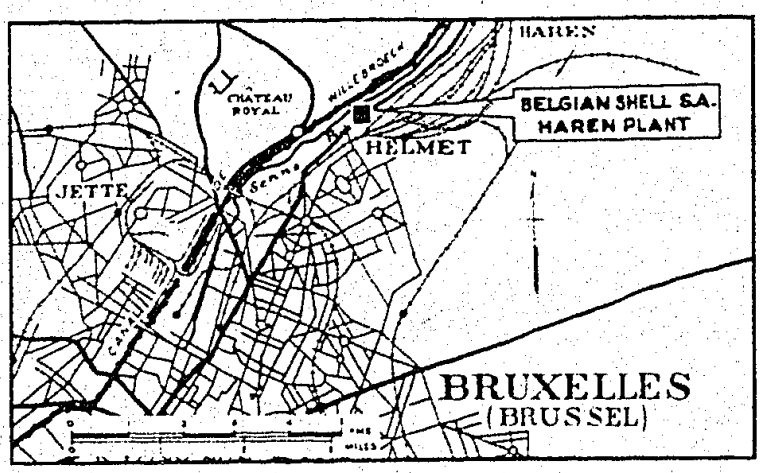
Anderlecht Plant of Belgian Shell S. A.- This plant is located at Anderlecht (near Bruxelles) on the canal to Charleroi, just south of Bruxelles. It was supplied by barge from the Haren (Bruxelles) plant of the same company. It is equipped with a tank truck loading rack. A layout plan of this plant appears on page 110.

Detailed Tank Identification, Belgian Shell S. A.

Type	No. of Tanks	Product Normally Stored	Capacity M3	Capacity Bbls.
All tanks are of the normal steel vertical cylindrical type	1 tank	Gasoline	320	2,016
	1 tank	Gasoline	120	756
	1 tank	Gasoline	90	567
	1 filling tank	Gasoline	19	120
	1 filling tank	Gasoline	22	138
		Total	571	3,597

Haren Plant of Belgian Shell S. A.
This plant is located at Haren, north of Bruxelles. It is a water-fed interior bulk plant, normally receiving its supplies by barge from Anvers (Antwerpen) and Rotterdam. However, occasionally shipments were received by rail. A layout plan is shown on page 112, and a photograph showing part of the plant is given on page 119.

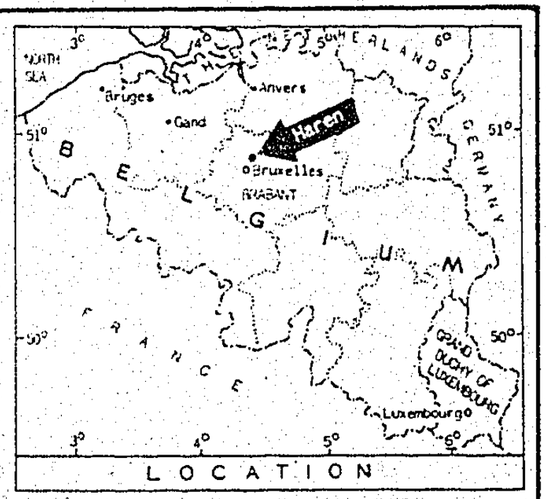
Products and tankage.-Kerosine was not handled by this plant.

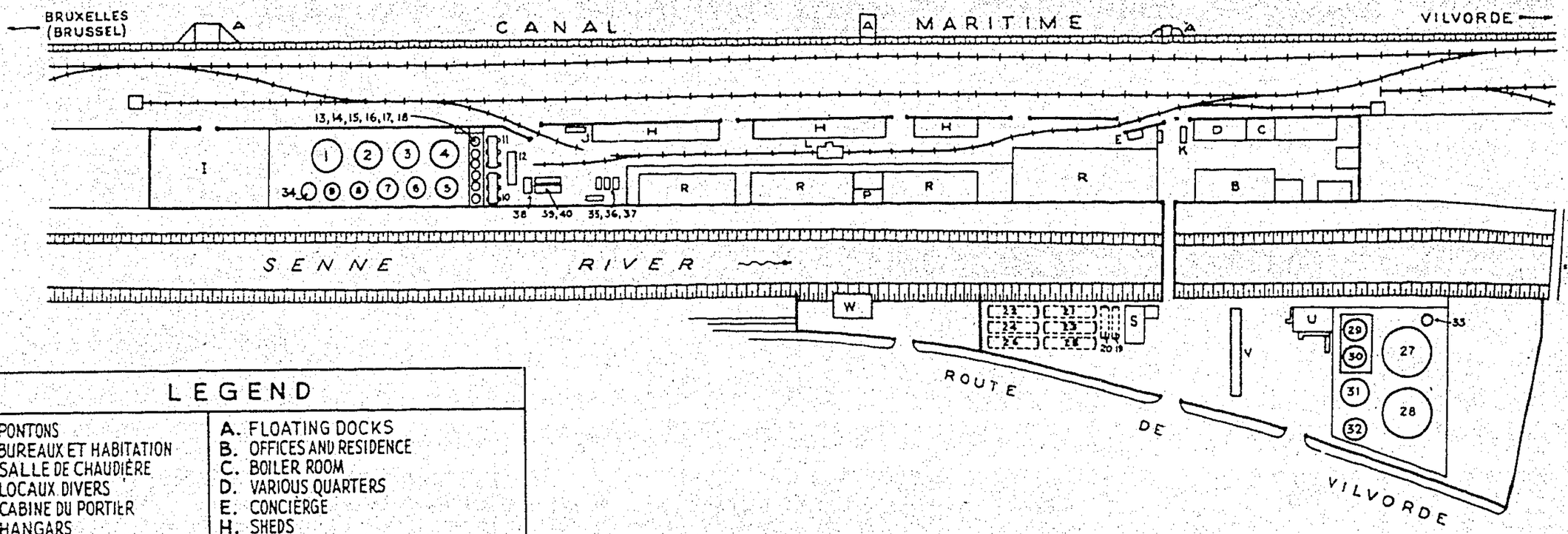


Detailed Tank Identification, Belgian Shell S. A.

Tank No.	Type	Capacity M3	Capacity Bbls.
1	All tanks are	606	3,818
2	of the normal	306	1,928
3	steel vertical	306	1,928
4	cylindrical type	306	1,928
5	except where	138	869
6	stated otherwise	138	869
7		138	869
8 - 9		2 x 71 = 142	895
10 - 11	Underground	2 x 54 = 108	680
12	Underground	23	145
13 - 18		6 x 10 = 60	378
19 - 20		2 x 30 = 60	378
21 - 26		6 x100 = 600	3,780
27		1,323	8,335
28		1,323	8,335
29		120	756
30		120	756
31		320	2,016
32		168	1,059
	Total	6,305	39,722

WATER-FED INLAND BULK PLANT
BELGIAN SHELL, S.A.
HAREN
BELGIUM





LEGEND

A. PONTONS	A. FLOATING DOCKS
B. BUREAUX ET HABITATION	B. OFFICES AND RESIDENCE
C. SALLE DE CHAUDIÈRE	C. BOILER ROOM
D. LOCAUX DIVERS	D. VARIOUS QUARTERS
E. CABINE DU PORTIER	E. CONCIERGE
H. HANGARS	H. SHEDS
I. HANGAR D'ISOLEMENT	I. SEPARATE SHED
J. JAUGEURS POUR CAMIONS	J. GAUGERS FOR TRUCKS
K. PONT BASCULE POUR CAMIONS	K. SCALES FOR TRUCKS
L. PONT BASCULE POUR WAGONS	L. SCALES FOR RAILROAD TANK CARS
P. SALLE DE POMPES-BENZINE	P. PUMP ROOM-GASOLINE
R. SALLES REMPLISSAGE-BENZINE	R. GASOLINE FILLING ROOM
S. SALLE REMPLISSAGE	S. FILLING ROOM
U. SALLE POMPE-BENZINE	U. PUMP ROOM-GASOLINE
V. PASSERELLE REMPLIS-CAMIONS	V. TANK TRUCK FILLING RACK
W. ATELIER-MAGAZINS	W. WORKSHOP-WAREHOUSES

POMPES

3 POMPES WORTHINGTON DACEP 22 m³/h-BZ.
2 POMPES ÉLECTR. SIHI HA542 15 m³/h. MOT. AEG. 4CV
1 POMPE ÉLECTR. HOUTTVINS 150 m³/h. BZ. MOT. 20CV.
1 POMPE ÉLECTR. HOUTTVINS 50 m³/h. MOT. 10 CV.
1 POMPE ÉLECTR. HOUTTVINS 15 m³/h. MOT. 3CV.

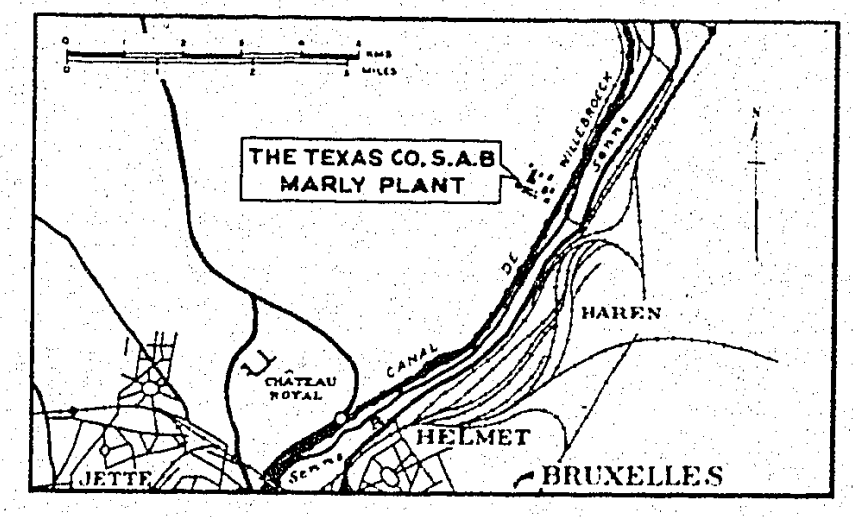
PUMPS

3 PUMPS WORTHINGTON DACEP FOR GASOLINE CAPACITY 22 m³/h.
2 ELECTRIC PUMPS SIHI HA542 CAPACITY 15m³/h. 4H.P. AEG. MOTOR
1 ELECTRIC PUMP HOUTTVINS FOR GASOLINE CAPACITY 150 m³/h. 20 H.P. MOTOR
1 ELECTRIC PUMP HOUTTVINS FOR GASOLINE CAPACITY 50m³/h. 10 H.P. MOTOR
1 ELECTRIC PUMP HOUTTVINS FOR GASOLINE CAPACITY 15 m³/h. 3 H.P. MOTOR

TANKS

No.	PRODUCT	TYPE	DIMENSIONS			CAPACITY		TOTAL CAPACITY	
			Øm	Hm	Lm				
1	GASOLINE	VERTICAL CYLINDRICAL	9	9.50		606	3,812	606	3,812
2,3,4	"	" "	7	7.45		306	1,925	918	5,775
5,6,7	"	" "	5.60	5.60		138	868	414	2,604
8,9	"	" "	4.50	4.50		71	447	142	894
10,11	"	UNDERGROUND	2		9.64	54	340	108	680
12	"	"	1.94		7.50	23	144	23	144
13,14,15,16,17,18	"	VERTICAL CYLINDRICAL	2.48	3		10	60	63	378
19,20	GAS OIL	UNDERGROUND	2		9.65	30	60	189	378
21,22,23,24,25,26	"	"	3		14.90	100	600	630	3,774
27,28	GASOLINE	VERTICAL CYLINDRICAL	12		11.75	1,323	8,321	2,646	16,642
29,30	"	" "	6		4.25	120	755	240	1,510
31	"	" "	7.50		7.25	320	2,013	320	2,013
32	BENZOL	" "	6		5.75	168	1,056	168	1,056
33	GASOLINE FILLING	" "	3		5.75	40	252	40	252
34	FUEL OIL	HORIZONTAL				67	422	67	422
35,36,37	GASOLINE	"				15	94	45	282
38	?	"				19	119	19	119
39,40	BENZOL	"				30	189	60	378
						TOTAL		6,698	41,113

Haren Plant of Standard American Petroleum Company.- The records of the Standard Oil Co. (N.J.) show a plant at Haren, run by a salaried agent, "supplied by rail only." It seems unlikely that this plant, located at a point with such excellent water communications, would not be supplied by water also. This company had no other information on this plant--neither location, layout plans nor storage capacity.



Marly Plant of The Texas Company, S.A.B. This plant is located at Marly, just south of Vilvorde, as shown on the accompanying sketch, on the Bruxelles-Anvers Canal, on to the north of Bruxelles. A layout plan appears on page 114, and an aerial photograph of the plant is shown on page 143. A detailed description of this plant, furnished by The Texas Company, New York, follows.

Buildings

Description	Dimensions	Capacity	Construction
1. Warehouse	118'0" x 52'6"	1800 drums	Concrete
2. Garage	54'0" x 59'0"	12 cars	Concrete
3. Auto Repair Shop	95'0" x 32'10"		Concrete
4. Storehouse	65'8" x 32'10"		Concrete
5. Painting Room	39'4" x 32'10"		Concrete
6. Stable	41'0" x 16'5"		Brick
7. Pumphouse	11'6" x 14'9"		Brick
8. Residence and Office	32'10"x 32'10"		Brick

Tankage

Product	Size	Capacity	Description
1. Gasoline	27'11" x 39'4"	4,100 bbls.	Vertical
2. Gasoline	27'11" x 39'4"	4,100 bbls.	Vertical
3. Gasoline	27'11" x 39'4"	4,100 bbls.	Vertical
4. Gasoline	8' 2" x 32'9"	314 bbls.	Raised Hor. Tank
5. Gasoline	8'2" x 32'9"	314 bbls.	Raised Hor. Tank
6. Benzol	6'7" x 26'3"	6,157 bbls.	Horizontal
7. Kerosine	27'11" x 39'4"	4,100 bbls.	Vertical
	Total	23,185 bbls.	

Firewall Construction: Concrete

Pipe Lines

Product	Size	Length
1. Gasoline	4"	525'
2. Gasoline	2 1/2"	1350'
3. Kerosine	4"	460'
4. Kerosine	2 1/2"	200'

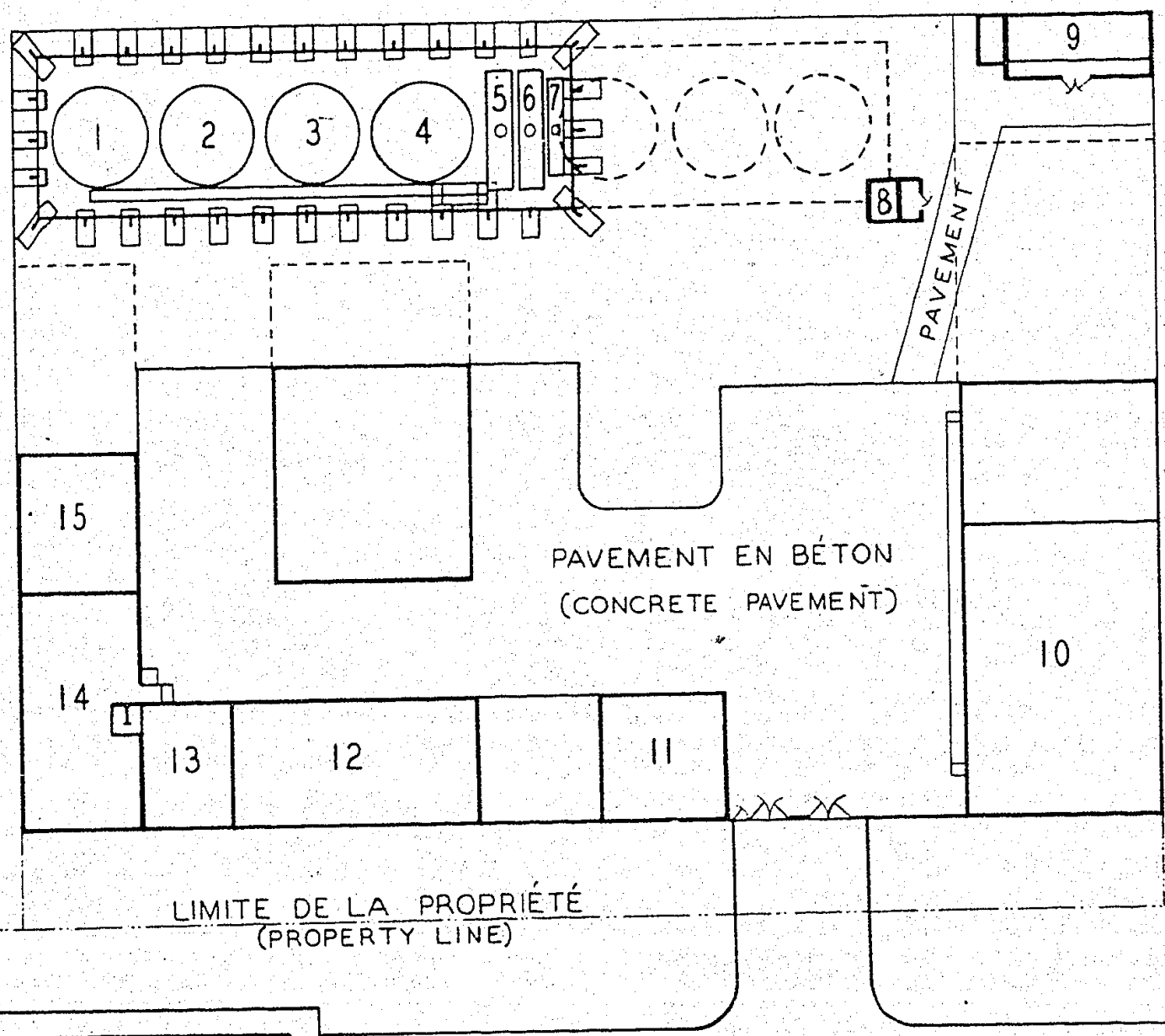
INLAND WATER-FED BULK PLANT
THE TEXAS COMPANY, S.A.B.
MARLY
BRUXELLES (BRUSSEL)
BELGIUM

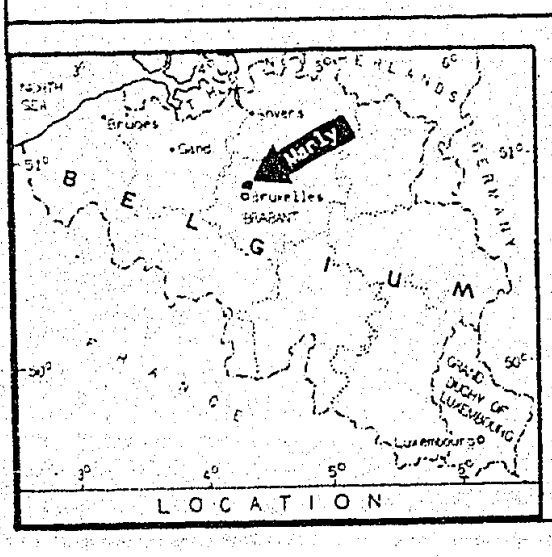
0 10 20 30 40 METERS
0 25 50 75 100 125 FEET

LEGEND			
8	POMPES	8	PUMPS
9	ÉCURIE	9	STABLE
10	MAGASIN	10	WAREHOUSE
11	BUREAUX	11	OFFICE
12	RÉPARATION DES AUTOS	12	AUTO REPAIR SHOP
13	SALLE DES MACHINES	13	MACHINE SHOP
14	MAGASIN POUR POMPES & RÉPARATIONS	14	PUMP STORE & REPAIR SHOP
15	PEINTURE	15	PAINT SHOP

DOTTED LINES INDICATE SPACE FOR POSSIBLE FUTURE EXTENSIONS

TANK NO.	PRODUCT	M^3	BARRELS
1	KEROSINE	650	4100
2	GASOLINE	650	4100
3	GASOLINE	650	4100
4	GASOLINE	650	4100
5	GASOLINE	50	315
6	GASOLINE	50	315
7	BENZOL	25	158
	TOTAL	2725	17188





Marly Plant of The Texas Company, S.A.B. (Continued)

Pumps

Product	Capacity	Operation	Horse Power
1. Gasoline	100 G.P.M.	Electric)	5
2. Kerosine	100 G.P.M.	Electric)	

Yard Area and Roadways

	Construction	Area Sq.Ft.
1. Yard	Concrete	18,200
2. Entrance Road	Belgian Blocks	1,945

Fence

Height	Length	Construction
8'2"	590'	Concrete

Dock

Size	Construction
39'4" x 26'3"	Concrete Piles and Deck

Electric Characteristics

	A.C. or D.C.	Voltage	Phase	Cycle
Lights:	A.C.	110	3	50
Power:	A.C.	190	3	50

Water Supply

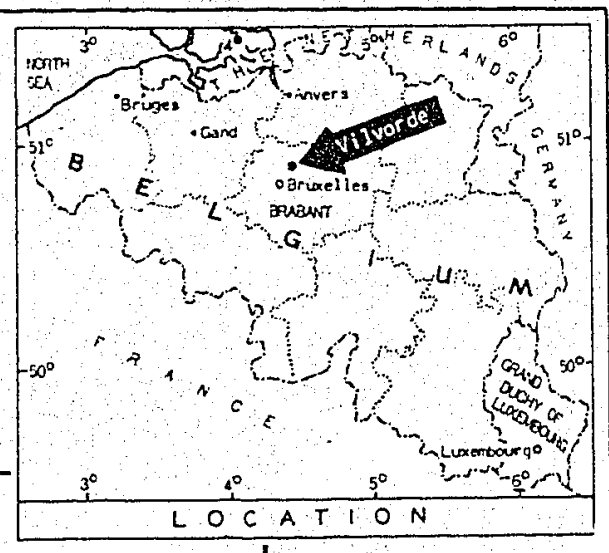
	Capacity	Average Pressure
City:	Unlimited	30 lbs.

Vilvorde Plant of L'Alliance, S.A. - This company, affiliated with Anglo-Iranian Oil Company, Ltd., owns a small plant at Vilvorde,(latitude 50°56'N, longitude 4°26'E). A layout plan is shown on page 116.

Detailed Tankage Capacity, L'Alliance,S.A.B.

No. of Tanks	Capacity Each Tank	Total Capacity M3	Total Capacity Barrels
5	200	1,000	6,300
4	60	240	1,512
1	30	30	189
	Total	1,270	8,001

INLAND BULK PLANT OF
L'ALLIANCE, SOCIÉTÉ ANONYME
VILVORDE
BELGIUM



LOCATION

0 25 50 75 100 FEET
0 10 20 30 METERS

CHAUSSEÉ DE HAREN

SPACE RESERVED FOR RAILROAD SIDING

WARE-HOUSE

KEROSINE WAREHOUSE

GASOLINE WAREHOUSE

CAN RECON-DITIONING

WAREHOUSE AND CAN PAINTING

KEROSINE TANK 212 m³

GASOLINE TANK 212 m³

GASOLINE TANK 212 m³

GASOLINE TANK 212 m³

GAS OIL TANK 60 m³

KEROSINE TANK 60 m³

GASOLINE TANK 60 m³

GASOLINE TANK 60 m³

GASOLINE TANK 25 m³

TRUCK LOADING PLATFORM FOR GASOLINE

ENTRANCE

FIRE EXTINGUISHER

PUMP HOUSE

WAREHOUSE

MOTOR ROOM

RUE GUILLAUME DE BACKER

WAREHOUSEMAN'S QUARTERS

OFFICES

WATCHMAN'S QUARTERS

WORKMEN'S DINING ROOM

ENTRANCE

GARAGE

STABLE

HARNESS ROOM

CHAUSSEÉ BRUXELLES - VILVORDE

B 4

Vilvorde Plant of Belgian Shell, S.A.- This company maintained a fully equipped repair and repainting shop for tank trucks at Vilvorde, north of and near Bruxelles. The plant included a garage capable of accommodating 44 tank trucks and tankage capacity of 7,000 M^3 (44,100 barrels).

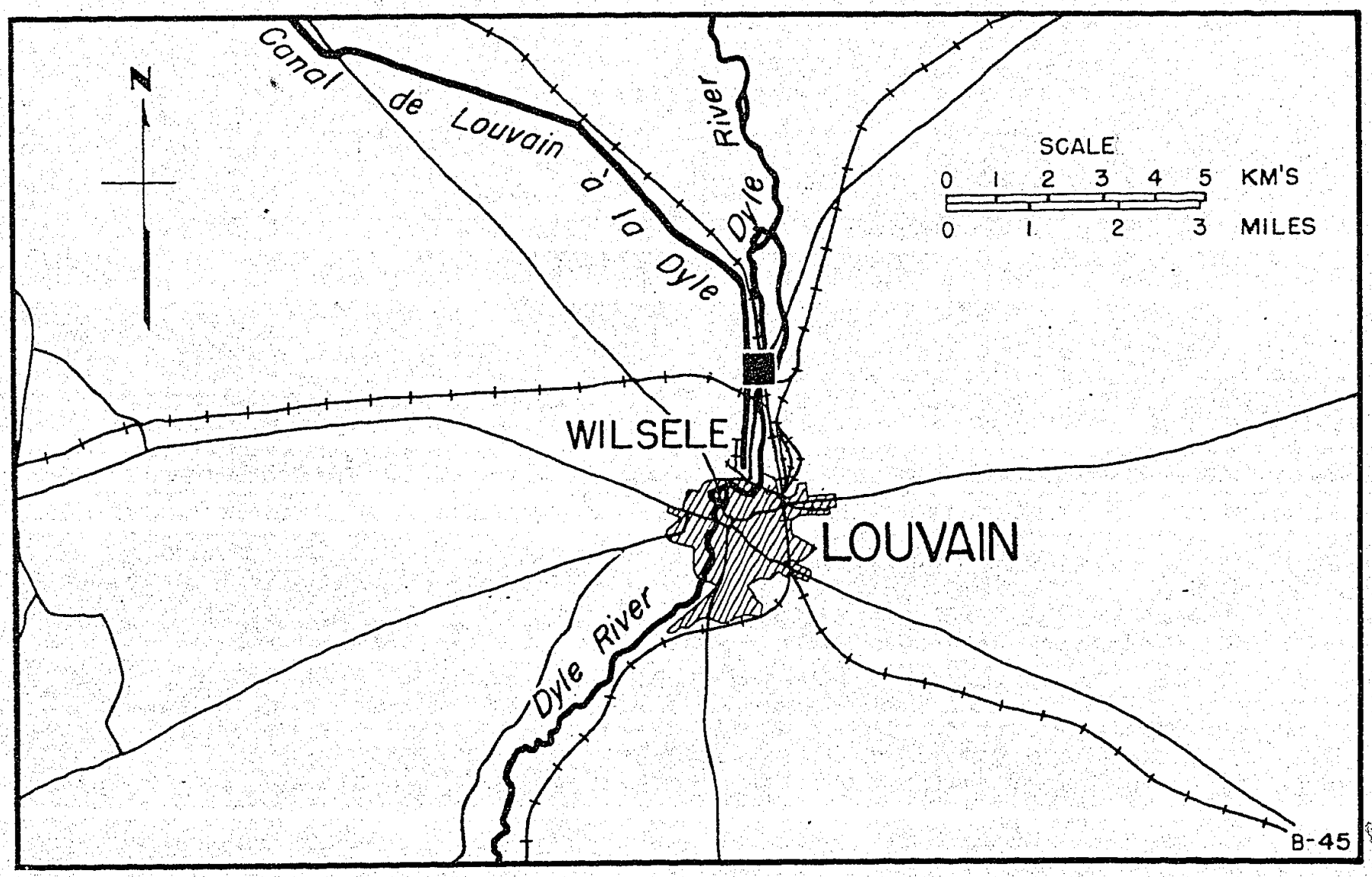
Belgian Gulf Oil Company, S. A.- This company, a subsidiary of Gulf Oil Corporation of Pittsburgh, owns a small plant at Bruxelles. No other information with reference to this plant is available.

4.3.3 Louvain (Leuven)

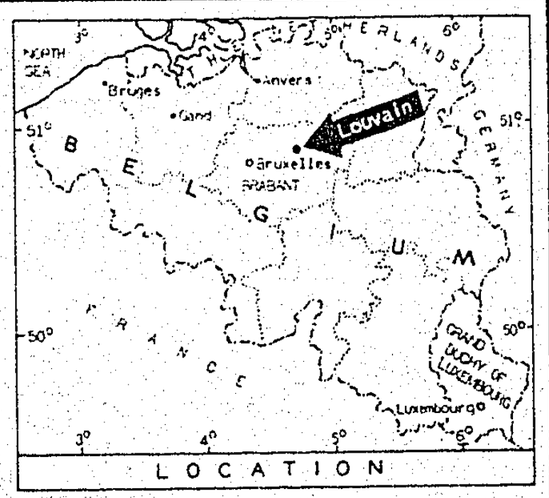
Belgian Shell, S. A.- This is a water-fed interior bulk plant located between La Dyle and the Louvain-Malines canal near Wilsele (latitude 50°52'N, longitude 4°43'E). Normally it is supplied by barge from Anvers but it has railway connections. A layout plan appears on page 118.

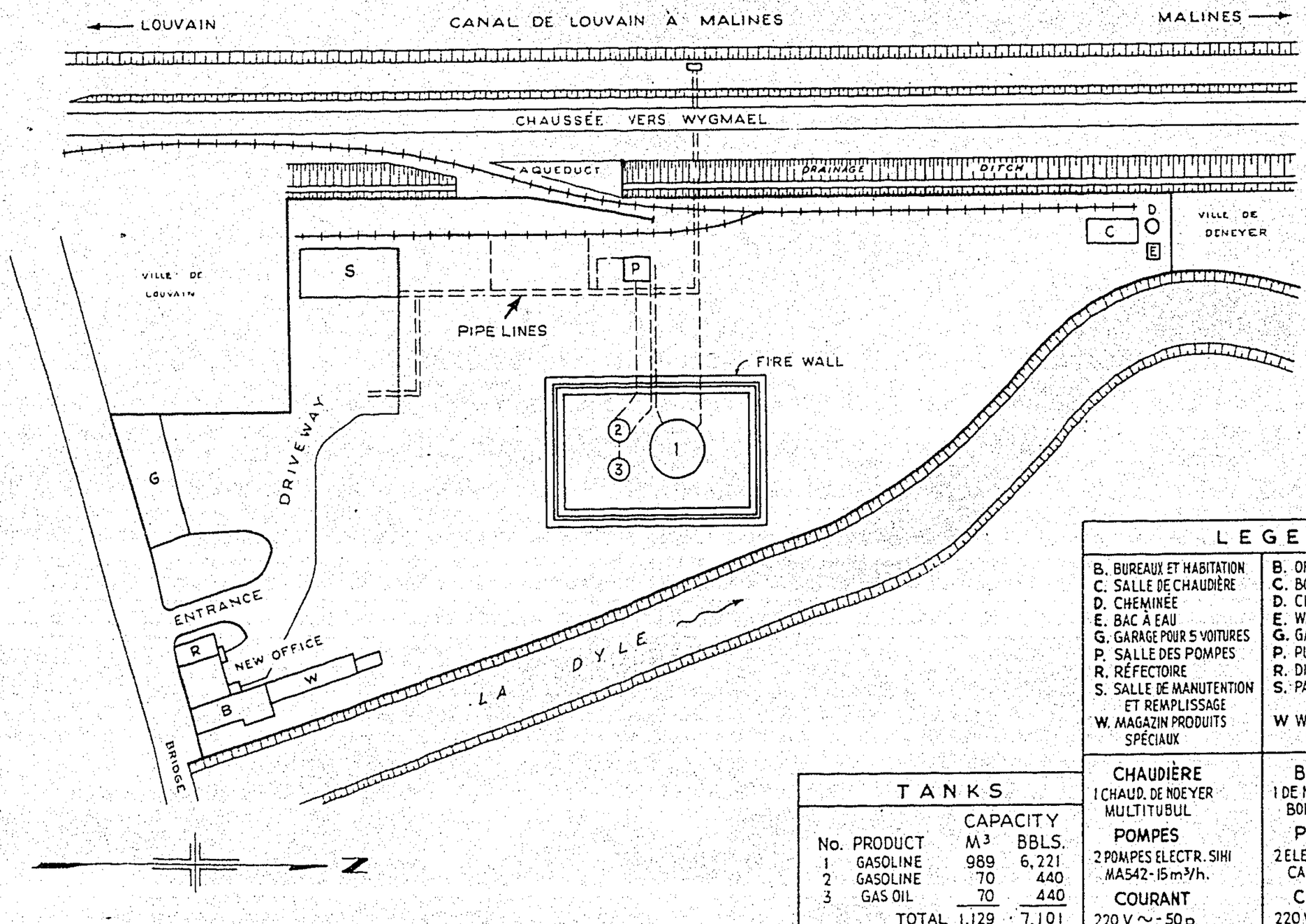
Detailed Tank Identification, Belgian Shell, S. A.

Tank No.	Type	Product normally stored	Capacity	
			M^3	Barrels
1	All tanks are of the normal, steel, vertical, cylindrical type	Gasoline	989	6,230
2		Gasoline	70	441
3		Gas Oil	70	441
		Total	1,129	7,112



WATER-FED INLAND BULK PLANT
BELGIAN SHELL, S.A.
LOUVAIN (LEUVEN)
BELGIUM



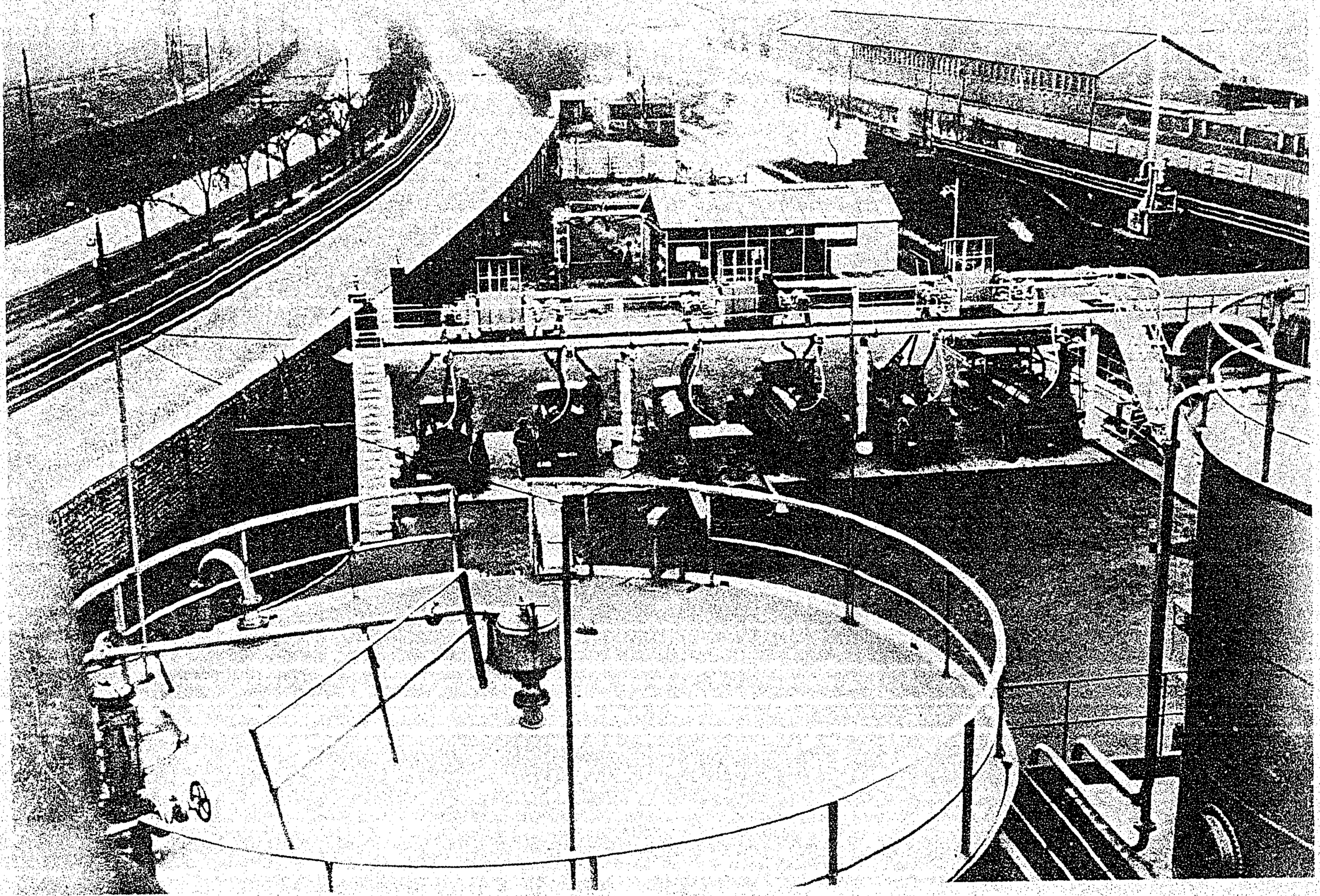


LEGEND	
B. BUREAUX ET HABITATION C. SALLE DE CHAUDIÈRE D. CHEMINÉE E. BAC À EAU G. GARAGE POUR 5 VOITURES P. SALLE DES POMPES R. RÉFECTOIRE S. SALLE DE MANUTENTION ET REMPLISSAGE W. MAGAZIN PRODUITS SPÉCIAUX	B. OFFICES AND RESIDENCE C. BOILER ROOM D. CHIMNEY E. WATER TANK G. GARAGE FOR 5 VEHICLES P. PUMP ROOM R. DINING ROOM S. PACKING AND FILLING ROOM W WAREHOUSE, SPECIAL PRODUCTS
CHAUDIÈRE 1 CHAUD. DE NOEYER MULTITUBUL POMPES 2 POMPES ELECTR. SIHI MA542-15 m³/h. COURANT 220 V ~ - 50 p.	BOILER 1 DE NOEYER MULTITUBULAR BOILER PUMPS 2 ELECTRIC SIHI PUMPS MA542 CAPACITY - 15 m³/h. CURRENT 220 V. ~ - 50 CYCLE

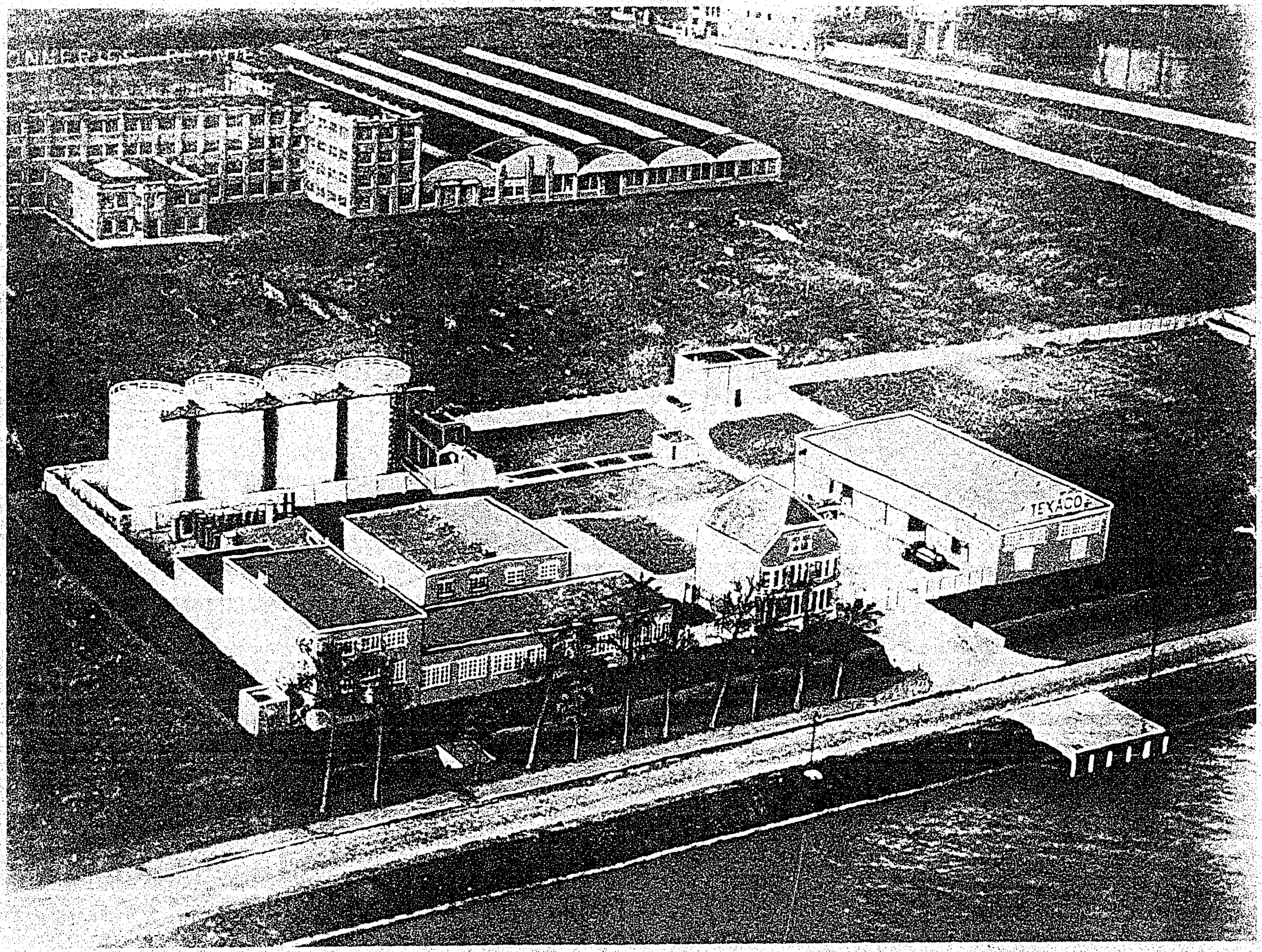
TANKS			
		CAPACITY	
No.	PRODUCT	M³	BBLS.
1	GASOLINE	989	6,221
2	GASOLINE	70	440
3	GAS OIL	70	440
	TOTAL	1,129	7,101

B-26

Louvain



VIEW SHOWING WEIGHBRIDGE FOR TANK TRUCKS, INLAND BULK PLANT,
BELGIAN SHELL, S. A., HAREN, BRUXELLES

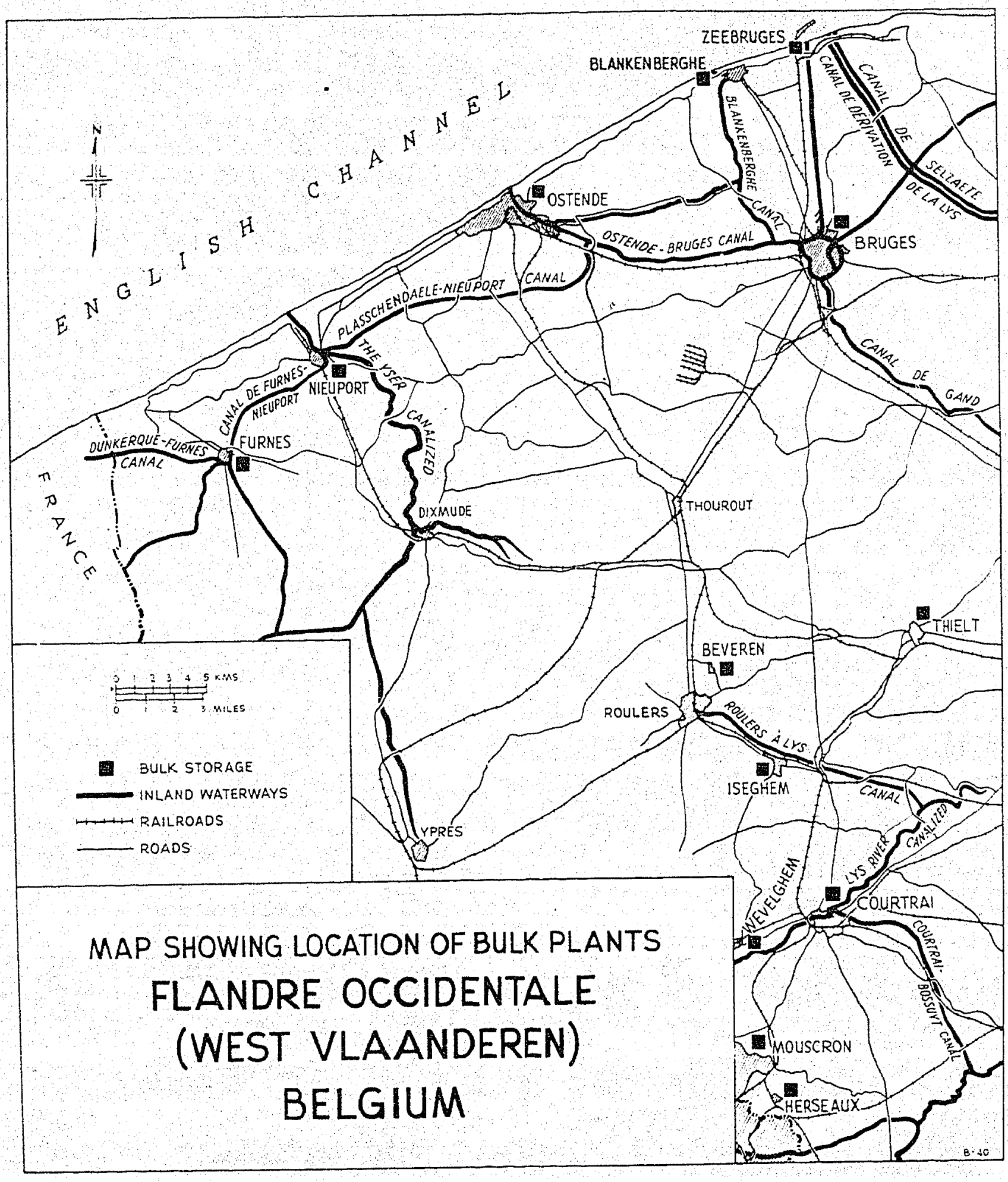


WATER-FED INLAND BULK PLANT OF THE TEXAS COMPANY,S.A.B., BRUXELLES (BRUSSEL), BELGIUM

4.4 PROVINCE OF FLANDRE OCCIDENTALE (WEST VLAANDEREN)(a)

4.4.1 General Remarks

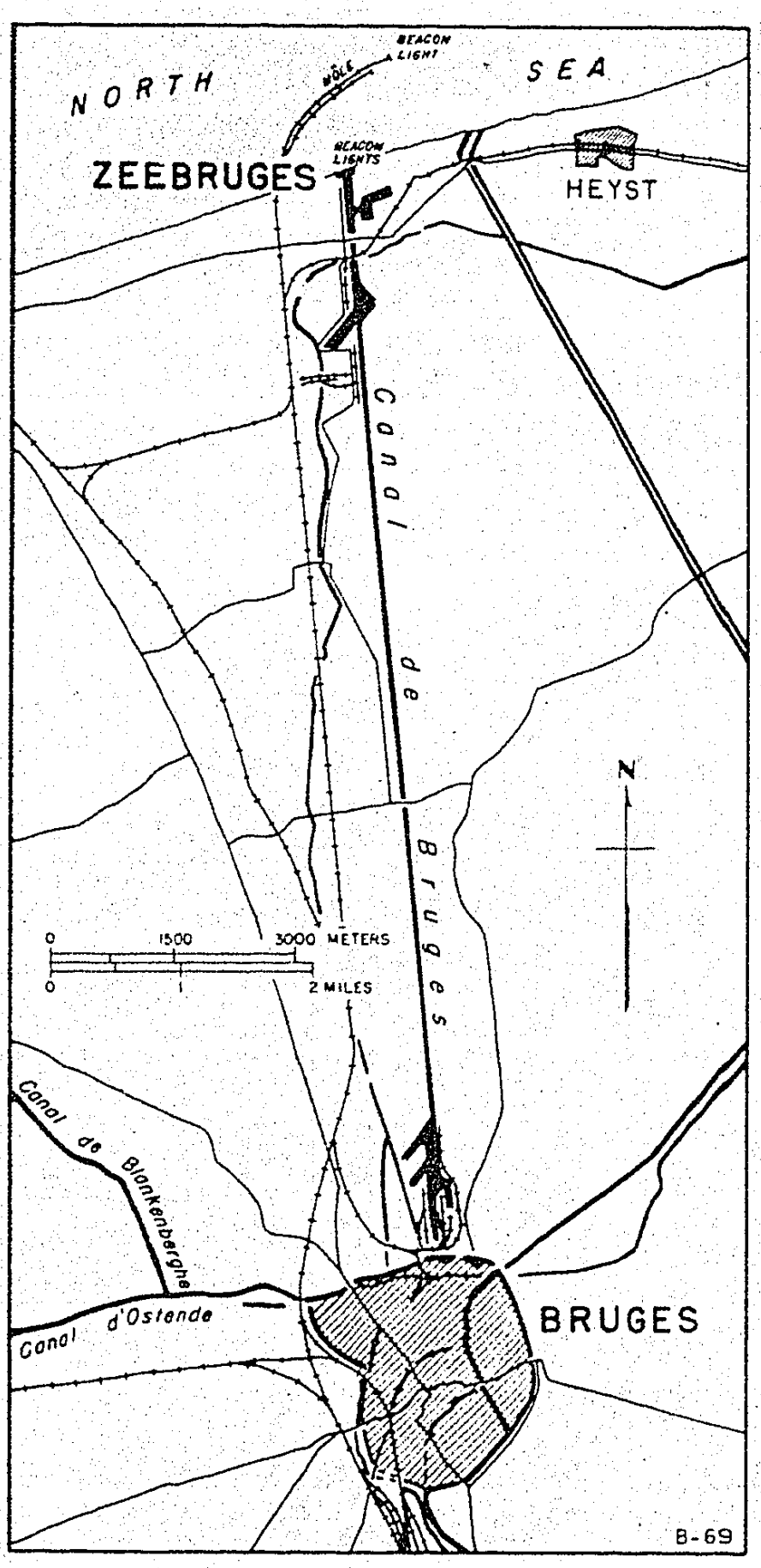
There are a comparatively large number of storage centers in the province, i.e., Zeebrugge, Blankenberghe, Ostende, Nieuport, Furnes, Bruges, Thielt, Beveren, Iseghem, Courtrai, Wevelghem, Mouscron and Herseaux.



(a) English: West Flanders

4.4.2 Zeebruges (Zeebrugge)

This is a seaport (latitude 51°19'N, longitude 3°12'E) on the North Sea, 8 miles north of Bruges, with which city it is connected by a maritime canal.

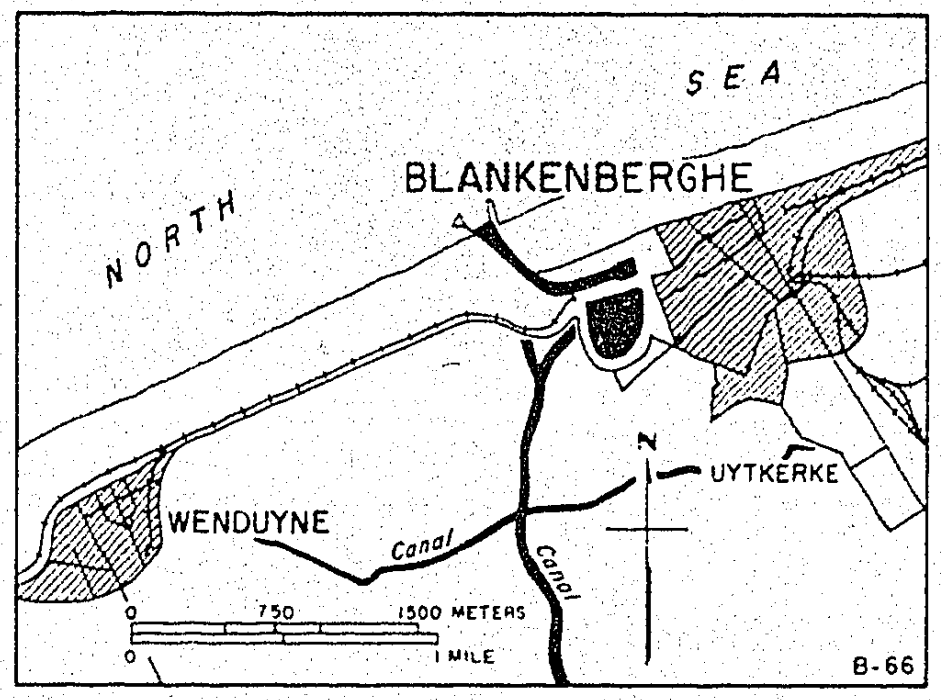


The Bruges-Zeebruges Canal is about 6 miles long, 72 feet wide at bottom and 230 feet wide at water level, and is dredged along its entire length to a depth of 26 feet.

Standard American Petroleum Company.- This company, affiliated with Standard Oil Co. (N.J.), has a package plant (no bulk storage) at Zeebruges.

4.4.3 Blankenberghe (Blankenberge)

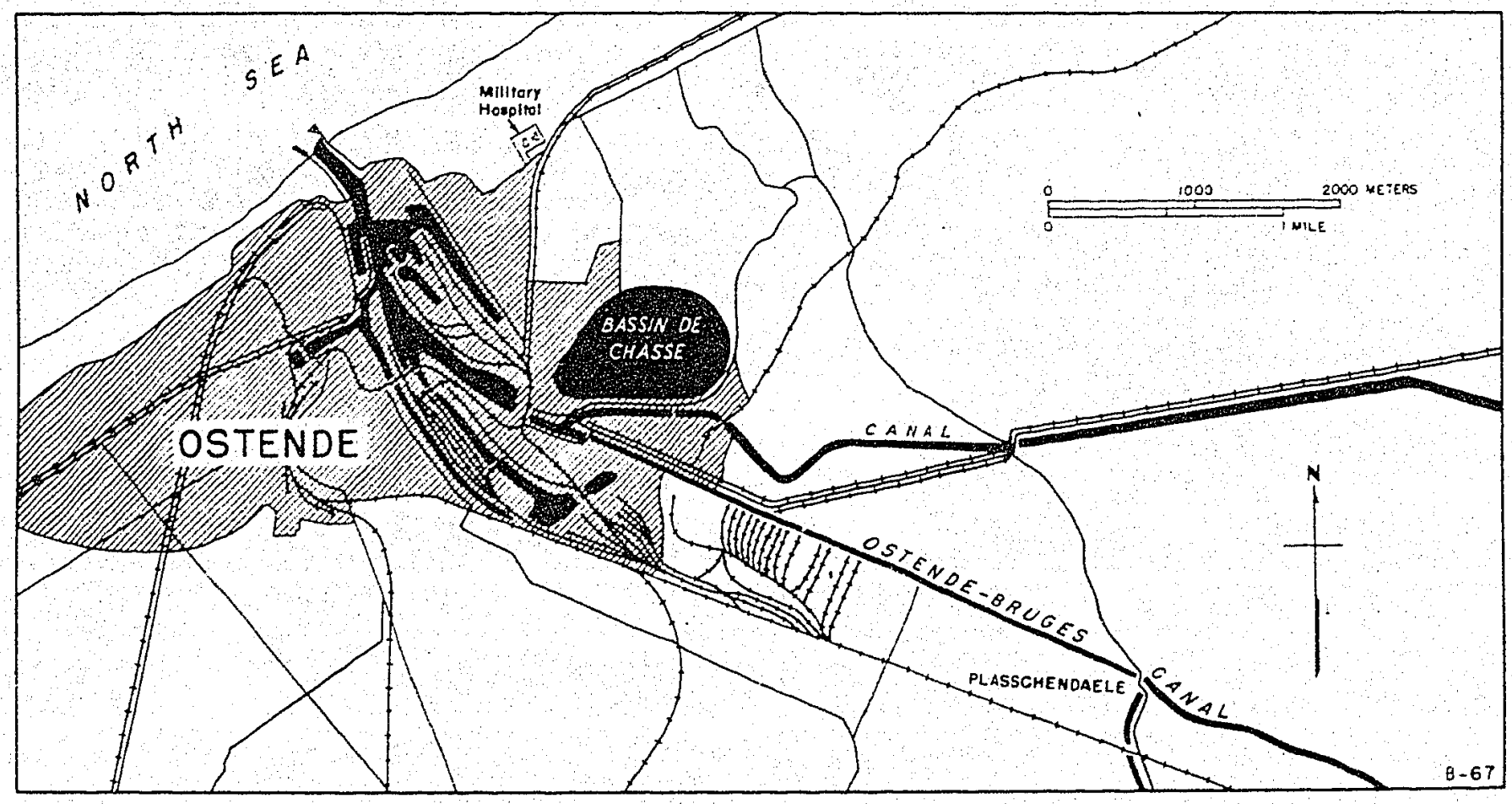
The only plant at this place (latitude 51°18'N, longitude 3°8'E) is that of Standard American Petroleum Company--for packages only.



4.4.4 Ostende (Oostende)

This town is a seaport, (latitude 51°13'N, longitude 2°57'E), about 28 miles northeast of Dunkerque.

The Texas Co., S.A.B.- This plant on the road to Zeebruges, 3 miles north of the center of the city and on the north side of the fishing fleet basin, normally is supplied by rail or road from Anvers or Gand, distances of 83 and 43 miles, respectively. Supplies from Anvers are transported by rail, while those from Gand, principally gasoline and kerosine, are shipped in bulk by road. A layout plan appears on page 126.



Detailed Information, The Texas Co., S.A.B.

Buildings

(All brick construction)

Description	Dimensions	Capacity
Lube oil Warehouse with office	49'2" x 26'3"	360 drums

Tankage

Product	Size	Capacity
Gasoline	7'2" x 26'3"	190 barrels
Kerosine	7'2" x 26'3"	190 barrels
Gas Oil	8'2" x 32'9"	315 barrels

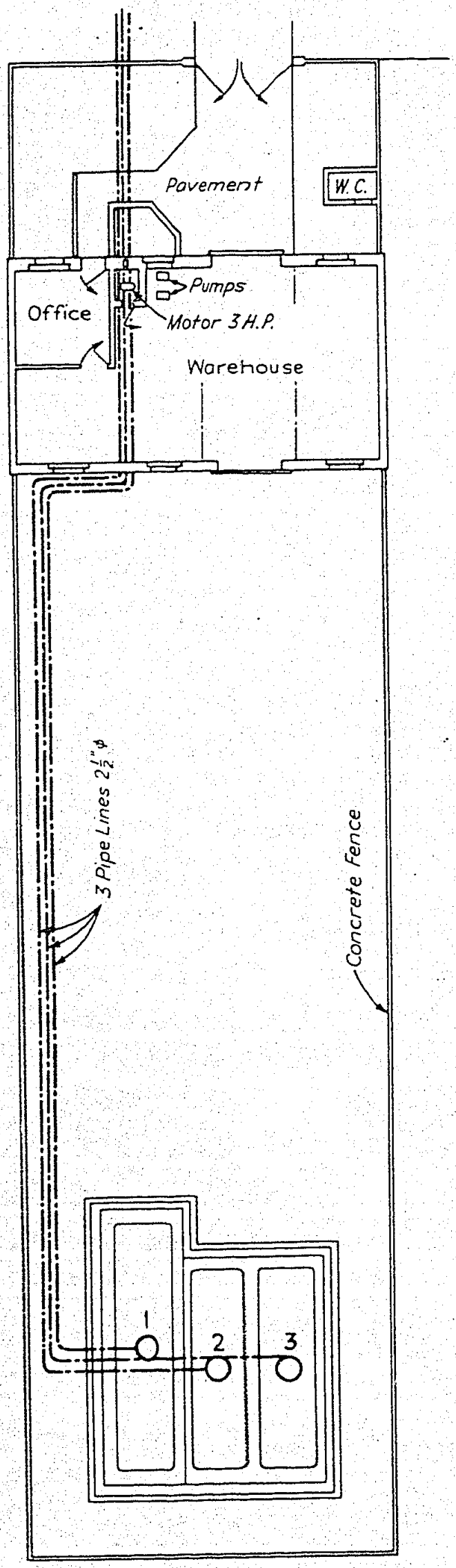
All tanks are buried, horizontal

Pipe Lines

Product	Size	Length
Gasoline	2 1/2"	405'
Kerosine	2 1/2"	405'
Gas Oil	2 1/2"	405'

Pumps

Product	Capacity	Operation	Horse Power
Gasoline	100 G.P.M.	Electric)	3 H.P.
Gas Oil	100 G.P.M.	Electric)	
Kerosine	25 G.P.M.	Hand Operated	

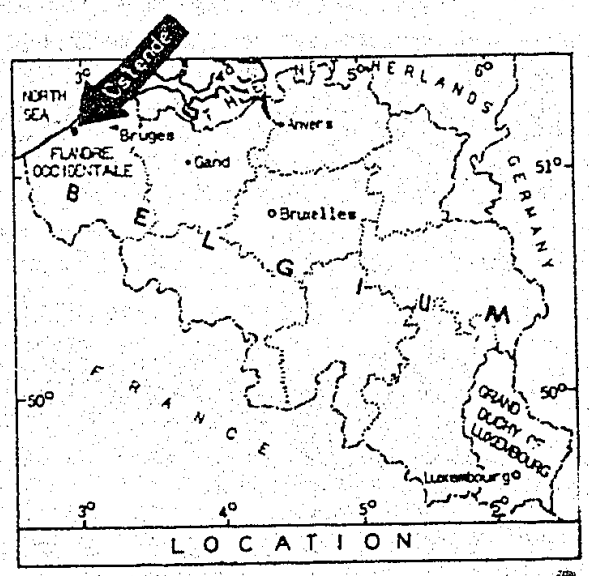


INLAND BULK PLANT
THE TEXAS COMPANY, S.A.B.
OSTENDE (OOSTENDE)
BELGIUM



TANKS

No.	CAPACITY M3	CAPACITY BBLS
1	50	315
2	30	189
3	30	189
TOTAL	110	693



Detailed Information, The Texas Co., S.A.B. (continued)

Fence

Height	Length	Construction
8'2"	85'	Concrete

Other fences belong to the neighbors

Yard Area and Roadways

	Construction	Area
Yard	Concrete	441 sq. ft.
Entrance Road	Concrete	517 sq. ft.

Electric Characteristics

	A.C. or D.C.	Voltage	Phase	Cycle
Lights	A.C.	130	3	50
Power	A.C.	220	3	50

Cesspool and Septic Tank for Sewerage Disposal

Boilers: None

Water Supply: rain water

4.4.5 Nieuport (Nieuwpoort)

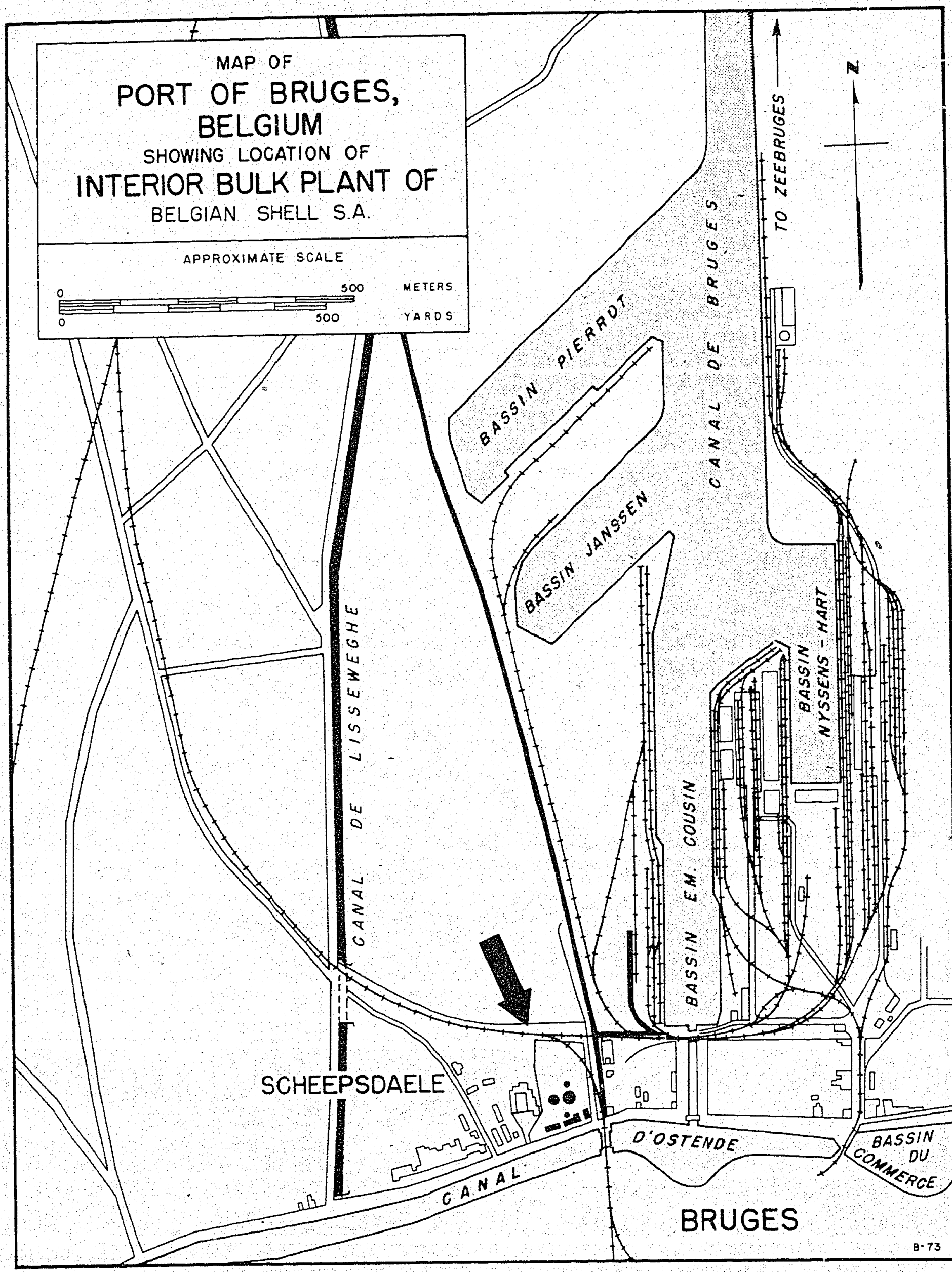
The Standard American Petroleum Company has a plant at this place, (latitude 51°8'N, longitude 2°46'E), for packages only.

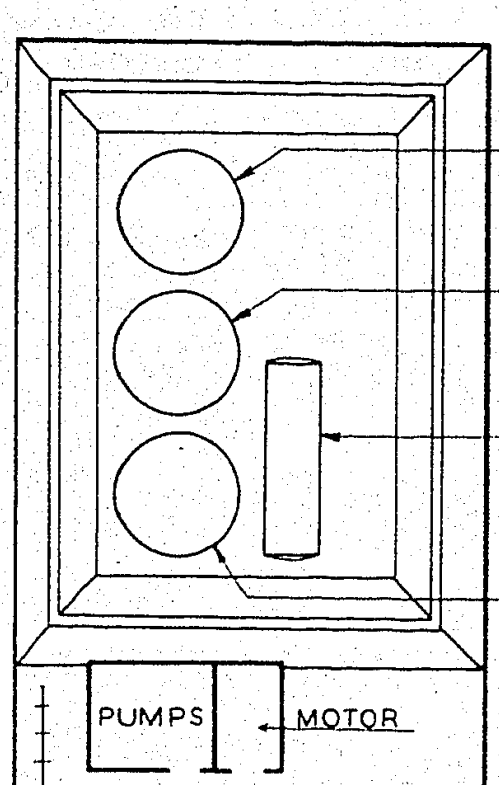
4.4.6 Furnes (Veurne)

At Furnes (latitude 51°3'N, longitude 2°40'E) the Standard American Petroleum Company has a bulk plant supplied by barge, capacity unknown.

4.4.7 Bruges (Brugge)

There are three plants at this city (latitude 51°2'N, longitude 3°14'E), the provincial capital of western Belgium. The capacity of the plants may be summarized as follows:


MAP OF
PORT OF BRUGES,
BELGIUM
SHOWING LOCATION OF
INTERIOR BULK PLANT OF
BELGIAN SHELL S.A.
APPROXIMATE SCALE
0
500
METERS
0
500
YARDS
N
TO ZEEBRUGES
BASSIN PIERRUT
CANAL DE BRUGES
BASSIN JANSSEN
CANAL DE LISSEWEGHE
BASSIN NYSSENS - HART
BASSIN EM. COUSIN
SCHEEPSDAELE
CANAL
D'OSTENDE
BASSIN DU COMMERCE
BRUGES
B-73

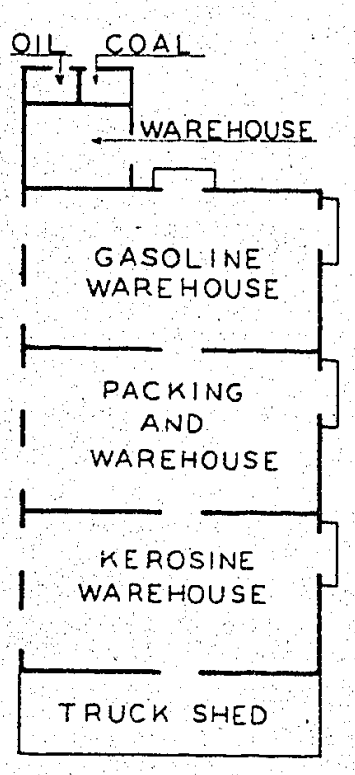


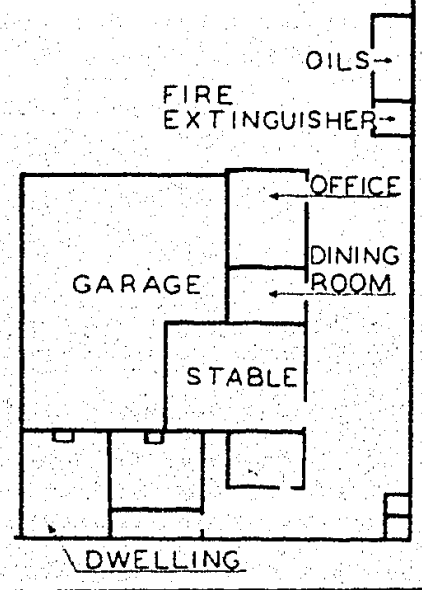
GASOLINE TANK
200M³

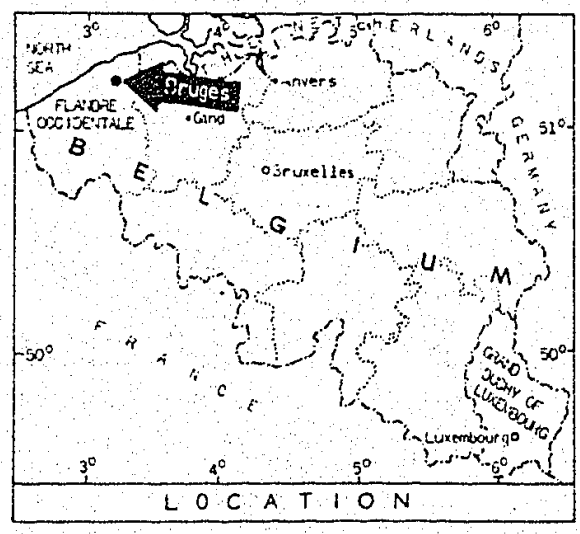
GASOLINE TANK
200M³

GASOLINE TANK
60M³

KEROSINE TANK
200M³









INLAND BULK PLANT
L'ALLIANCE. S.A.
BRUGES (BRUGGE)
BELGIUM

0 20 40 60 80 100 FEET
0 10 20 30 METERS

B 6

MARITIME CANAL

IRRIGATION CANAL

Detailed Tank Capacity at Three Plants, Bruges (Brugge)

Company	Owner Company or Control	Tank Capacity	
		M^3	Barrels
Belgian Shell, S. A.	Royal Dutch Shell group	8,507	53,600
L'Alliance, S.A.	Anglo-Iranian Oil Co.,Ltd.	690	4,347
Standard American Petroleum Company	Standard Oil Company, (N. J.)	x	x

Belgian Shell, S.A.- This plant is located on the canal Bruges-Ostende. The map on page 128 shows the location of the plant. While no detailed description is available, the storage capacity is 8,507 M^3 (53,600 barrels).

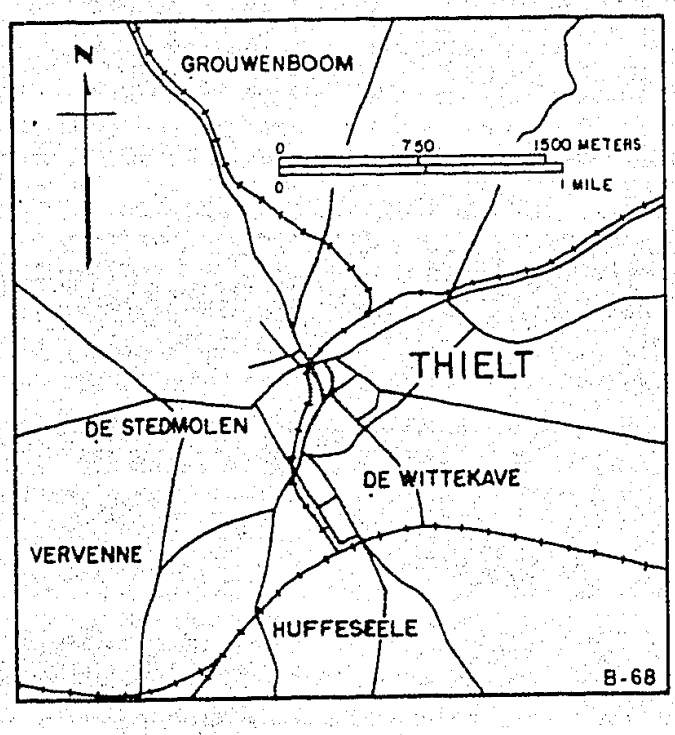
Tankage Capacities, In Barrels

Tank No.	Gasoline	Gas Oil	Total
2	6,200	-	6,200
3	-	33,400	33,400
5	-	14,000	14,000
Total	6,200	47,400	53,600

L'Alliance, S. A.- This company, affiliated with Anglo-Iranian Oil Co., Ltd., owns a plant at Bruges with a storage capacity of 690 M^3 (4,347 barrels). A layout plan is shown on page 129. Tankage is as follows:

3 tanks of 200 M^3 =	600
1 tank of 60 M^3 =	60
1 tank of 30 M^3 =	30
Total	690M^3 (4,347 barrels)

Standard American Petroleum Co.- This company maintained a plant with a salaried agent at Bruges. The company records show this plant as supplied by rail only. No further information is available.



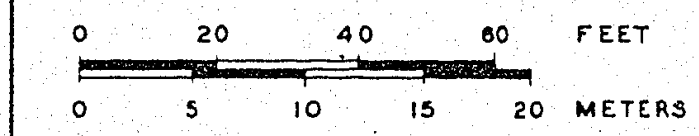
4.4.8 Thielt (Tielt)

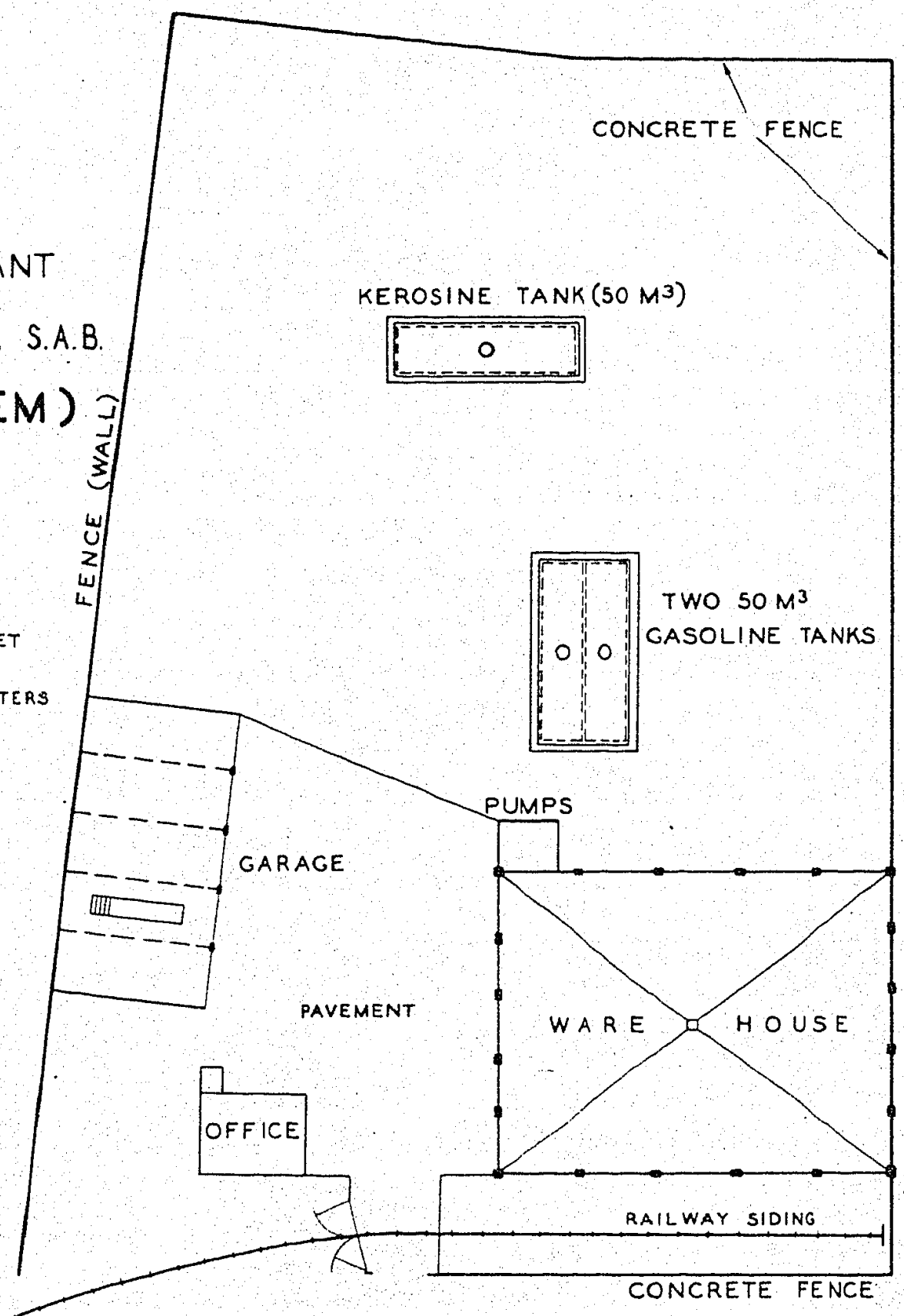
At Thielt (latitude 51°00'N, longitude 3°20'E) the Standard American Petroleum Company has a plant run by a commission agent and supplied by road only.

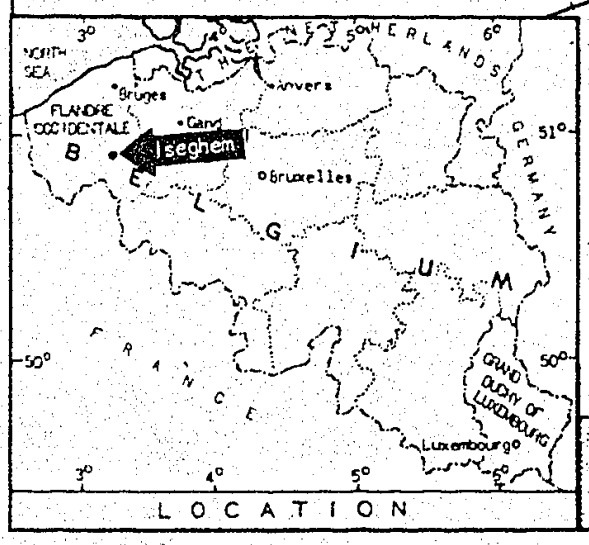
4.4.9 Iseghem (Isegem)

The Texas Company, S.A.B.- This plant (latitude 50°56'N, longitude 3°12'E) normally receives supplies from Anvers by rail and kerosine and gasoline from Gent by road. It is located 70 miles from the former and 36 miles from the latter. A layout plan appears on page 131. The total storage capacity is 942 barrels.

WATER FED
INLAND BULK PLANT
THE TEXAS COMPANY, S.A.B.
ISEGHEM (ISEGEM)
BELGIUM







LOCATION

B 14

Detailed Information, The Texas Co., S.A.B.

Buildings

Description	Dimensions	Capacity	Construction
Lube Oil Warehouse	54'0" x 74'0"	1,000 drums	Steel structure
Garage	26'0" x 52'0"	5 cars	Brick
Pumphouse	8'2" x 9'10"		Brick
Office	19'8" x 13'1"		Brick

Tankage

Product	Size	Capacity
Gasoline	8'2" x 32'9"	314 barrels
Gasoline	8'2" x 32'9"	314 barrels
Kerosine	8'2" x 32'9"	314 barrels
	Total	942 barrels

All tanks buried horizontal

Pipe Lines

Product	Size	Length
Gasoline	2 1/2"	395'
Kerosine	2 1/2"	475'

Pumps

Product	Capacity	Operation	Horse Power
Gasoline	100 G.P.M.	Electric)	5 H.P.
Kerosine	100 G.P.M.	Electric)	

Fence

Height	Length	Construction
6'7"	473'	Concrete
6'7"	175'	Brick

Yard Area and Roadways

	Construction	Area
Yard	Belgian Blocks	2,930 sq. ft.
Entrance Road	Belgian Blocks	620 sq. ft.

Electric Characteristics

	A.C. or D.C.	Voltage	Phase	Cycle
Lights	D.C.	220	-	-
Power	D.C.	220	-	-

4.4.10 Courtrai (Kortrijk)

The Standard American Petroleum Company has a plant at Courtrai (latitude 50°50'N, longitude 3°16'E), managed by a salaried agent, and supplied by rail only. It is believed to be of very small capacity.

4.4.11 Wevelghem (Wevelgem)

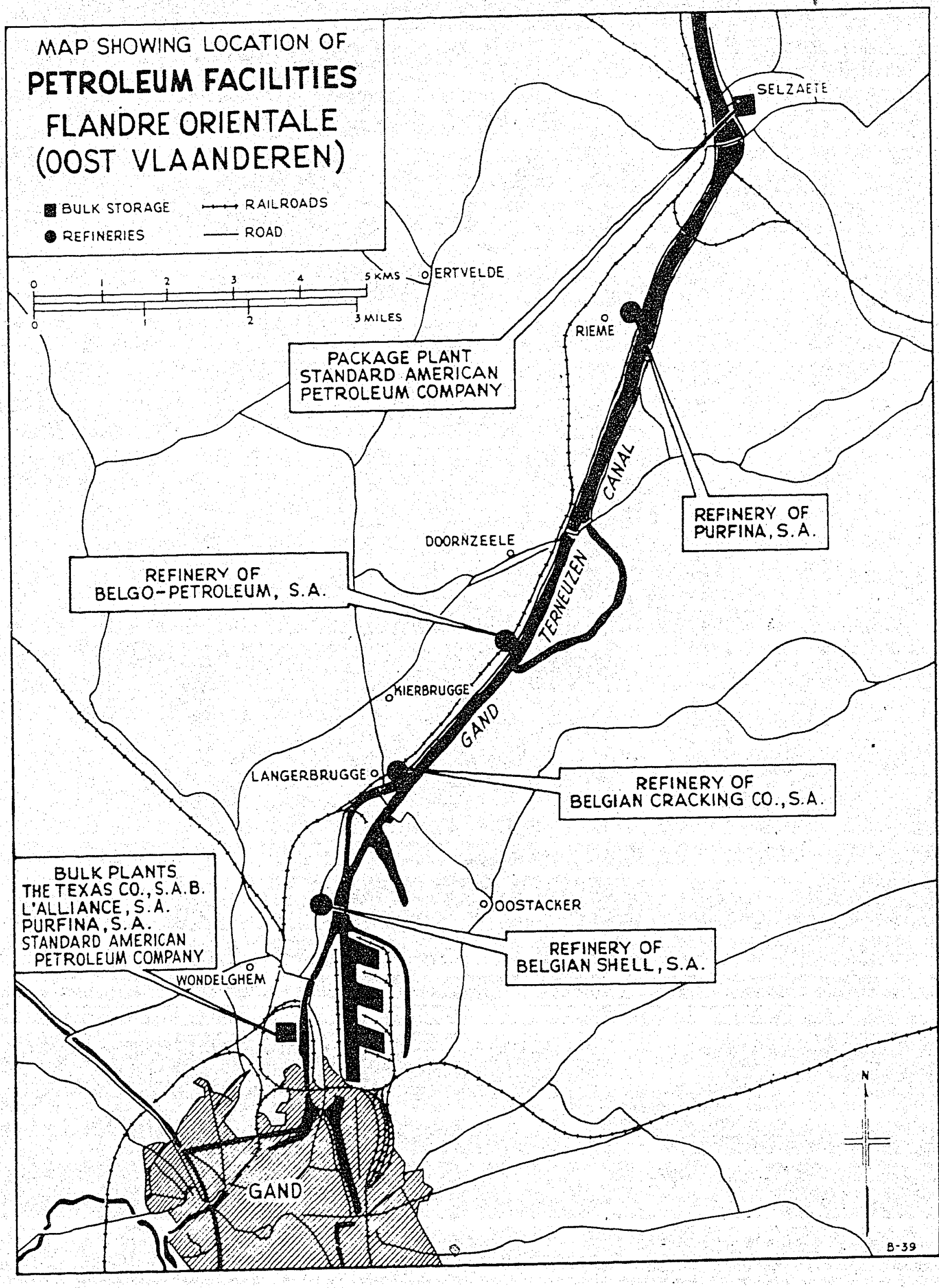
At this point, (latitude 50°49'N, longitude 3°11'E), close to Courtrai, the Belgian Shell, Société Anonyme has a small plant supplied by rail. Gasoline only is carried here. Tank capacity is 45 M^3 (284 barrels). There is a warehouse and drum and tank truck filling facilities.

4.4.12 Mouscron (Moeskroen)

At Mouscron, (latitude 50°45'N, longitude 3°10'E), on the Belgian-French border, Standard American Petroleum Company has a plant managed by a commission agent and supplied by road only. It is believed to be of very small capacity.

4.4.13. Herseaux (Herseeuw)

Standard American Petroleum Company has a bulk plant at Herseaux (latitude 50°43'N, longitude 3°14'E), managed by a salaried agent and supplied by rail only. It is believed to be of very small capacity.


MAP SHOWING LOCATION OF
PETROLEUM FACILITIES
FLANDRE ORIENTALE
(OOST VLAANDEREN)
BULK STORAGE
REFINERIES
RAILROADS
ROAD
0 1 2 3 4 5 KMS
0 1 2 3 MILES
SELZAETE
ERTVELDE
RIEME
PACKAGE PLANT
STANDARD AMERICAN
PETROLEUM COMPANY
CANAL
REFINERY OF
PURFINA, S.A.
DOORNZEELE
REFINERY OF
BELGO-PETROLEUM, S.A.
TERNEUZEN
KIERBRUGGE
GAND
LANGERBRUGGE
REFINERY OF
BELGIAN CRACKING CO., S.A.
BULK PLANTS
THE TEXAS CO., S.A.B.
L'ALLIANCE, S.A.
PURFINA, S.A.
STANDARD AMERICAN
PETROLEUM COMPANY
OOSTACKER
REFINERY OF
BELGIAN SHELL, S.A.
WONDELGHEM
GAND
N
B-39

4.5 FLANDRE ORIENTALE (OOST VLAANDEREN)(a)

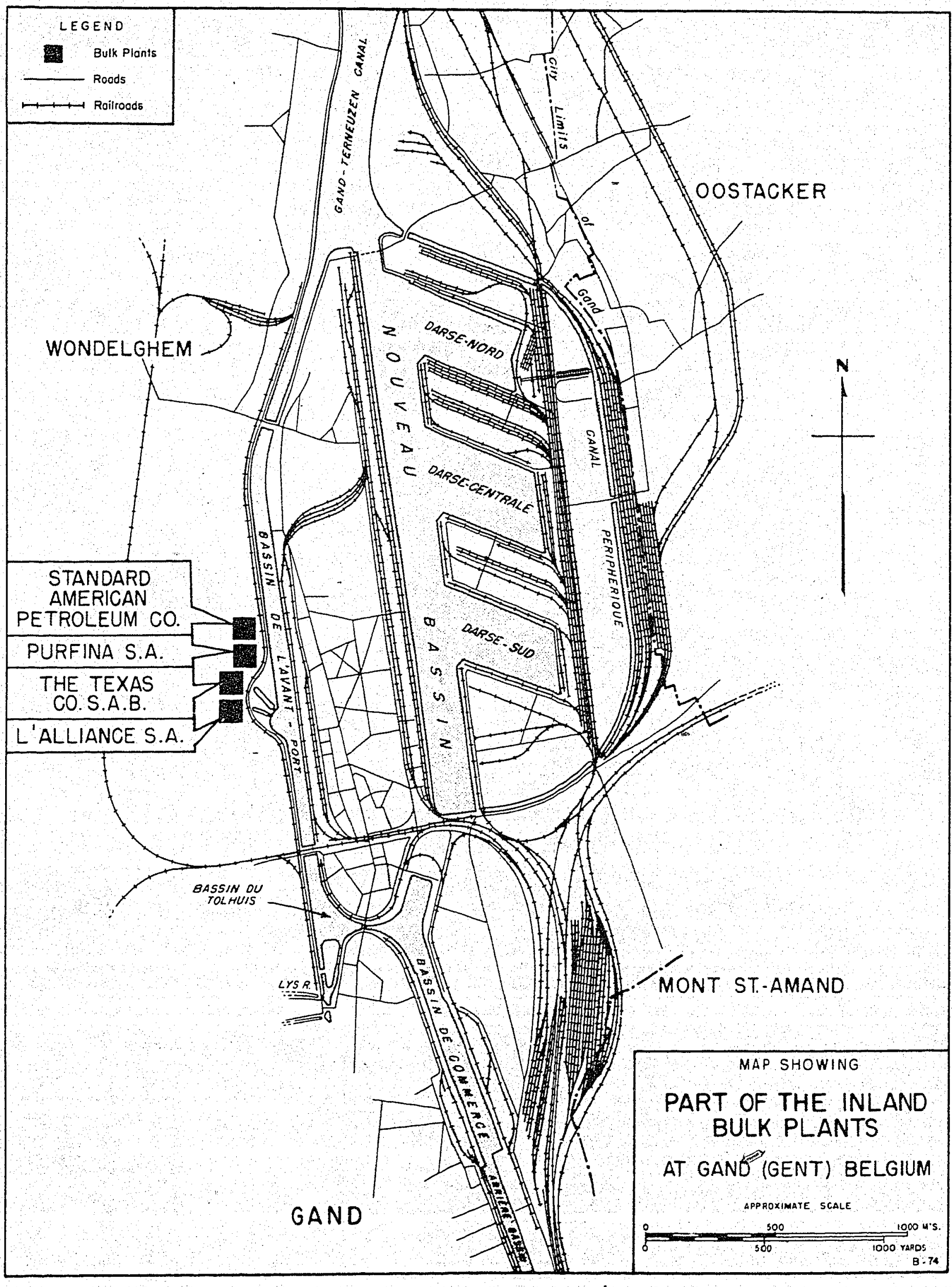
4.5.1 General Remarks

The large concentration of petroleum facilities along the Gand-Terneuzen Canal makes Flandre Orientale an important petroleum center. Besides the bulk plants at Gand, there are three refineries and a specialty plant in this province.

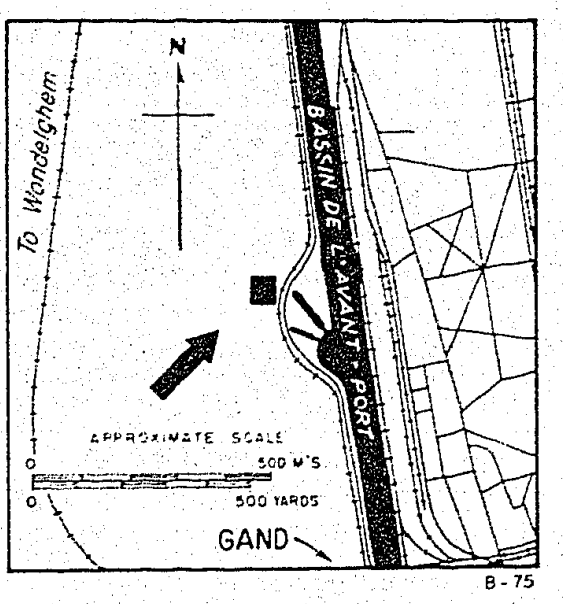
Storage Facilities, Flandre Orientale

Location	Company	Owner Company	Storage Capacity		Present Status
			M3	Barrels	
Gand	Texas Co.,S.A.B.	The Texas Company	949	5,980	x
Gand	L'Alliance, S.A.	Anglo-Iranian Oil Co., Ltd.	1,000	6,300	x
Gand	Standard American Pet. Co.	Standard Oil Co. (N.J.)	x	x	x
Gand	Purfina, S.A.	Independent	x	x	x
Gand	Belgian Gulf Oil Co., S.A.	Gulf Oil Corp.	x	x	x
S. E. of Kierbrugge	Belgian Cracking Co., S.A. (Refinery)	S.A.Centrales Électriques des Flandres et du Brabant	10,984	69,200	Inactive Intact
Wondelghem	Belgian Shell S. A. (Refinery)	Royal Dutch Shell Group	47,538	299,500	Inactive Intact
Doornzeele	L'Alliance, S. A.	Anglo-Iranian Oil Co., Ltd.	47,500	299,250	x
Doornzeele	Belgian Government	--	17,000	107,100	x
Terdonck-lez-Gand	Belgo-Petroleum S.A. (Refinery)	Group of International Oil Companies	26,700	168,210	Inactive Intact
Ertvelde	Purfina, S.A. (Refinery)	Independent	19,047	120,000	Intact
Selzaete	Standard American Pet. Co.	Standard Oil Co. (N.J.)	x	x	Package plant
Hofstade	Belgian Shell S. A.	Royal Dutch Shell Group	100	630	x
		Total	170,818	1,076,170	

(a) English: East Flanders
x = Data Unknown


LEGEND
Bulk Plants
Roads
Railroads
GAND-TERNEUZEN CANAL
City Limits of Gand
OOSTACKER
WONDELGHEM
DARSE-NORD
NOUVEAU BASSIN
DARSE-CENTRALE
DARSE-SUD
CANAL
PERIPHERIQUE
BASSIN DE L'AVANT-PORT
STANDARD AMERICAN PETROLEUM CO.
PURFINA S.A.
THE TEXAS CO. S.A.B.
L'ALLIANCE S.A.
BASSIN DU TOLHUIS
LYS R.
BASSIN DE COMMERCE
ARRIERE BASSIN
MONT ST.-AMAND
GAND
N
MAP SHOWING
PART OF THE INLAND BULK PLANTS
AT GAND (GENT) BELGIUM
APPROXIMATE SCALE
0 500 1000 M'S.
0 500 1000 YARDS
B-74

4.5.2 Gand (Gent)



The Texas Company, S.A.B.- This water-fed plant at Gand (latitude 51°3'N, longitude 3°45'E) also has rail connections. The tankage capacity is 5,980 barrels. Normally supplies are received by water from Anvers, a distance of 47 miles. This plant is located about 1 mile north of the city. The location sketch on page 136 also shows the locations of the following plants:

Company	Affiliated with
L'Alliance, S.A.	Anglo-Iranian Oil Co., Ltd.
Standard American Petroleum Company	Standard Oil Co. (N. J.)
Purfina, S.A.	Independent

Detailed Information, The Texas Company Plant

B-u i l d i n g s

Description	Dimensions	Capacity	Construction
1. Lube Oil Warehouse	25'7" x 26'3"	180 drums	Concrete
2. Manipulation Warehouse	78'9" x 26'3"		Concrete
3. Garage	29'0" x 26'3"	3 cars	Concrete
4. Office	9'1" x 26'3"		Concrete
5. Pumphouse	8'2" x 9'10"		Brick

T a n k a g e

Product	Size	Capacity	Description
1. Gasoline	34'5" x 26'3"	4,100 bbls.	Vertical
2. Gasoline	8'2" x 32'9"	315 bbls.	Buried Hor. Tank
3. Benzol	8'2" x 32'9"	315 bbls.	Buried Hor. Tank
4. Kerosine	22'11"x 19'8"	1,250 bbls.	Vertical
	Total	5,980 bbls.	

Firewall Construction: Concrete

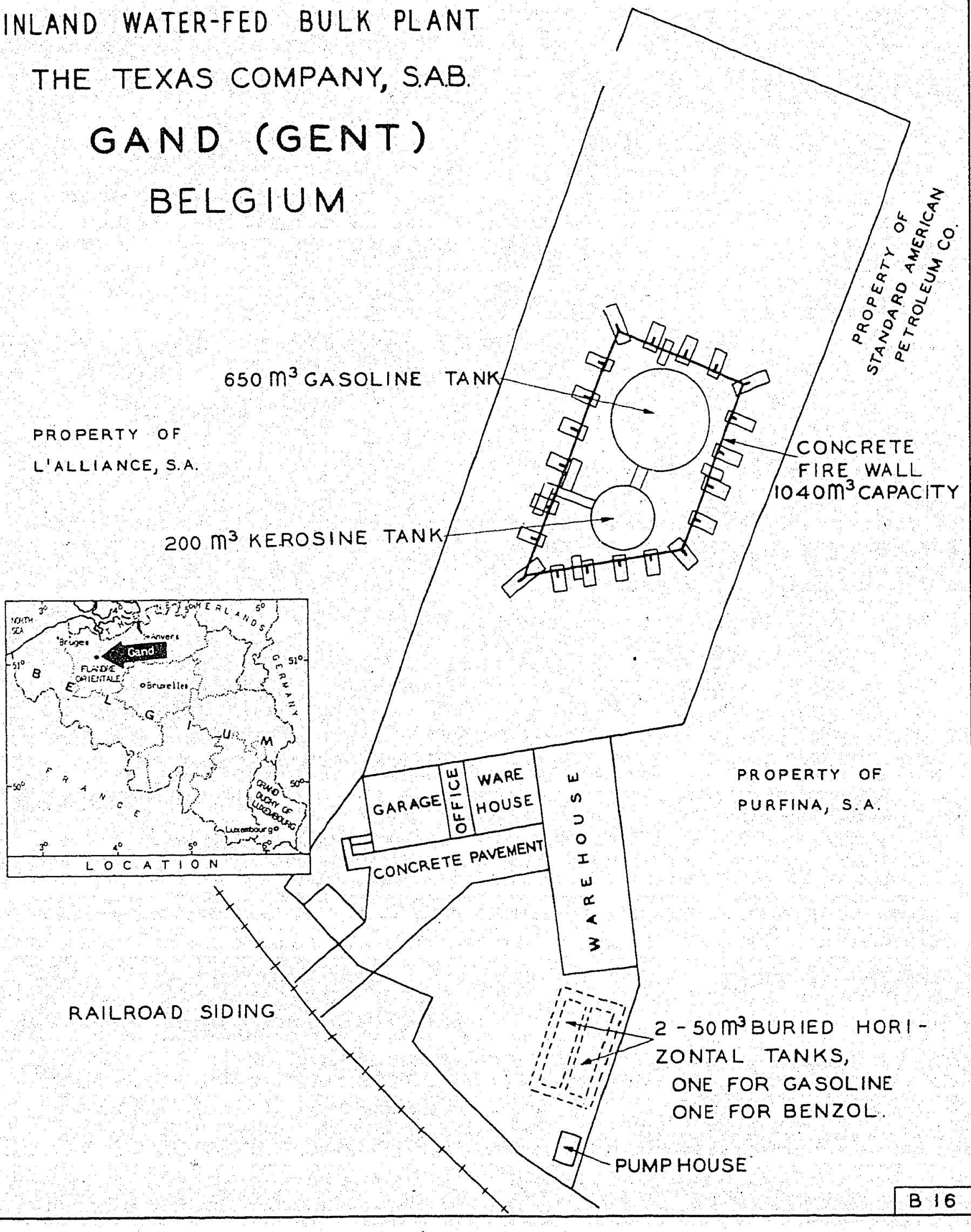
P i p e L i n e s

Product	Size	Length
1. Gasoline	4"	300'
2. Gasoline	3"	180'
3. Gasoline	2"	250'
4. Kerosine	4"	280'
5. Kerosine	2"	400'

P u m p s

Product	Capacity	Operation	Horse Power
1. Gasoline	100 G.P.M.	Electric)	5
2. Kerosine	100 G.P.M.	Electric)	

INLAND WATER-FED BULK PLANT
THE TEXAS COMPANY, S.A.B.
GAND (GENT)
BELGIUM



B 16

Detailed Information, The Texas Company (continued)

Fence

Height	Length	Construction
1. 6'7"	99'	Concrete
2. 6'7"	151'	Corrugated Iron

Yard Area and Roadways

	Construction	Area
1. Yard	Concrete	1700 sq. ft.
2. Entrance Road	Belgian blocks	540 sq. ft.

Dock: None

Electric Characteristics

A.C. or D.C.	Voltage	Phase	Cycle
Lights A. C.	220	3	50
Power A. C.	220	3	50

Boilers: None

Sewerage Disposal: Septic Tank

Water Supply

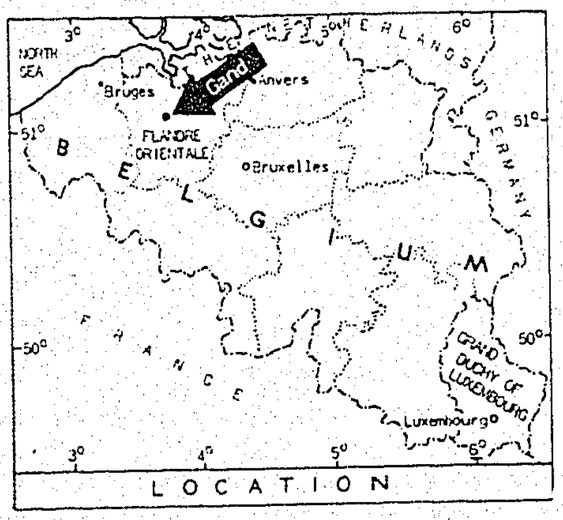
	Capacity	Average Pressure
City:	Unlimited	30 lbs.

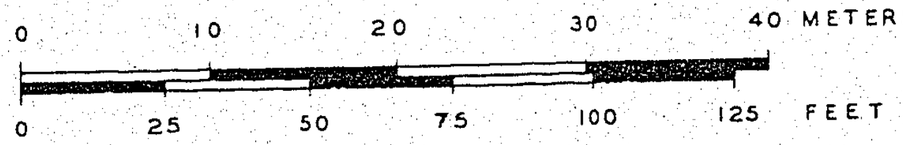
L'Alliance, S.A. - This company, affiliated with Anglo-Iranian Oil Co., Ltd., owns an installation at Gand with tanks as follows:

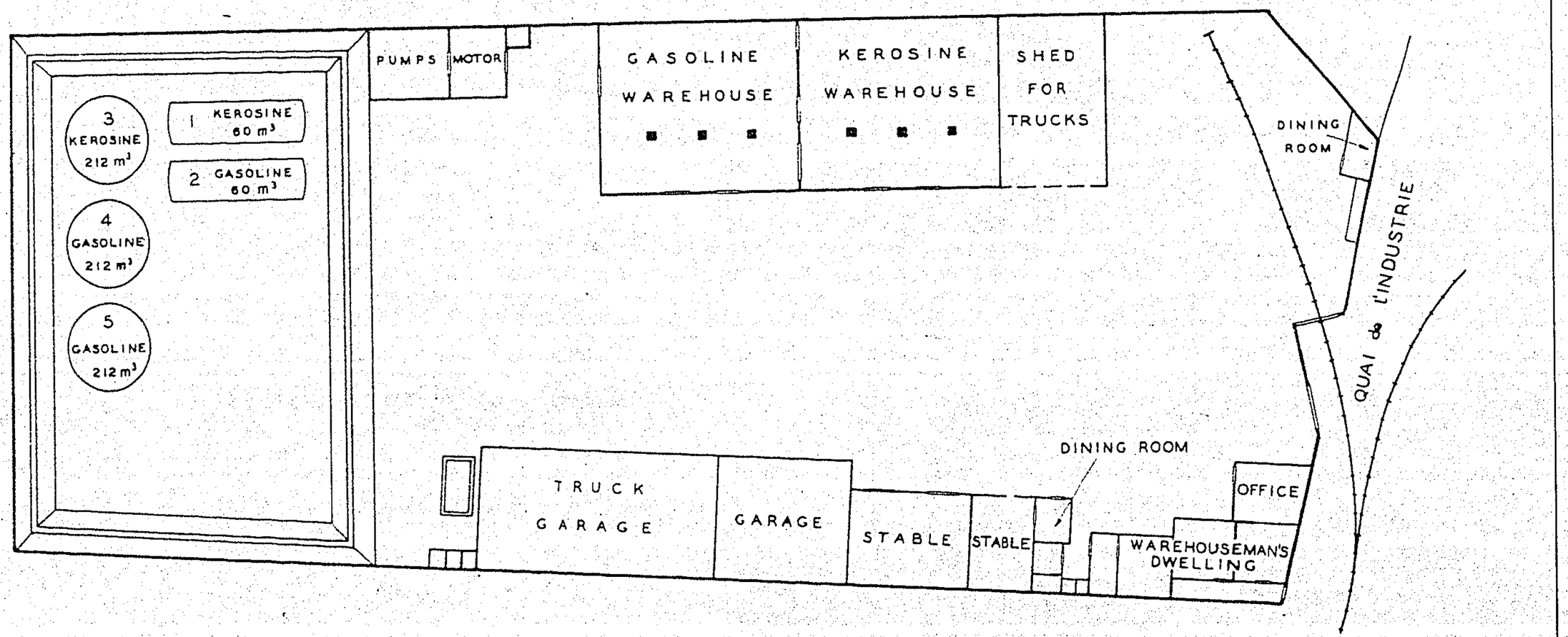
No. of Tanks	Capacity M^3	Total Capacity	
		M^3	Barrels
1	250	250	1,575
3	200	600	3,780
2	60	120	756
1	30	30	189
Total Capacity		1,000	6,300

The location of this plant is shown on the map on page 136. A layout plan of L'Alliance, S. A. appears on page 140.

INLAND BULK PLANT OF
L'ALLIANCE, SOCIÉTÉ ANONYME
GAND (GENT)
BELGIUM







B 7

Standard American Petroleum Company.- It is known that this company has an important plant at Gand, but no detailed information is available. Its location is shown on the layout plan of the plant of The Texas Company, S.A.B., on page 138.

Purfina, S.A.- This company has a plant adjoining that of The Texas Company, S.A.B. No information concerning this plant is available, except its location, which is shown on the layout plan of the plant of The Texas Company, S.A.B., on page 138.

Belgian Gulf Oil Co., S. A.- It is known that this company has a plant at Gand, but no detailed data are available.

4.5.3 Kierbrugge

Belgian Cracking Company Refinery (latitude 51°8'N, longitude 3°45'E).- This refinery, which is in the Gand (Gent) area NE of Langerbrugge, SE of Kierbrugge and west of the railway, belongs to the Belgian Cracking Company, S.A.B. which, in turn, is owned by S.A. Centrales Électriques des Flandres et du Brabant. The tankage at this plant has a capacity of 10,984 M^3 (69,200 barrels). A layout plan appears on page 46 in the Refining Section.

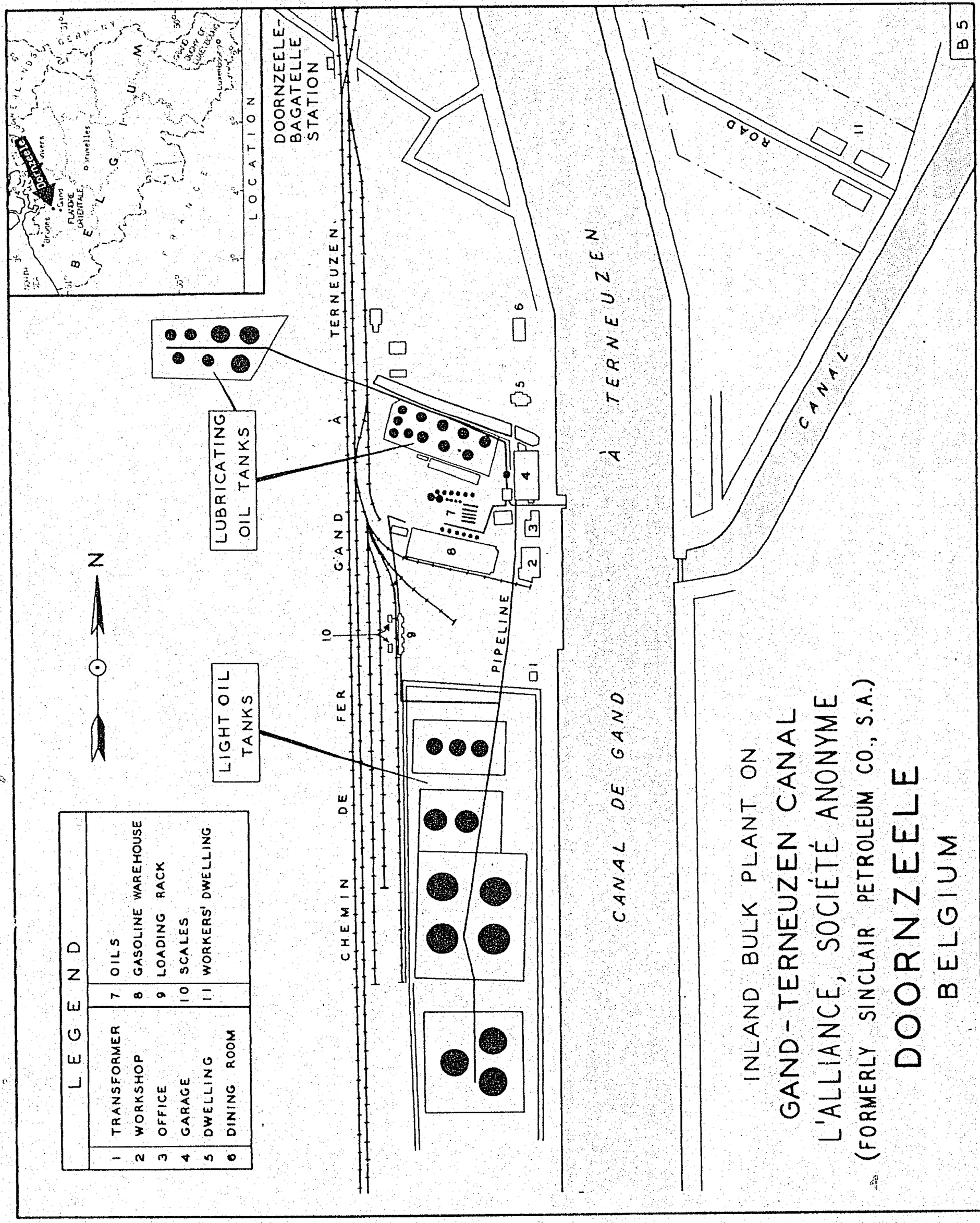
Present condition.- Intact. There are no signs of activity at this plant and it is believed to be inactive.

4.5.4 Wondelghem (Wondelgem) (just NE of Kierbrugge)

Belgian Shell S.A. (Refinery).- This refinery, near Wondelghem, Gand, is discussed in the Refining section of this report on page 49. Port and discharge data are given in the "Statistical Summary of Data on Ocean and River Terminals" on page 68. Details of tankage, the capacity of which totals 299,500 barrels, follows.

Details of Tankage, Belgian Shell S. A.

Tank No.	Dimensions		Aviation Gasoline	Motor Gasoline and special Benzine	Fuel Oil and Gas Oil	Crude Oil	Lubricating Oil
	Diam. Meters	Height Meters					
17	12	8.75	6,200	-	-	-	-
18	24	11.75		33,400	-	-	-
19	24	11.75	-	33,400	-	-	-
124	12	8.75	-	6,200	-	-	-
1	9	8.75	-	-	-	-	3,500
2	9	8.75	-	-	-	-	3,500
3	9	8.75	-	-	-	-	3,500
4	9	8.75	-	-	-	-	3,500
5	9	8.75	-	-	-	-	3,500
6	9	8.75	-	-	-	-	3,500
7	6	7.25	-	-	-	-	1,300
8	6	7.25	-	-	-	-	1,300
9	6	7.25	-	-	-	-	1,300
10	6	7.25	-	-	-	-	1,300
11	6	7.25	-	-	-	-	1,300
12	6	7.25	-	-	-	-	1,300
13	18	8.75	-	-	14,000	-	-
14	18	8.75	-	-	14,000	-	-
119	24	11.75	-	-	33,400	-	-
120	24	11.75	-	-	-	33,400	-
121	24	11.75	-	-	-	33,400	-
122	12	8.75	-	-	6,200	-	-


LOCATION
DOORNZEELE
BELGIUM
DOORNZEELE-BAGATELLE STATION
TERNEUZEN
À TERNEUZEN
GAND À
CANAL
ROAD
B 5
LUBRICATING OIL TANKS
LIGHT OIL TANKS
PIPELINE
CHEMIN DE FER
CANAL DE GAND
N
LEGEND
1 TRANSFORMER
2 WORKSHOP
3 OFFICE
4 GARAGE
5 DWELLING
6 DINING ROOM
7 OILS
8 GASOLINE WAREHOUSE
9 LOADING RACK
10 SCALES
11 WORKERS' DWELLING
INLAND BULK PLANT ON
GAND-TERNEUZEN CANAL
L'ALLIANCE, SOCIÉTÉ ANONYME
(FORMERLY SINCLAIR PETROLEUM CO., S.A.)
DOORNZEELE
BELGIUM

Details of Tankage, Belgian Shell S. A. (Continued)

Tank No.	Dimensions Diam. Meters	Dimensions Height Meters	Aviation Gasoline	Motor Gasoline and special Benzine	Fuel Oil and Gas Oil	Crude Oil	Lubricating Oil
123	9	8.75	-	-	3,500	-	-
125	12	8.75	-	-	6,200	-	-
126	24	11.75	-	-	33,400	-	-
127	9	8.75	-	-	3,500	-	-
128	9	8.75	-	-	3,500	-	-
129	9	8.75	-	-	3,500	-	-
130	9	8.75	-	-	3,500	-	-
Total Products: Bbls.			6,200	73,000	124,700	66,800	28,800
M^3			984	11,587	19,793	10,603	4,571

All tanks are of the normal steel vertical cylindrical type.

4.5.5 Doornzeele

At this place (latitude 51°9'N, longitude 3°47'E), on the west bank of the Gand-Terneuzen Canal, about 6 miles north of Gand, is an important plant formerly owned by Sinclair Petroleum Company, S.A., and now owned by L'Alliance, S.A., affiliated with Anglo-Iranian Oil Company, Ltd. A layout plan of this plant appears on page 142. The capacity is 47,100 M^3 (296,730 barrels). Detailed tank information follows.

Detailed Tankage Capacities, L'Alliance, S.A., Doornzeele

No. of Tanks	Capacity Each M^3	Capacity Each Barrels	Total Capacity M^3	Total Capacity Barrels
4	4,900	30,870	19,600	123,480
3	2,800	17,640	8,400	52,920
2	2,500	15,750	5,000	31,500
3	1,400	8,820	4,200	26,460
3	1,200	7,560	3,600	22,680
4	700	4,410	2,800	17,640
7	420	2,646	2,940	18,522
4	140	882	560	3,528
and smaller tanks				
Total	14,060	88,578	47,100	296,730

At Doornzeele there is also a storage plant belonging to the Belgian Government, with a storage capacity of 17,000 M^3 (107,100 barrels). No further information with reference to this plant is available.

4.5.6 Terdonck

The Belgo-Petroleum S.A. Refinery.- This refinery, located at Terdonck-lez-Gand, (latitude 51°9'N, longitude 3°47'E), belongs to Belgo-Petroleum S.A. of Terdonck which, in turn, is owned by the Credit Alliance Corporation, said to be owned jointly by the Standard Oil Co. (N.J.), the Royal Dutch Shell group and The Texas Company. It is described in the Refining section of this report on pages 51 and 52. There are 26 storage tanks with a total capacity of 26,700 M^3 (168,210 barrels).

Present condition.- Intact and inactive.

4.5.7 Ertvelde-Rieme

Ertvelde-Rieme (Purfina) Specialty Plant.- This specialty plant, owned by Purfina, S.A., is on the Gand-Terneuzen Canal near Ertvelde, (latitude 51°10'N, longitude 3°45'E), and has 40-50 tanks, with a total capacity of 19,047 M3 (120,000 barrels). It is described in the Refining section of this report on page 53, where a location sketch is shown.

4.5.8 Selzaete

Standard American Petroleum Company has a package plant at Selzaete (latitude 51°12'N, longitude 3°48'E).

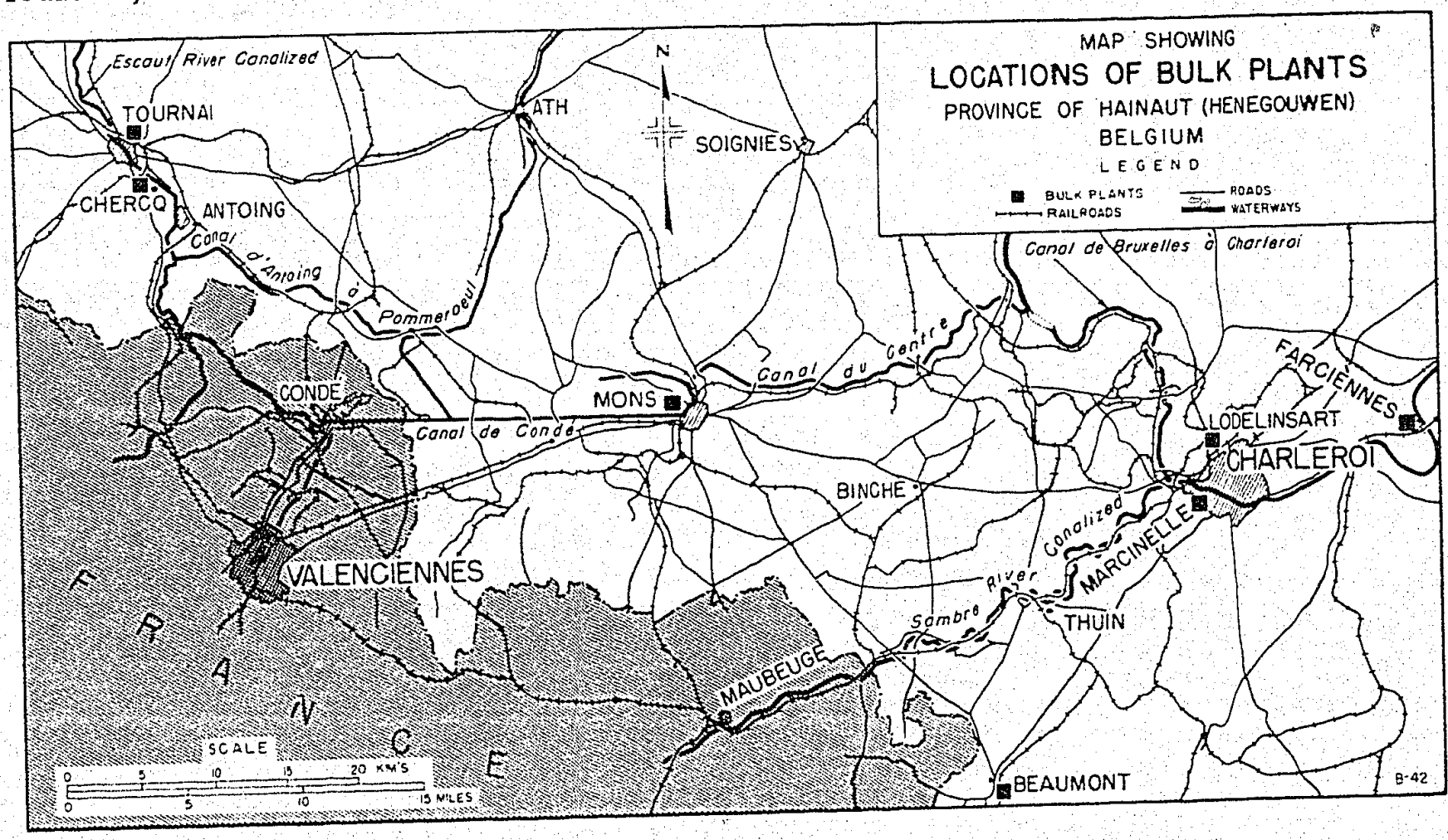
4.5.9 Hofstade

At this town, near Alost,(latitude 50°58'N, longitude 4°2'E), the Belgian Shell, S. A. has a small gasoline plant, supplied by rail, capacity 100 M3 (630 barrels).

4.6. PROVINCE OF HAINAUT (HENEGOUWEN)

4.6.1 General Remarks

In the Province of Hainaut there are bulk plants at Tournai, at Chercq, near Tournai, at Mons, Beaumont, Marcinelle, Charleroi, Lodelinsart and Farciennes.



4.6.2 Tournai (Doornik)

The size of vessels which can discharge at Tournai (latitude 50°37'N, longitude 3°23'E) is limited by the size of the lock at Terneuzen.(a) Thus, the largest ship that could be admitted would be 492 feet in length, 57 feet in breadth and 26 feet draught. The berth can handle ships of any size. The depth of the water at the berth is 27 feet.

There are two plants at Tournai, one belonging to L'Alliance, S. A., and the other to Standard American Petroleum Company.

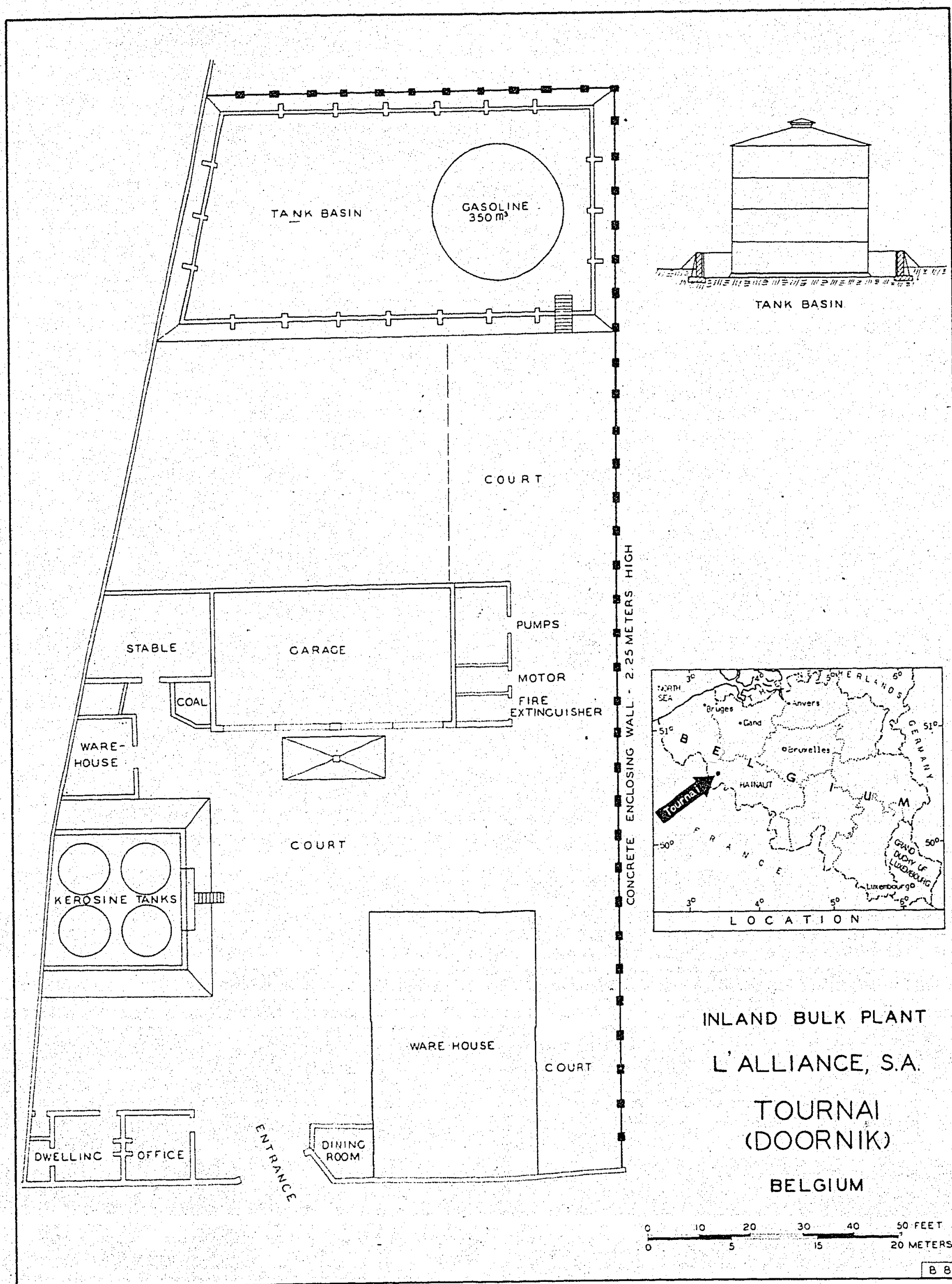
L'Alliance, S.A.- This plant is supplied by barge and has storage capacity for 460 M3 (2,898 barrels), one tank of 350 M3 capacity and four tanks of 27.5 M3 capacity. A layout plan is shown on page 146.

The Standard American Petroleum Company.- This company reports that its large plant at this place is supplied by rail only. No other information was available.

4.6.3 Chercq

This plant (latitude 50° 35' N, longitude 3° 24' E) belongs to Belgian Shell, S.A., and is located near Tournai. It is supplied by rail only and includes a warehouse, drum and tank filling facilities and a total of 165 M3 (1,040 barrels) bulk storage capacity for products, of which 50 M3 are for black products and 115 M3 are for gasoline.

(a) See map showing canals on page 56.


TANK BASIN
GASOLINE
350 m³
TANK BASIN
COURT
CONCRETE ENCLOSING WALL - 2.25 METERS HIGH
PUMPS
MOTOR
FIRE EXTINGUISHER
STABLE
GARAGE
COAL
WARE-
HOUSE
COURT
KEROSINE TANKS
WARE HOUSE
COURT
DWELLING
OFFICE
ENTRANCE
DINING
ROOM
NORTH SEA
NETHERLANDS
Bruges
Anvers
Gand
Bruxelles
BELGIUM
Tournai
HAINAUT
FRANCE
GERMANY
GRAND DUCHY OF LUXEMBOURG
Luxembourg
LOCATION
INLAND BULK PLANT
L'ALLIANCE, S.A.
TOURNAI
(DOORNIK)
BELGIUM
0 10 20 30 40 50 FEET
0 5 15 20 METERS
B 8

4.6.4 Mons (Bergen)

The plants at this point (latitude 50°27'N, longitude 3°57'E) are as follows:

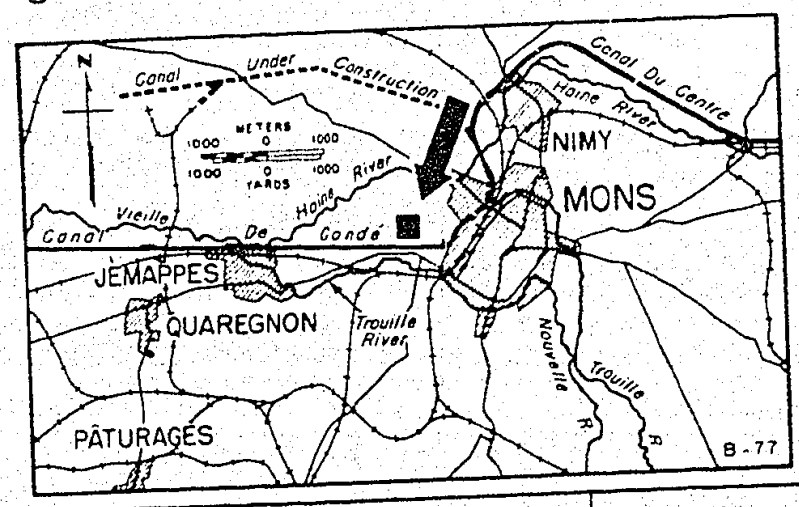
Company	Owner Company or Control	Capacity of Tanks	
		M^3	Barrels
Belgian Shell, S. A.	Royal Dutch Shell group	6,424	40,471
Standard American Petroleum Company	Standard Oil Company (N.J.)	x	x
The Texas Co.,S.A.B.	The Texas Company	117	740

Belgian Shell, Societe Anonyme.- This plant is located on the Mons-Condé canal. It also has rail connections. Normally, supplies are received by barge from Anvers. A layout plan appears on page 148.

Detailed Tank Identification, Belgian Shell, S.A.

Tank No.	Type	Product Normally Stored	Capacity	
			M^3	Barrels
1	All tanks are of the normal steel vertical cylindrical type, except tank 5 which appears to be of the horizontal type.	Gasoline	30	189
2		Gasoline	989	6,230
3		Gasoline	5,315	33,484
4		Gas Oil	30	189
5		Gasoline/Benzol mixture	60	378
		Total	6,424	40,470

Standard American Petroleum Co.- This company's plant at Mons adjoins that of the Belgian Shell. It is supplied by water and rail and operated by a salaried agent. No other information is available.



The Texas Company, S.A.B.- This plant is located on the western outskirts of Mons at approximately the location shown on the accompanying sketch. Normally supplies are received from Anvers by rail and from the Marly plant at Bruxelles by road. Tankage capacity is 740 barrels. A layout plan is shown on page 149. A detailed description of the plant follows.

B u i l d i n g s

Description	Dimensions	Capacity	Construction
Lube Oil Warehouse	49'0" x 52'6"	600 drums	Brick
Manipulation House	52'0" x 36'0"		Brick
Pumphouse	8'2" x 9'10"		Brick
Residence and Office	43'0" x 40'0"		Brick
Covered Passage	52'0" x 16'0"		Brick
Rest Room for Workmen	25'0" x 16'0"		Brick
Garage on leased land	46'0" x 40'0"	4 cars	Wood

WATER-FED INLAND BULK PLANT
BELGIAN SHELL, S.A.
MONS (BERGEN)
BELGIUM

TANKS

No.	PRODUCT	DIMENSIONS ϕ	HEIGHT	CAPACITY M3	BBLS
1	GASOLINE	3m	4.25 m	30	189
2	GASOLINE	12m	8.75 m	989	6,220
3	GASOLINE	24m	11.75 m	5,315	33,484
4	GAS OIL	3m	4.75 m	30	189
			LENGTH		
5	GASOLINE	2.75m	10 m	60	378
			TOTAL	6,464	40,722

LEGEND

A. CABINE AVEC POMPE ÉLECTRIQUE	A. ELECTRIC PUMP HOUSE
B. HABITATION EXISTANTE	B. EXISTING RESIDENCE
C. SALLE DE CHAUDIÈRE	C. BOILER ROOM
D. CHEMINÉE	D. CHIMNEY
E. PONT-BASCULE POUR CAMIONS	E. SCALE FOR TRUCKS
F. SALLE DE MANUTENTION	F. PACKING ROOM
G. GARAGE POUR 8 VOITURES	G. GARAGE FOR 8 VEHICLES
H. HANGAR	H. SHED
M. BUREAU AUXILIARE	M. AUXILIARY OFFICE
P. SALLE DE POMPE	P. PUMP ROOM
R. RÉFECTOIRE	R. DINING ROOM
S. SALLE DE REMPLISSAGE	S. FILLING ROOM
T. ATELIER MONTEURE	T. WORKSHOP
U. AGRANDISSEMENT À RÉALIZER	U. PROPOSED EXTENSION

POMPES

1 POMPE - WORTHINGTON DACEP 22 m³/h - Bz

1 POMPE-ELECTR. SIHI MA542 15 m³/h - G.O.

1 POMPE-ELECTR. SIHI 2502 17 m³/h - Bz

COURANT

220 V ~ - 50 p.

PUMPS

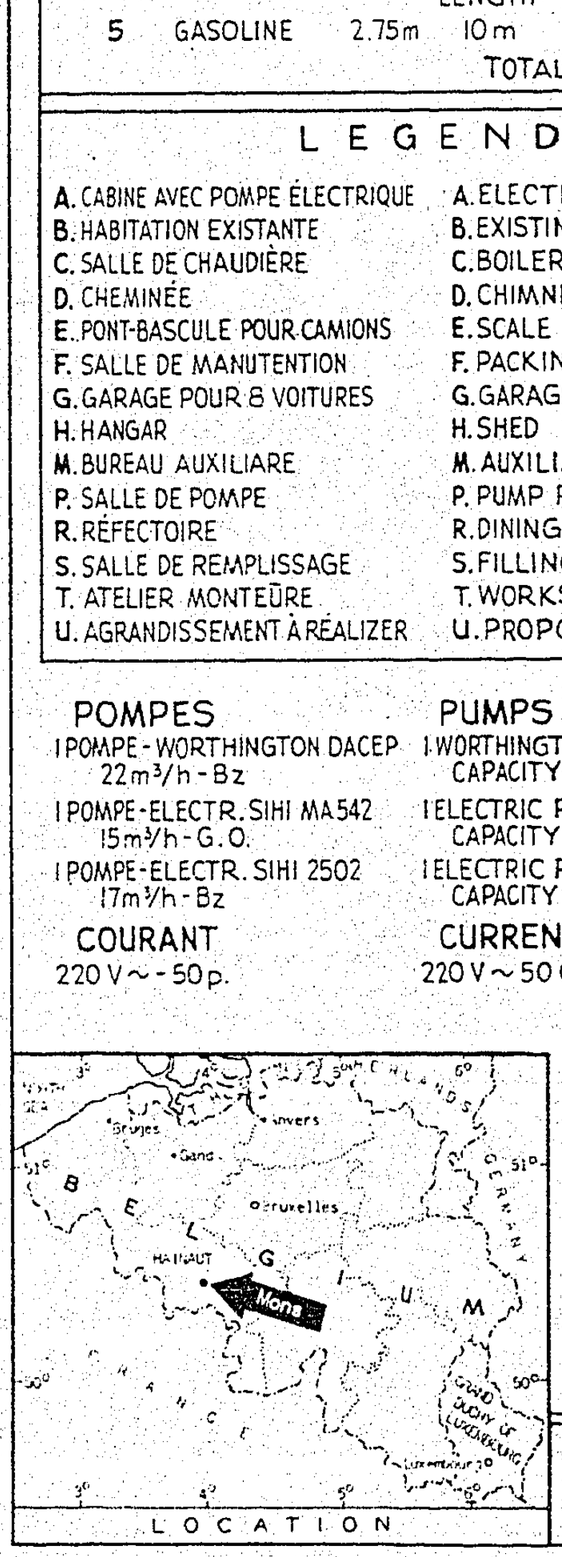
1 WORTHINGTON PUMP (DACEP) CAPACITY 22 m³/h - GASOLINE

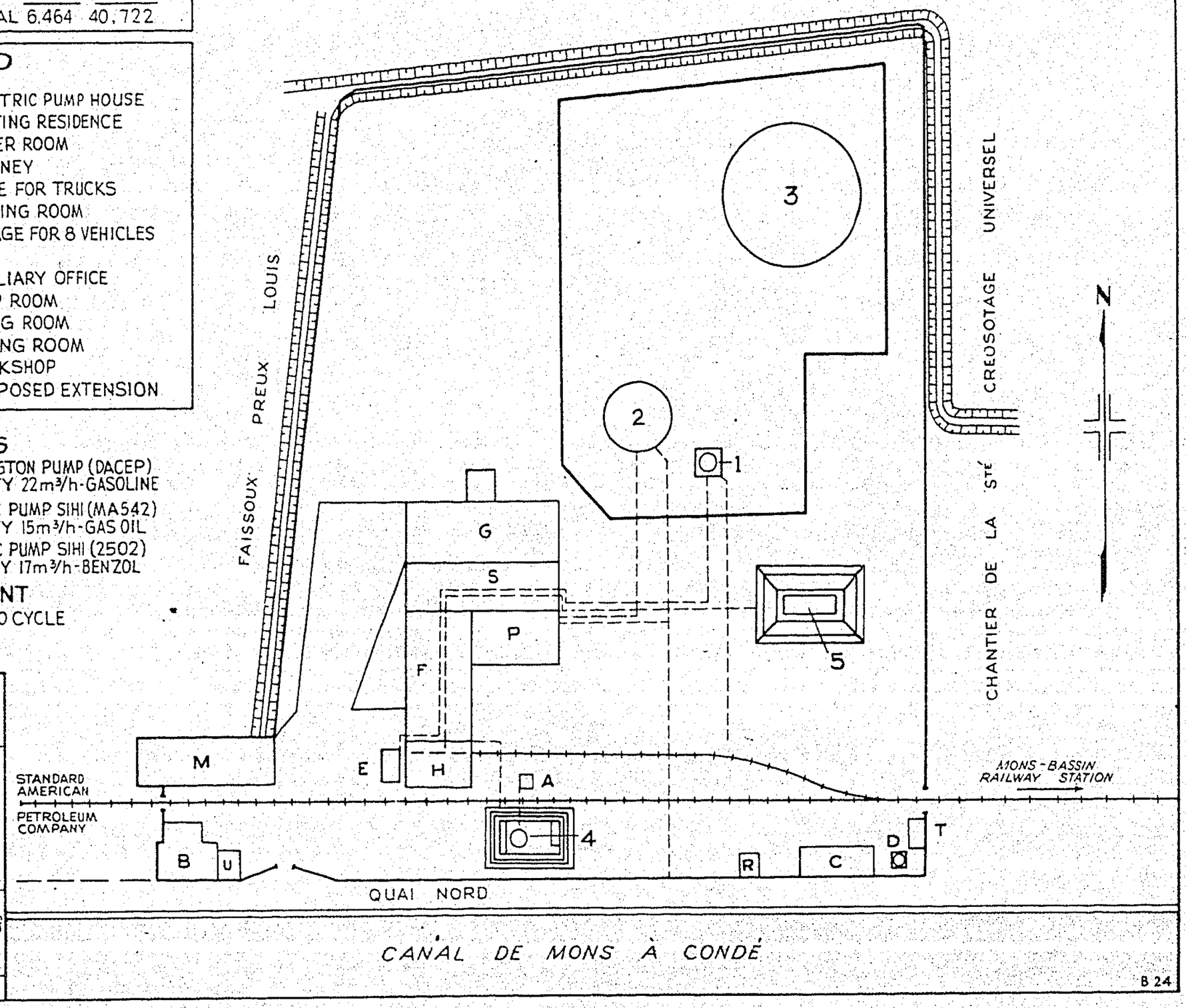
1 ELECTRIC PUMP SIHI (MA542) CAPACITY 15 m³/h - GAS OIL

1 ELECTRIC PUMP SIHI (2502) CAPACITY 17 m³/h - BENZOL

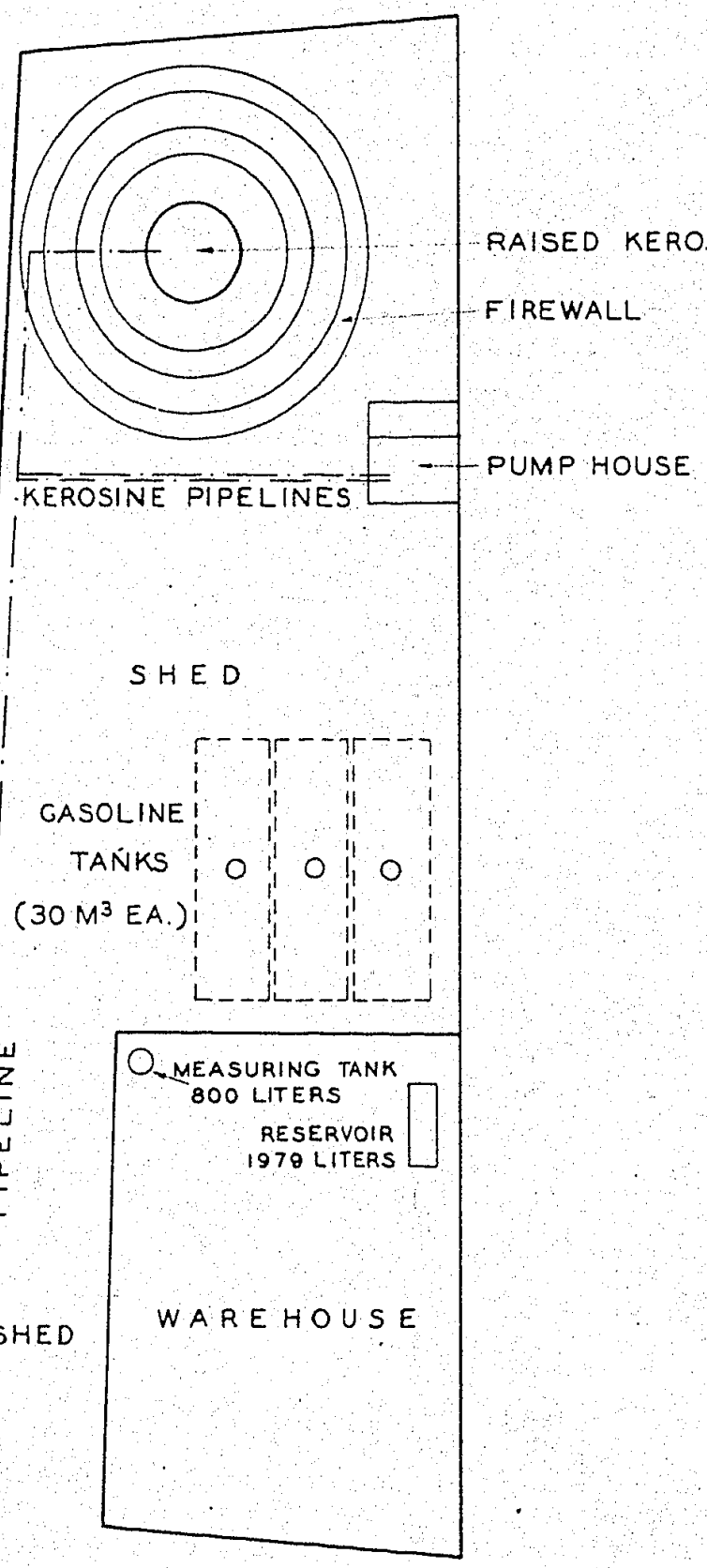
CURRENT

220 V ~ 50 CYCLE





B 24

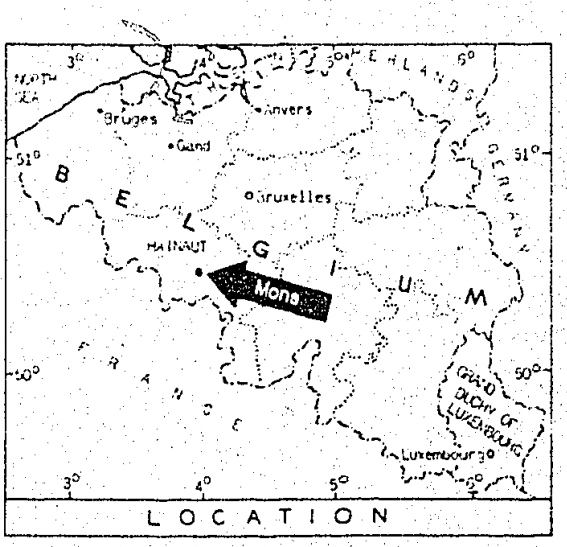


INLAND BULK PLANT

THE TEXAS COMPANY, S.A.B.

MONS (BERGEN)

BELGIUM



B 13

Detailed Description of Plant, The Texas Company, S.A.B. (continued)

Tankage

Product	Size	Capacity	Description
Gasoline	7'2" x 26'3"	188 bbls.	Buried hor. tank
Gasoline	7'2" x 26'3"	188 bbls.	Buried hor. tank
Gasoline	7'2" x 26'3"	188 bbls.	Buried hor. tank
Kerosine	9'10" x 13'1"	176 bbls.	Raised ver. tank
	Total	740 bbls.	

Pipe Lines

Product	Size	Length
Gasoline	2 1/2"	425'
Kerosine	2 1/2"	95'
Kerosine	2"	285'

Pumps

Product	Capacity	Operation	Horse Power
Gasoline	100 G.P.M.	Electric)	5 H.P.
Kerosine	100 G.P.M.	Electric)	

Fence

Height	Length	Construction
6'7"	210'	Brick

Yard Area and Roadways

	Construction	Area
Yard	Belgian Blocks	560 sq. ft.

Electric Characteristics

	A.C. or D.C.	Voltage	Phase	Cycle
Lights	A.C.	220	3	50
Power	A.C.	220	3	50

Sewerage Disposal: Septic Tank

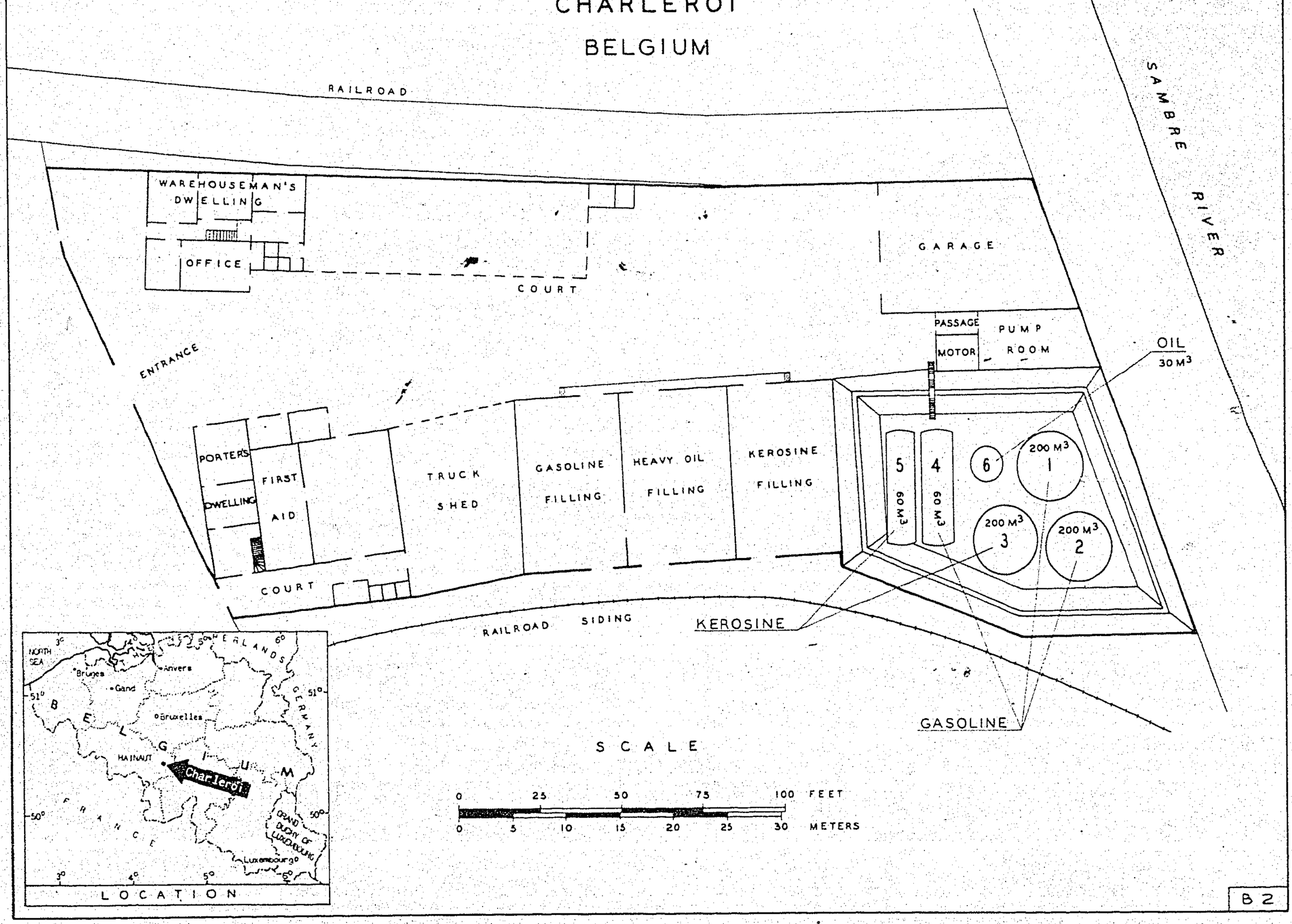
4.6.5 Beaumont

The sole plant at this place (latitude 50015'N, longitude 4015'E) belongs to Standard American Petroleum Company, is supplied by railway only, and is managed by a salaried agent. Details concerning it are lacking.

BULK PLANT OF L'ALLIANCE, S. A.

CHARLEROI

BELGIUM



LOCATION

SCALE

0 25 50 75 100 FEET

0 5 10 15 20 25 30 METERS

B 2

DISTRIBUTING - 151
Charleroi

4.6.6 Marcinelle

This plant at Marcinelle, (latitude 50°24'N, longitude 4°26'E), owned by Belgian Shell, S. A., is supplied by rail. It includes drum and tank truck loading facilities, a warehouse and storage capacity of 45 M^3 for black products, 140 M^3 for gasoline, a total of 185 M^3 (1,166 barrels).

4.6.7 Charleroi

At Charleroi (latitude 50°24'N, longitude 4°28'E) there is a plant formerly owned by Sinclair Petroleum Company, S.A.B., and now owned by L'Alliance, S.A.B. A layout plan is shown on page 151. Total storage capacity is 750 M^3 (4,725 barrels) and consists of tanks as follows:

No. of Tanks	Capacity each M^3	Total Capacity	
		M^3	Barrels
3	200	600	3,780
2	60	120	756
1	30	30	189
	Total	750	4,725

4.6.8 Lodelinsart

At Lodelinsart (latitude 50°26'N, longitude 4°27'E), a few miles north of Charleroi, is a plant belonging to Standard American Petroleum Company, supplied by rail only and managed by a salaried agent. No other data regarding this plant were available.

4.6.9 Farciennes

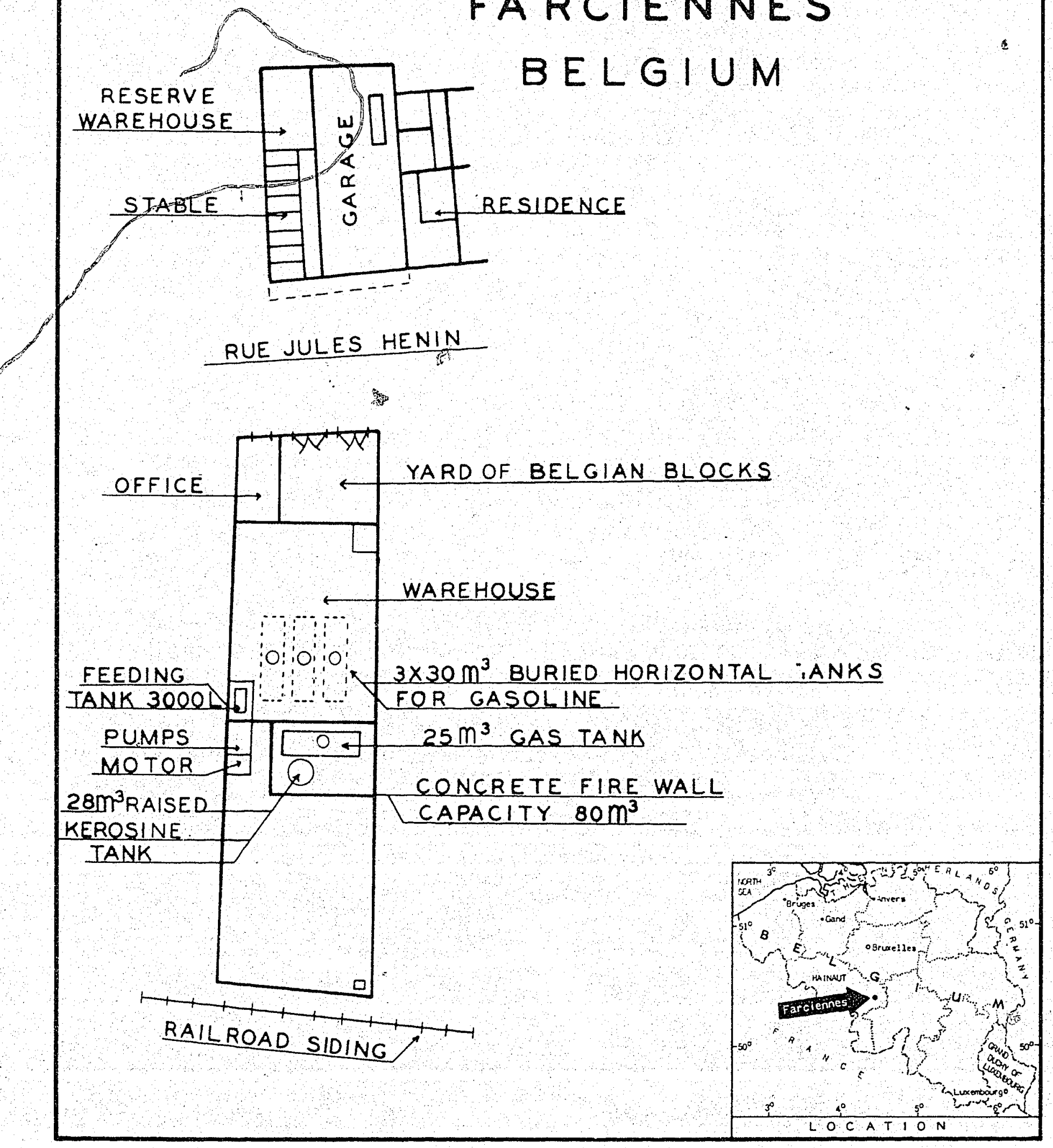
The Texas Company, S.A.B.- Normally this plant (latitude 50°26'N, longitude 4°33'E) is supplied by rail and road from both the Anvers and the Bruxelles plants of the same company. It has no water connections. Total storage capacity is 897 barrels. A layout plan appears on page 153.

Detailed Description of Plant, The Texas Company, S.A.B.

Buildings

Description	Dimensions	Capacity	Construction
Manipulation Warehouse	62'3" x 48'6"	500 drums	Brick
Storehouse and Stable	64'0" x 18'0"	200 drums	Brick
Garage	64'0" x 30'0"	6 cars	Brick
Pumphouse	15'0" x		Brick
Office	25'0" x 13'6"		Brick
Residence	55'0" x 16'0"		Brick

INLAND BULK PLANT
THE TEXAS COMPANY, S.A.B.
FARCIENNES
BELGIUM



Detailed Description of Plant, The Texas Company, S.A.B. (continued)

Tankage

Product	Size	Capacity	Description
Gasoline	7'2" x 26'3"	190 barrels	Buried hor. tank
Gasoline	7'2" x 26'3"	190 barrels	Buried hor. tank
Gasoline	7'2" x 26'3"	190 barrels	Buried hor. tank
Benzol	6'7" x 26'3"	157 barrels	Horizontal tank
Kerosine	9'10" x 13'1"	170 barrels	Raised vert. tank
	Total	897 barrels	

Pipe Lines

Product	Size	Length
Gasoline	3"	92'
Gasoline	2 1/2"	92'
Gasoline & Benzol	2"	360'
Kerosine	2"	265'

Pumps

Product	Capacity	Operation	Horse Power
Gasoline & Benzol	100 G.P.M.	Electric)	5 H.P.
Kerosine	100 G.P.M.	Electric)	

Fence

Height	Length	Construction
6'7"	290'	Brick

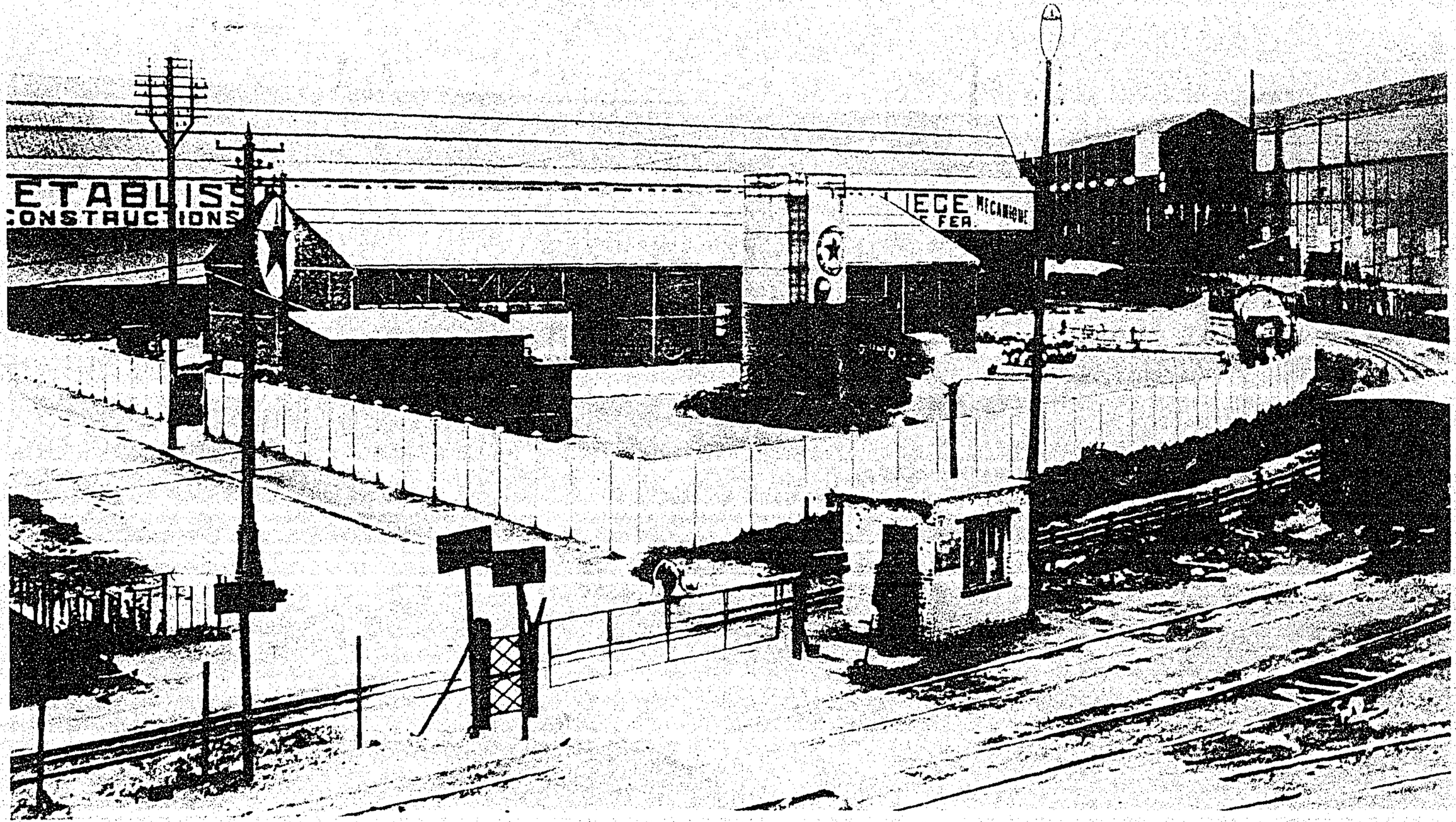
Yard Area and Roadways

	Construction	Area
Yard	Belgian Blocks	240 sq. ft.
Entrance	Belgian Blocks	90 sq. ft.

Electric Characteristics

	A.C. or D.C.	Voltage	Phase	Cycle
Lights	A.C.	220	3	50
Power	A.C.	220	3	50

Sewerage Disposal: Septic tank

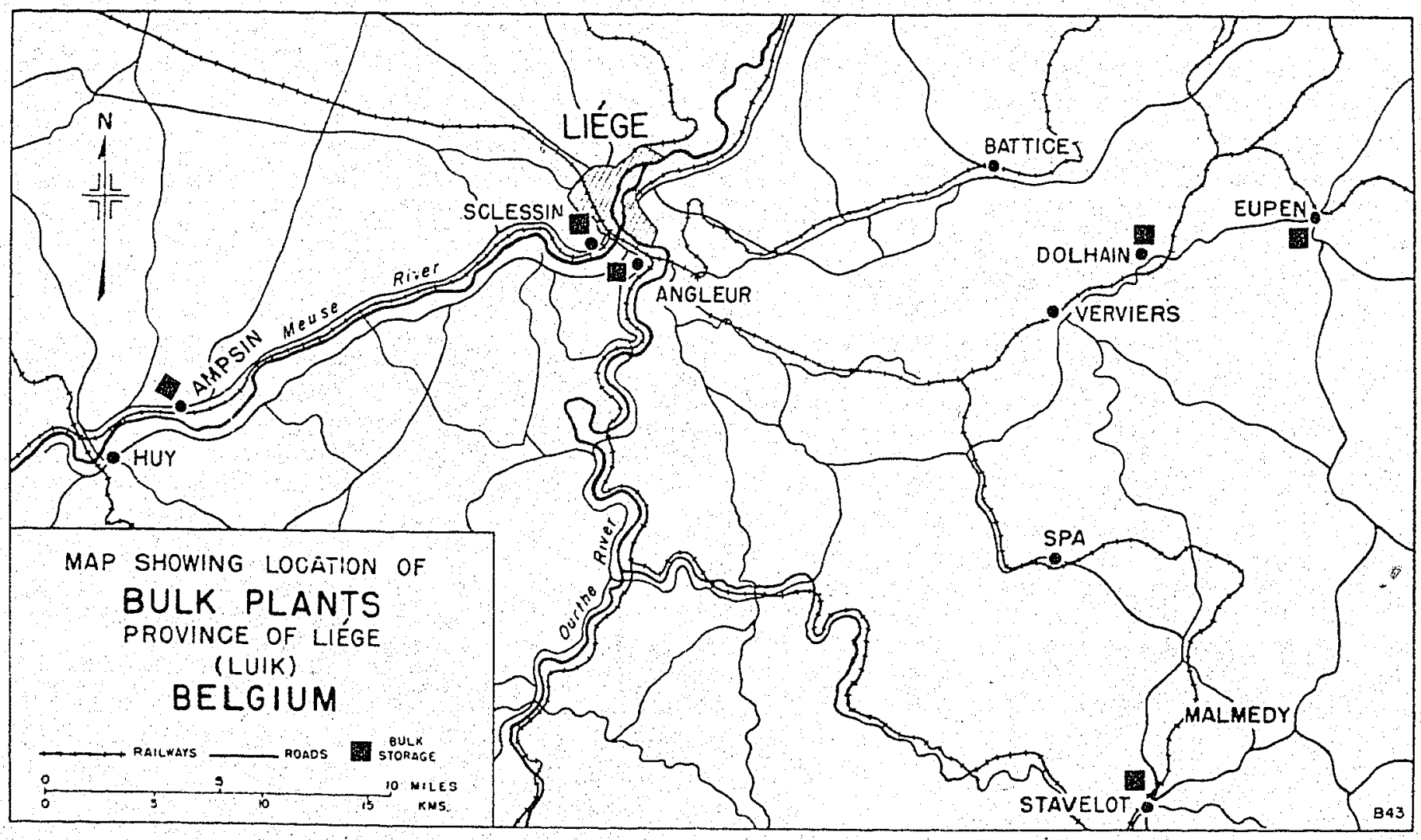


INLAND BULK PLANT OF THE TEXAS COMPANY, S.A.B., SCLESSIN, LIÉGE, BELGIUM

4.7 PROVINCE OF LIÉGE (LUIK)

4.7.1 General Remarks

In the Province of Liége there is one plant at Ampsin, some 15 miles southwest of Liége, four at Sclessin, one at Angleur, (the two latter places being near the provincial capital of Liege), one at Dolhain, some 16 miles east of Liége, near Limbourg, one at Eupen, some 5 miles east of Dolhain, and one at Stavelot.



4.7.2 Ampsin

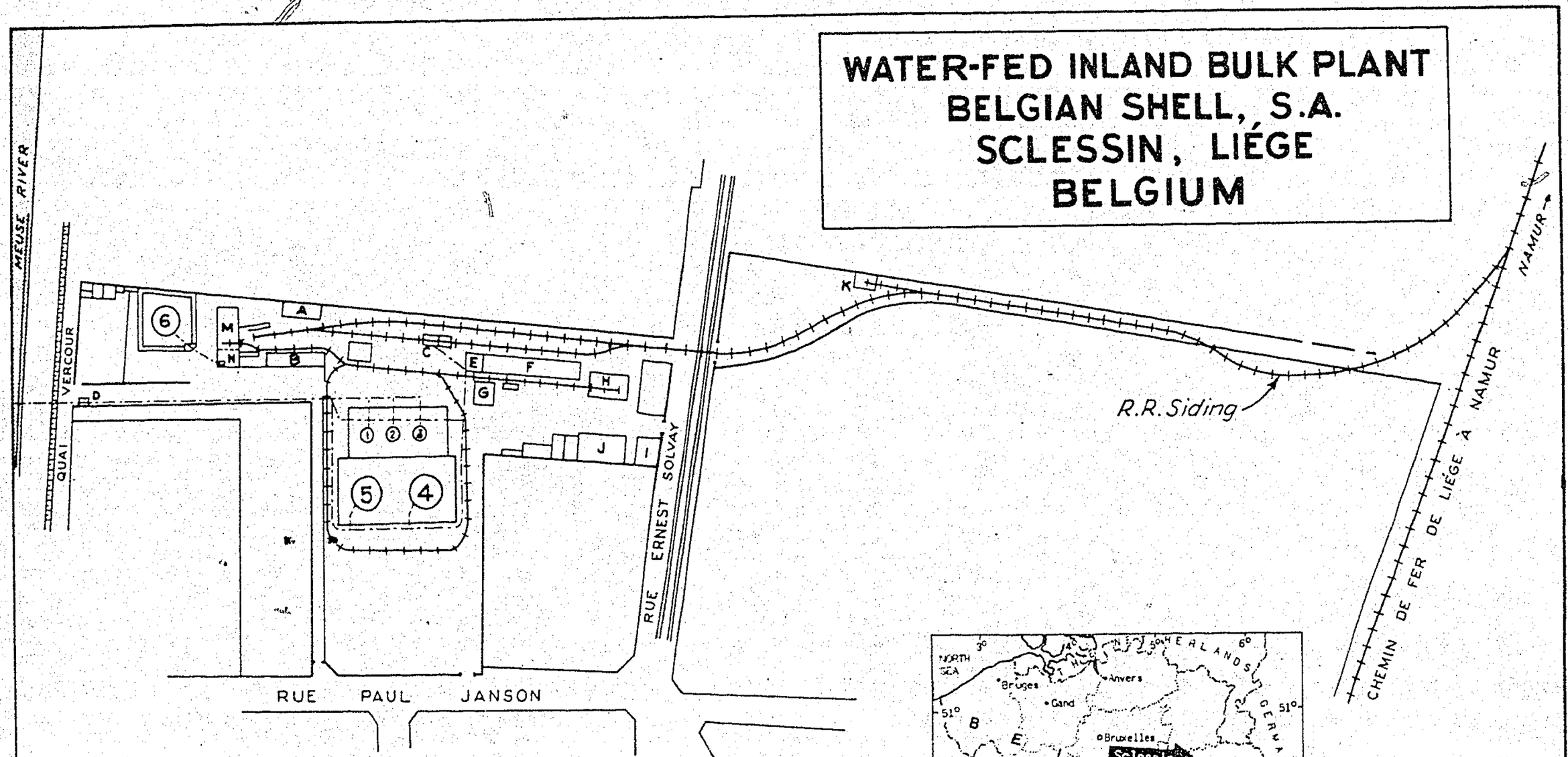
At this place on the Meuse River, (latitude 50°33'N, longitude 5°17'E), there is a plant belonging to the Belgian Shell, S. A. It is supplied by tank truck from Sclessin. There is a warehouse, drum and tank filling equipment, and storage capacity for 50 M^3 (315 barrels) of gasoline.

4.7.3 Sclessin (Suburb of Liége)

Plants at Sclessin

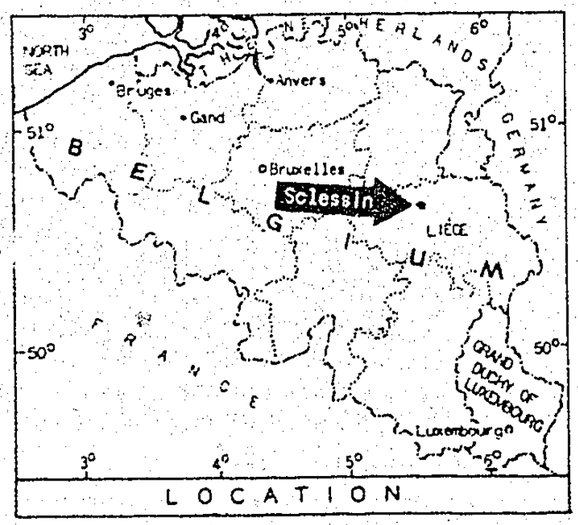
Company	Owner Company	Storage Capacity	
		M^3	Barrels
Belgian Shell, S. A.	Royal Dutch Shell group	2,995	18,868
Standard American Petroleum Company	Standard Oil Co. (N.J.)	x	x
The Texas Company, S.A.B.	The Texas Company	149	942
	Total	3,144	19,810

WATER-FED INLAND BULK PLANT
BELGIAN SHELL, S.A.
SCLESSIN, LIÉGE
BELGIUM



LEGEND

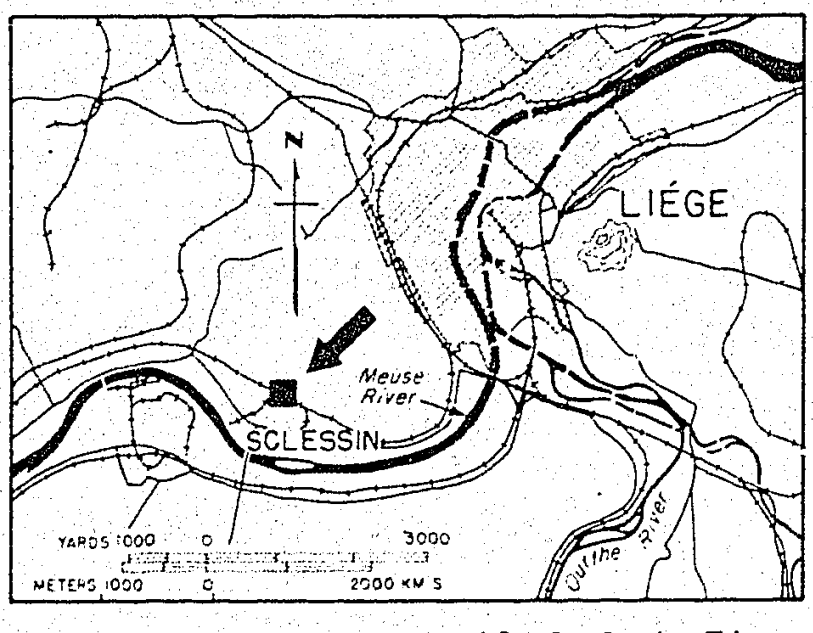
BÂTIMENTS	BUILDINGS
A. SALLE DE CHAUDIÈRE	A. BOILER ROOM
B. MAGAZIN D'APPROVISIONNEMENT	B. MATERIALS WAREHOUSE
C. PONTS-BASCULES	C. TRACK SCALES
D. PUITS DE VANNES	D. VALVE PIT
E. SALLE DES POMPES	E. PUMP ROOM
F. SALLE DE REMPLISSAGE	F. FILLING ROOM
G. SALLE DE PEINTURE	G. PAINT SHOP
H. GARAGE	H. GARAGE
I. BUREAUX	I. OFFICE
J. GARAGE	J. GARAGE
K REMISE POUR LE TRACTEUR	K. TRACTOR SHED
M. MAGAZIN	M. WAREHOUSE
N. SALLE DE REMPLISSAGE	N. FILLING ROOM
POMPES	PUMPS
3 POMPES ÉLECTRIQUES	3 ELECTRIC PUMPS
COURANT	CURRENT
220 V, ~ 50 PÉRIODES	220 VOLTS, ~ 50 CYCLES



LOCATION

TANKS

No.	DIMENSIONS		CAPACITY		TYPE	PRODUCT
	ØM	Hm	M3	BARRELS		
1	4.50	5.25	91	573	VERTICAL, CYLINDRICAL	GAS OIL
2	4.50	5.25	91	573	" "	GASOLINE
3	4.50	5.25	91	573	" "	GASOLINE
4	12	8.75	989	6231	" "	GASOLINE
5	12	8.75	989	6231	" "	GASOLINE
6			744	4687	" "	GASOLINE



Plant of Belgian Shell, S.A.- This plant is on the Meuse River at Sclessin. It also has railway connections. Normally it was supplied with gasoline by barge from Rotterdam and with gas oil by barge from Anvers. It has a tank truck loading rack from which two tank trucks can be loaded simultaneously. A layout plan is shown on page 158.

Detailed Tank Identification, Belgian Shell S.A.

Tank No.	Type	Product Normally Stored	Capacity M³	Capacity Bbls.
1	All tanks are of the normal steel vertical cylindrical type	Gasoline	91	573
2		Gasoline	91	573
3		Gasoline	91	573
4		Gasoline	989	6,231
5		Gasoline	989	6,231
6		Fuel Oil	744	4,687
		Total	2,995	18,868

Standard American Petroleum Company.- This company has two plants near Liége. One is a small bulk plant supplied by rail--exact location is unknown. The other, a large plant supplied by rail and barge, is at Sclessin.

The Texas Co., S.A.B.- This terminal at Sclessin is supplied by rail from the Anvers terminal of the same company, a distance of 78 miles. A layout plan appears on page 160, and a photograph of the plant on page 155. Total storage capacity was 942 barrels.

Detailed Plant Information, The Texas Co., S.A.B.

Buildings

Description	Dimensions	Capacity	Construction
Manipulation Warehouse	54'0" x 59'0"	800 drums	Steel frame
Garage & Storehouse	54'0" x 44'3"	6 cars	Steel frame
Pumphouse	8'2" x 9'10"		Brick
Office	19'8" x 13'1"		Brick

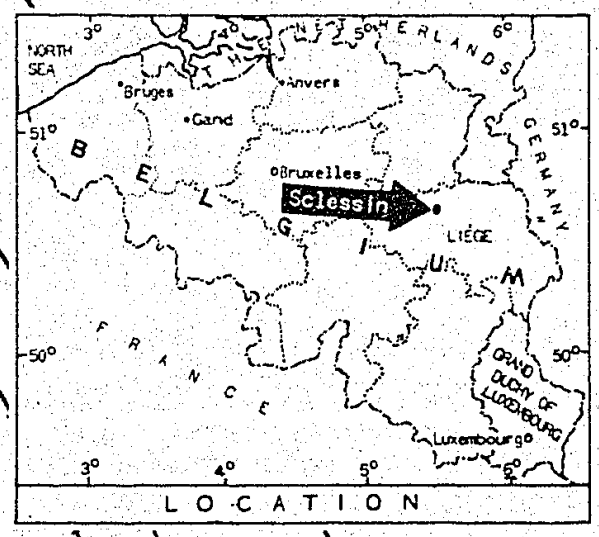
Tankage

Product	Size	Capacity	Description
Gasoline	8'2" x 32'9"	314 barrels	Buried hor. tank
Gasoline	8'2" x 32'9"	314 barrels	Buried hor. tank
Kerosine	13'1" x 13'1"	314 barrels	Raised ver. tank
	Total	942 barrels	

INLAND BULK PLANT
THE TEXAS COMPANY, S.A.B.
SCLESSIN, LIÉGE
BELGIUM

0 20 40 60 FEET
0 5 10 15 20 METERS

GASOLINE
KEROSINE
PUMP HOUSE
GASOLINE TANKS (50 M³)
RAILROAD SIDINGS
WARE HOUSE
PAVEMENT
FIRE BANK
LUBRICATING OILS WAREHOUSE
GARAGE
KEROSINE TANK (50 M³)
OFFICE
CONCRETE FENCE



LOCATION

B 17

Detailed Plant Information, The Texas Co., S.A.B. (continued)

Pipe Lines

Product	Size	Length
Gasoline	3"	55'
Gasoline	2 1/2"	275'
Kerosine	2 1/2"	345'

Pumps

Product	Capacity	Operation	Horse Power
Gasoline	100 G.P.M.	Electric)	5 H.P.
Kerosine	100 G.P.M.	Electric)	

Fence

Height	Length	Construction
6'7"	144'	Concrete

Yard Area and Roadways

	Construction	Area
Yard	Belgian Blocks	3,770 sq. ft.
Entrance Road	Belgian Blocks	135 sq. ft.

Electric Characteristics

	A.C. or D.C.	Voltage	Phase	Cycle
Lights	A.C.	220	3	50
Power	A.C.	220	3	50

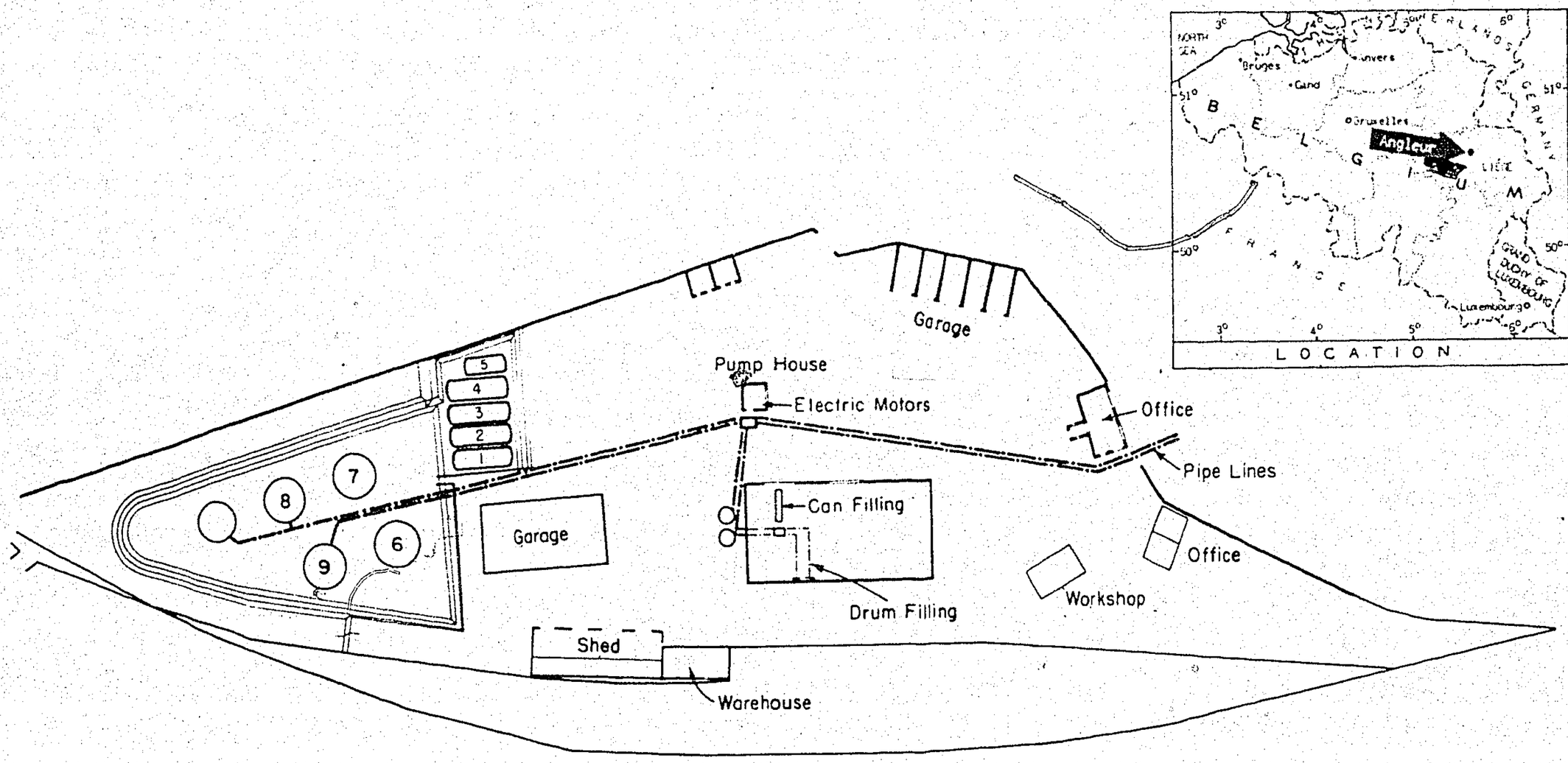
4.7.4 Angleur (near Liége)

L'Alliance, S. A.- The plant of this company is located at Angleur.

Detailed Tankage Capacity, L'Alliance, S.A.B.

No. of Tanks	Capacity Each M3	Total Capacity M3	Total Capacity Bbls.
4	200	800	5,040
4	60	240	1,512
1	30	30	189
	Total	1,070	6,741

A layout plan of this plant is shown on page 162.



BULK PLANT OF
L' ALLIANCE, S. A.
FORMERLY BELONGING TO
SINCLAIR PETROLEUM, S. A.
ANGLEUR, LIÉGE
BELGIUM

TANKS		
NO.	CAPACITY	
	M^3	BBLS.
1	60	378
2	60	378
3	60	378
4	60	378
5	30	189
6	200	1260
7	200	1260
8	200	1260
9	210	1323
TOTAL	1080	6804

4.7.5 Dolhain

At Dolhain (latitude 50°37'N, longitude 5°56'E) the Belgian Shell, S.A. has a plant with a warehouse and drum and truck filling facilities, and a bulk storage capacity of 45 M^3 for black oils and 45 M^3 for gasoline, a total of 90 M^3 (567 barrels). This plant is supplied by rail.

4.7.6 Eupen

At this place (latitude 50°38'N, longitude 6°3'E), just to the east of Dolhain, Standard American Petroleum Company has a small plant, operated by a commission agent, supplied by rail only.

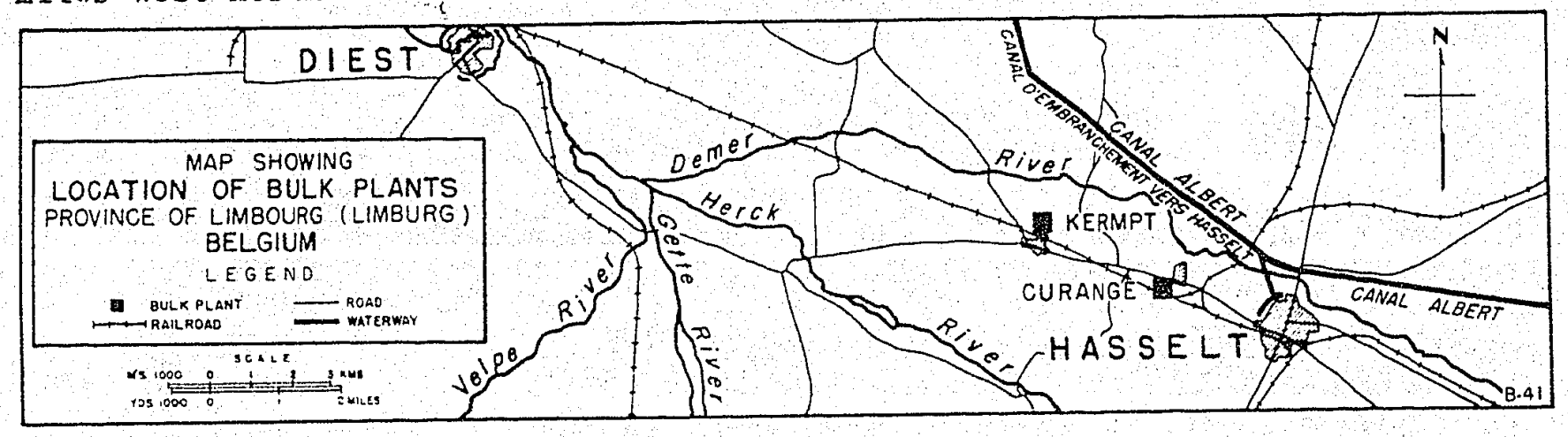
4.7.7 Stavelot (Stablo)

At this town (latitude 50°23'N, longitude 5°57'E), 23 miles southeast of Liége, Belgium Shell, S.A. has a small gasoline plant with drum and truck filling facilities, a warehouse and tank capacity for 50 M^3 (315 barrels).

4.8 PROVINCE OF LIMBOURG (LIMBURG)

4.8.1 General Remarks

There are only three bulk plants of importance in the Province of Limbourg--two at Curange, 2½ miles northwest of the town of Hasselt, and one at Kermpt, 2½ miles west northwest of Hasselt.



4.8.2 Curange

Belgian Shell, Societe Anonyme.- This plant at Curange (latitude 50°56'N, longitude 5°17'E) is supplied by rail. It consists of a warehouse, drum and truck filling equipment, with 106 M^3 capacity for black products and 70 M^3 capacity for gasoline, a total capacity of 176 M^3 (1,108 barrels).

Standard American Petroleum Company.- This company has a plant at Curange, supplied by road only and managed by a salaried agent. No other information regarding this plant was available.

4.8.3 Kermpt

— The Texas Company, S.A.B.- This interior bulk plant (latitude 50°57'N, longitude 5°15'E) is supplied by rail from Anvers, a distance of 49 miles. A layout plan appears on page 165.

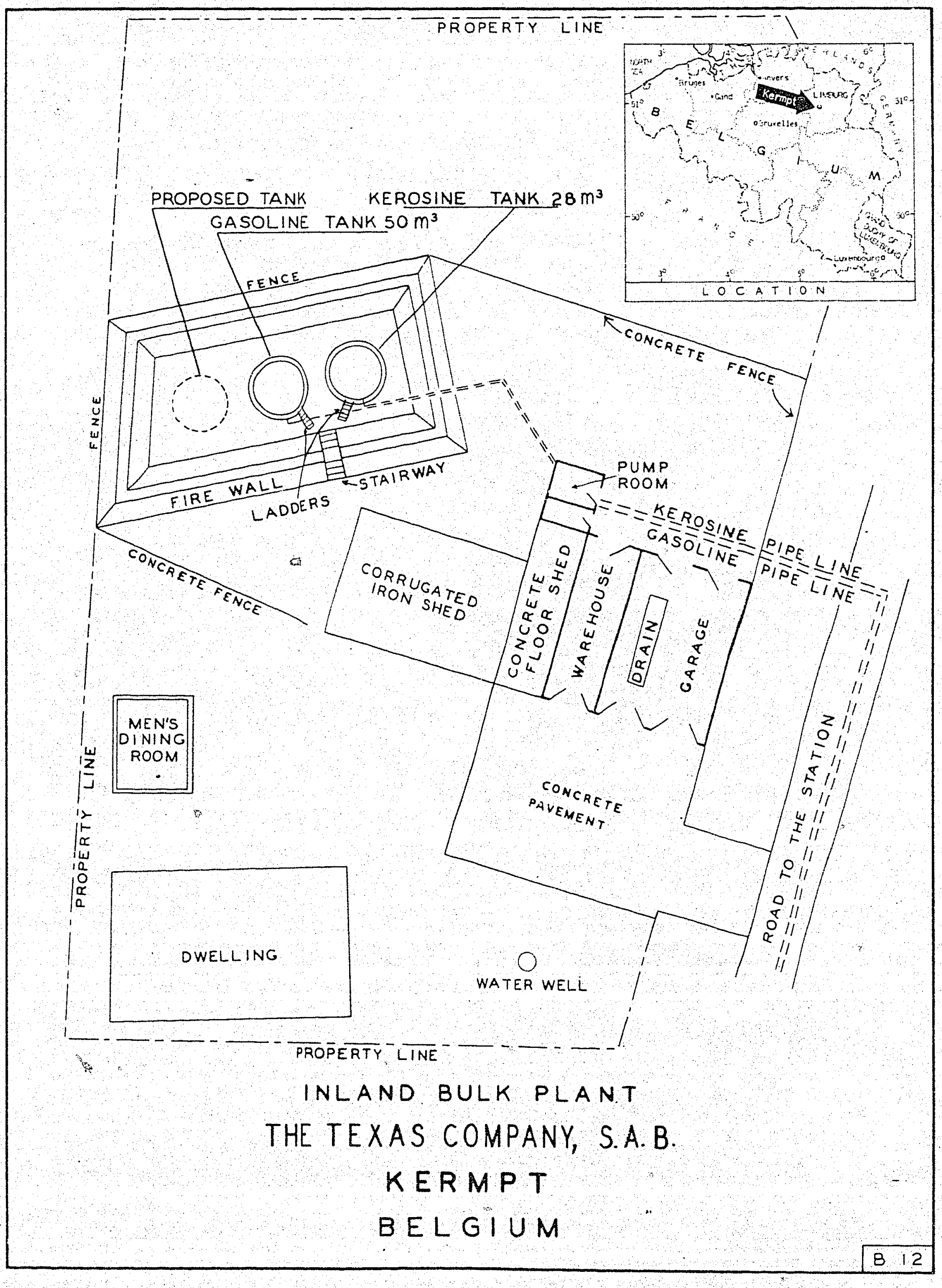
Detailed Plant Information, The Texas Co., S.A.B.

Buildings

Description	Dimensions	Capacity	Construction
Lube Oil Warehouse	32'9" x 23'0"	150 drums	Corrugated Iron
Manipulation Warehouse	29'6" x 10'0"	60 drums	Brick
Garage	29'6" x 20'0"	2 cars	Brick
Pumphouse	8'2" x 9'10"		Brick
Residence and Office	44'3" x 27'10"		Brick

Tankage

Product	Size	Capacity	Description
Gasoline	9'10" x 23'7"	314 barrels	Raised vertical tank
Kerosine	9'10" x 13'1"	176 barrels	Raised vertical tank
Total		490 barrels	



INLAND BULK PLANT

THE TEXAS COMPANY, S.A.B.

KERMPT

BELGIUM

B 12

Detailed Plant Information, The Texas Co., S.A.B. (continued)

Pipe Lines

Product	Size	Length
Gasoline	2"	295'
Kerosine	2"	245'

Pumps

Product	Capacity	Operation	Horse Power
Gasoline	100 G.P.M.	Electric)	5 H.P.
Kerosine	100 G.P.M.	Electric)	

Fence

Height	Length	Construction
6'7"	250'	Concrete

Yard Area and Roadways

	Construction	Area
Yard	Concrete	1,350 sq. ft.
Entrance Road	Concrete	270 sq. ft.

Electric Characteristics

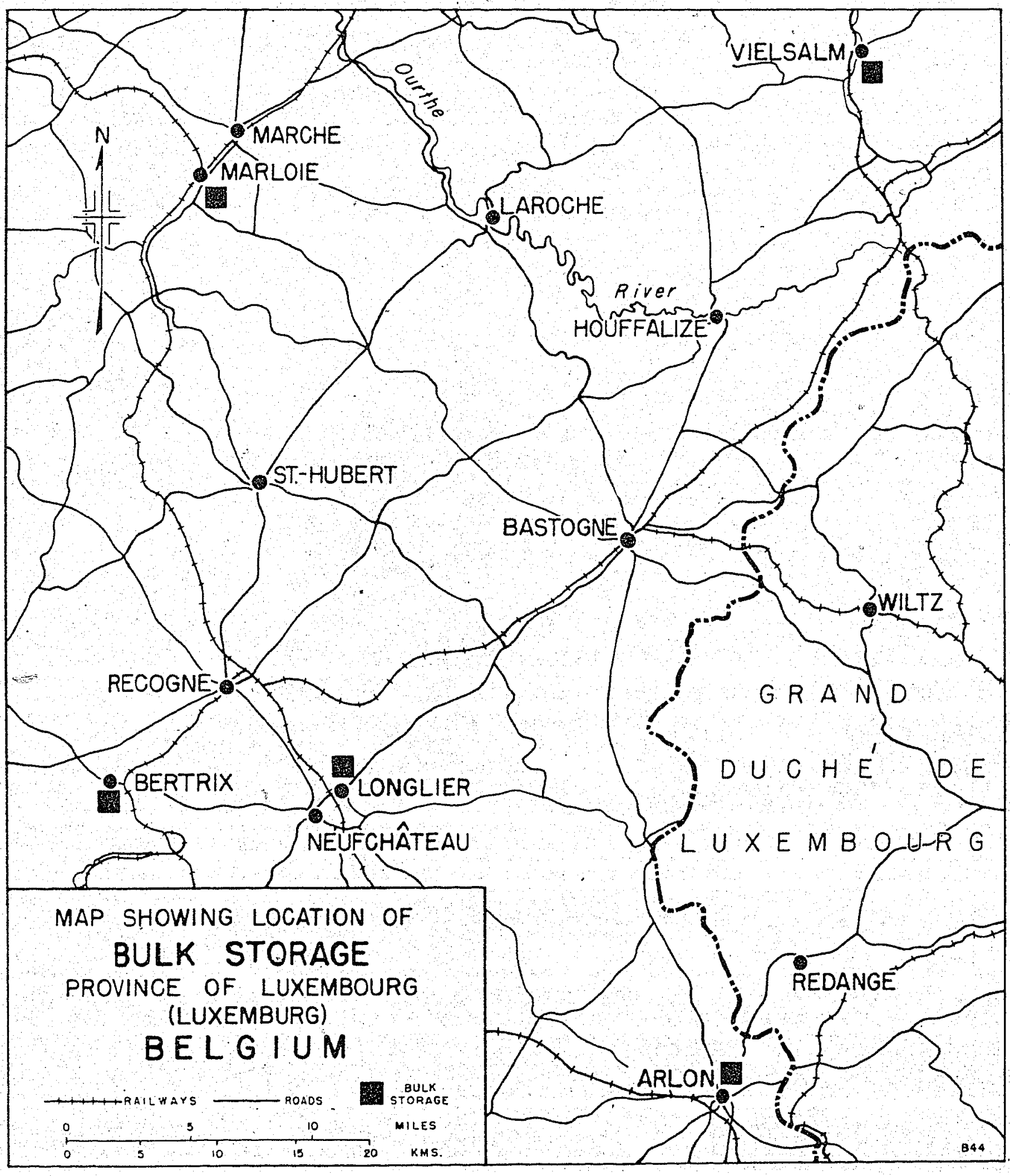
	A.C. or D.C.	Voltage	Phase	Cycle
Lights	A. C.	220	3	50
Power	A. C.	220	3	50

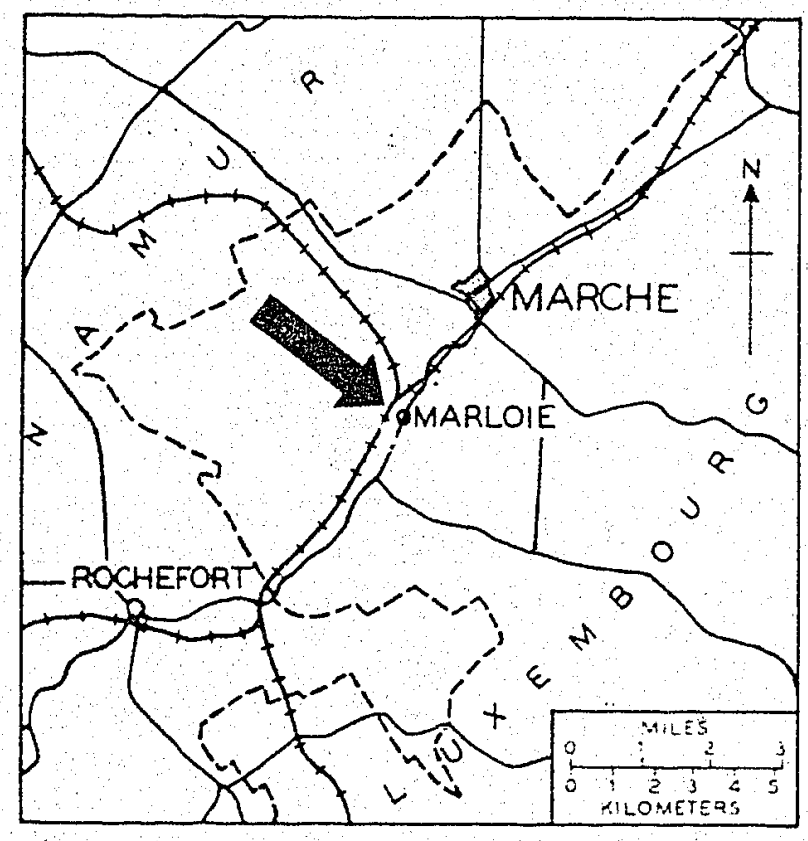
Sewerage Disposal: Septic Tank

4.9 PROVINCE OF LUXEMBOURG (LUXEMBURG)

4.9.1 General Remarks

In the Province of Luxembourg there are three plants at the town of Marloie, one at Bertrix, one at Longlier, one at Arlon, and one at Vielsalm.





4.9.2 Marloie

At this town (latitude 50°12'N, longitude 5°19'E), just south of Marche, there are three bulk plants.

Belgian Shell, Société Anonyme.- Supplied by rail. This plant has capacity for 65 M^3 of gasoline and 45 M^3 of black oils, a total of 110 M^3 (693 barrels).

Standard American Petroleum Company.- This plant is supplied by rail. No other information regarding this plant was available.

The Texas Company, S.A.B.- This plant is normally supplied by rail from Anvers (Antwerpen) a distance of 97 miles. The total storage capacity is 631 barrels. A layout plan appears on page 169.

Detailed Information of Plant, The Texas Company, S.A.B.

Buildings

Description	Dimensions	Capacity	Construction
Manipulation Warehouse	29'6" x 26'3"	200 drums	Concrete
Lube Oil Warehouse	29'6" x 39'4"	300 drums	Concrete
Garage	26'3" x 19'8"	2 cars	Concrete
Pumphouse	14'9" x 11'6"		Brick
Residence & Office	28'0" x 28'0"		Brick

Tankage

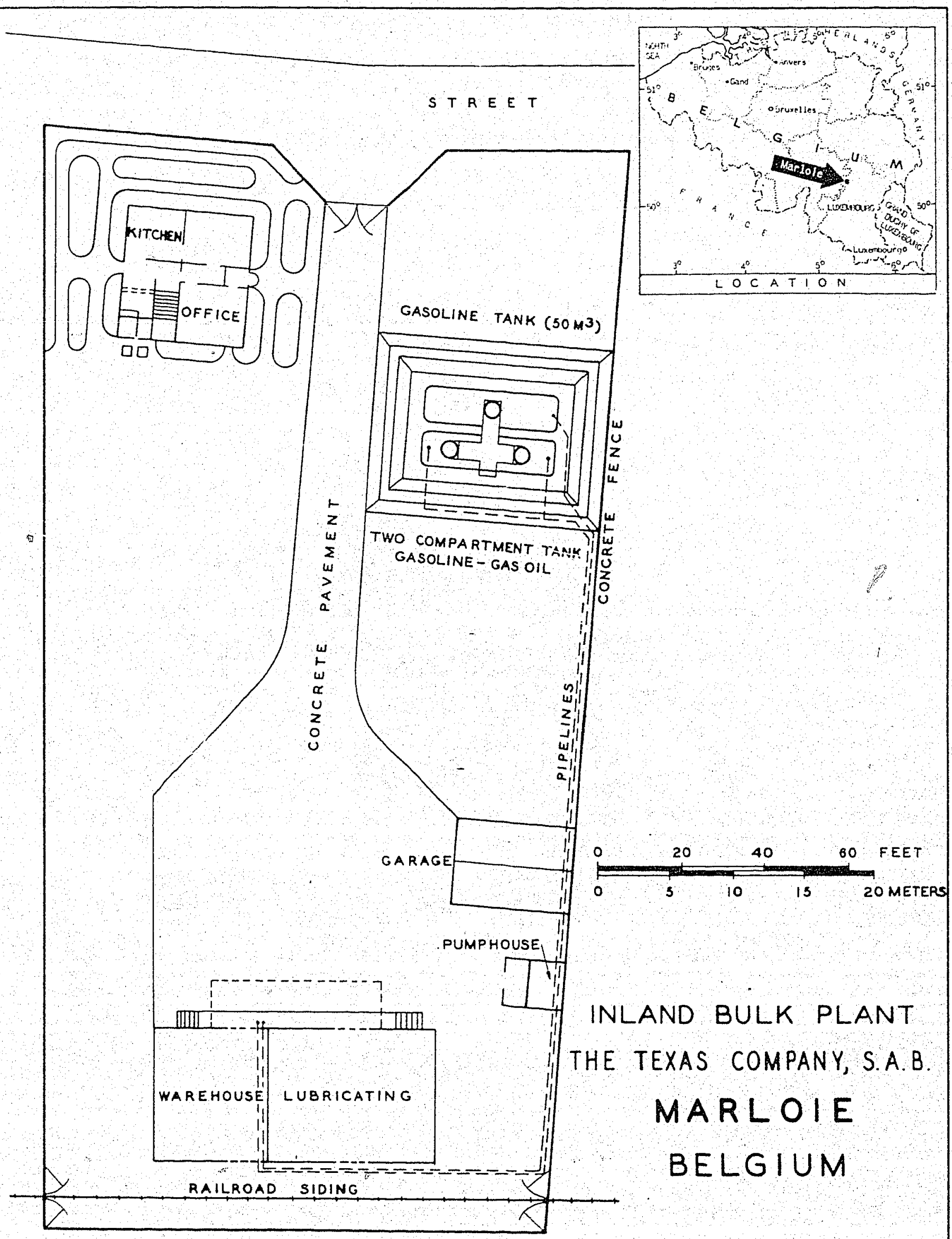
Product	Size	Capacity	Description
Gasoline	8'2" x 32'9"	315 bbls.	Raised hor. tank
Gasoline	8'2" x 16'4"	158 bbls.	Raised hor. tank
Gas Oil	8'2" x 16'4"	158 bbls.	Compt. tank
	Total	631 bbls.	

Pipe Lines

Product	Size	Length
Gasoline	2 1/2"	350'
Gas Oil	2 1/2"	340'

Pumps

Product	Capacity	Operation	Horse Power
Gasoline	100 G.P.M.	Electric)	5 H.P.
Gas Oil	100 G.P.M.	Electric)	



INLAND BULK PLANT
THE TEXAS COMPANY, S.A.B.
MARLOIE
BELGIUM

B 18

Detailed Information of Plant, The Texas Company, S.A.B. (continued)

Fence

Height	Length	Construction
6'7"	730'	Concrete

Yard Area and Roadways

	Construction	Area
Yard	Concrete	6,460 sq. ft.
Entrance Road	Concrete	390 sq. ft.

Electric Characteristics

	A.C. or D.C.	Voltage	Phase	Cycle
Lights	A.C.	220	3	50
Power	A.C.	220	3	50

Sewerage Disposal: Septic Tank

4.9.3 Bertrix

The Standard Petroleum Company has a plant at this place (latitude 49°51'N, longitude 5°15'E), operated by a salaried agent. No other information concerning this plant was available.

4.9.4 Longlier

At Longlier (latitude 49°52'N, longitude 5°27'E), Belgian Shell, S. A., has a plant supplied by rail. There are drum and truck filling facilities, a warehouse and capacity for 50 M^3 of black oils and 65 M^3 of gasoline, a total of 115 M^3 (725 barrels).

4.9.5 Arlon (Aarlen)

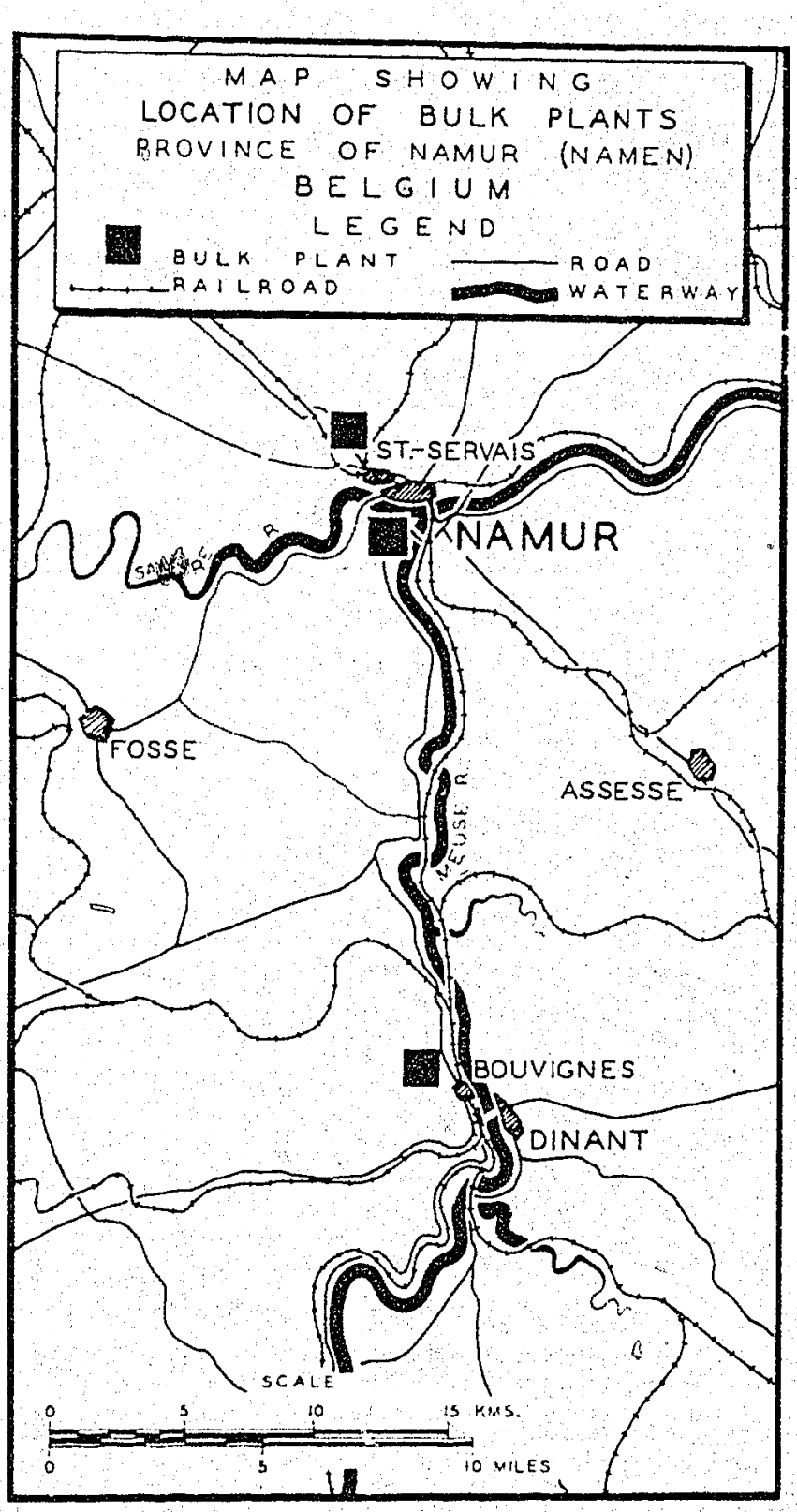
At Arlon (latitude 49°42'N, longitude 5°49'E), Standard American Petroleum Company has a plant operated by a salaried agent, supplied by rail only.

4.9.6 Vielsalm

At this point, (latitude 50°17'N, longitude 5°57'E), Standard American Petroleum has a plant operated by a salaried agent and supplied by rail.

4.10 PROVINCE OF NAMUR (NAMEN)

4.10.1 General Remarks



In the Province of Namur there are three bulk plants near the city and provincial capital of Namur, and one at Bouvignes, some 14 miles south of the city of Namur.

4.10.2 Namur (Namen)

St. Servais.- The plant at St. Servais (latitude 50°25'N, longitude 4°52'E) belongs to Standard American Petroleum Co. It is handled by a salaried agent and supplied by railway only.

Jambes-lez-Namur.- At this point the Belgian Shell, S. A. has a small plant supplied by rail only. It includes a warehouse, drum and tank truck filling facilities and tank capacity for 130 M^3 (819 barrels), of which 45 M^3 are for black and 85 M^3 are for white products.

The Texas Company, S.A.B.- This interior bulk plant normally is supplied from Anvers and Bruxelles by rail or road, distances of 65 and 41 miles, respectively. A layout plan appears on page 172. A detailed description is given below.

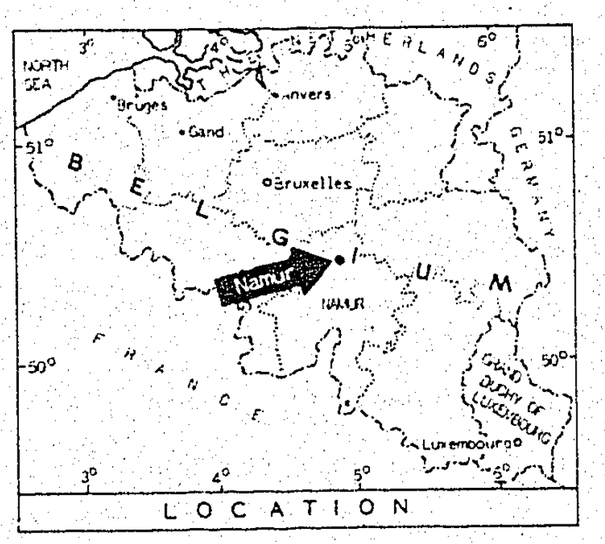
Detailed Information of Plant, The Texas Company, S.A.B.

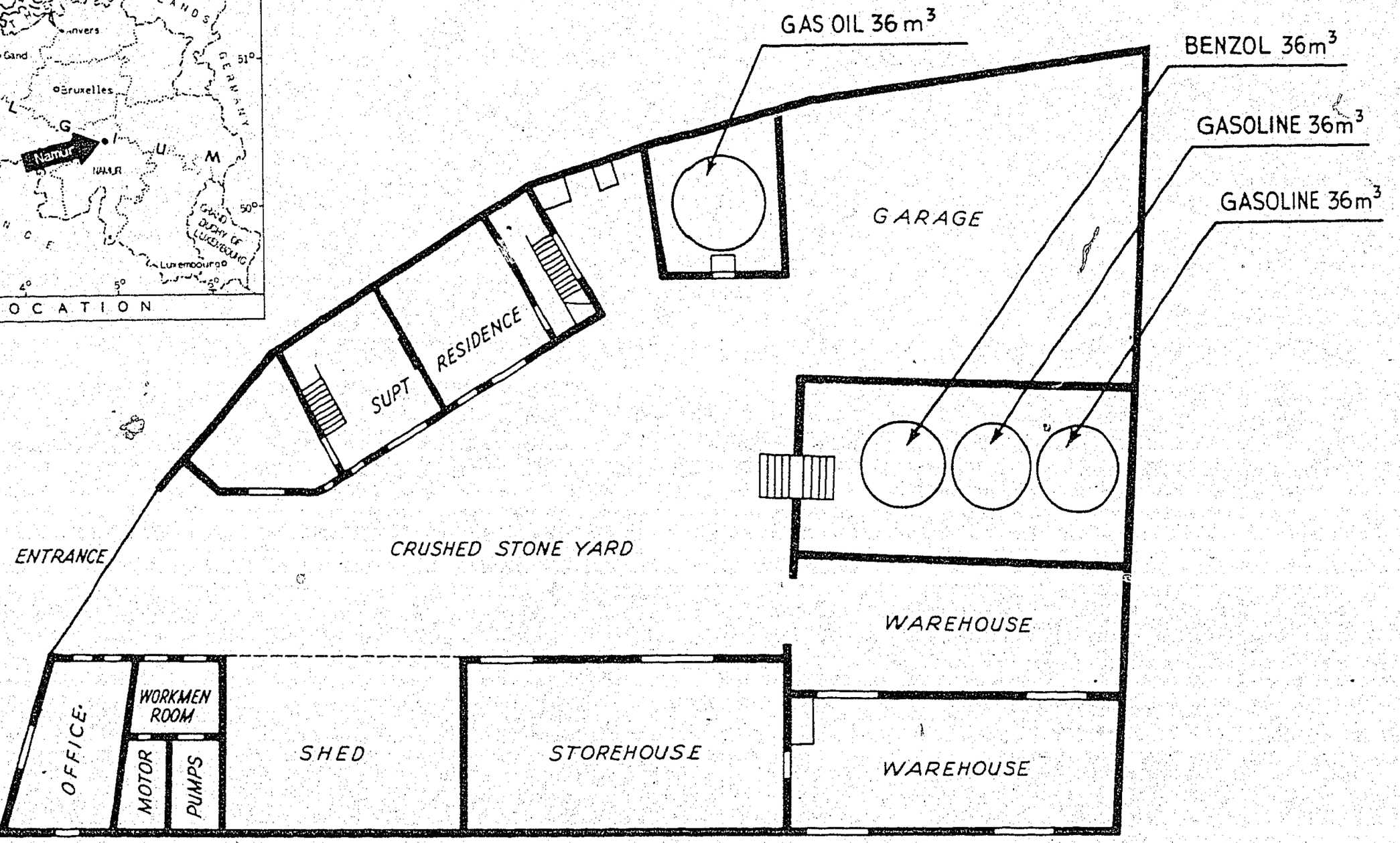
Buildings

Description	Dimensions	Capacity
Manipulation Warehouse	37'0" x 28'6"	300 drums
Lube Oil Warehouse	35'9" x 18'0"	180 drums
Garage	36'0" x 40'0"	4 cars
Pumphouse	10'6" x 8'6"	
Office	18'2" x 11'0"	
Residence	15'0" x 40'0"	
Shed	27'10" x 19'4"	

All brick construction

INLAND BULK PLANT OF THE TEXAS COMPANY, S.A.B. NAMUR (NAMEN) BELGIUM





Detailed Information of Plant, The Texas Company, S.A.B. (continued)

Tankage

Product	Size	Capacity	Description
Gasoline	10'2" x 15'9"	228 bbls.	Raised ver. tank
Gasoline	10'2" x 15'9"	228 bbls.	Raised ver. tank
Benzol	10'2" x 15'9"	228 bbls.	Raised ver. tank
Gas Oil	10'2" x 15'9"	228 bbls.	Raised ver. tank
	Total	912 bbls.	

Pipe Lines

Product	Size	Length
Gasoline	2"	660'
Gas Oil	2"	620"

Pumps

Product	Capacity	Operation	Horse Power
Gasoline	100 G.P.M.	Electric)	5 H.P.
Gas Oil	100 G.P.M.	Electric)	

Yard Area and Roadways

	Construction	Area
Yard	Crushed Stone	2,050 sq. ft.

Electric Characteristics

	A.C. or D.C.	Voltage	Phase	Cycle
Lights	A.C.	220	3	50
Power	A.C.	220	3	50

Sewerage Disposal: Septic tank

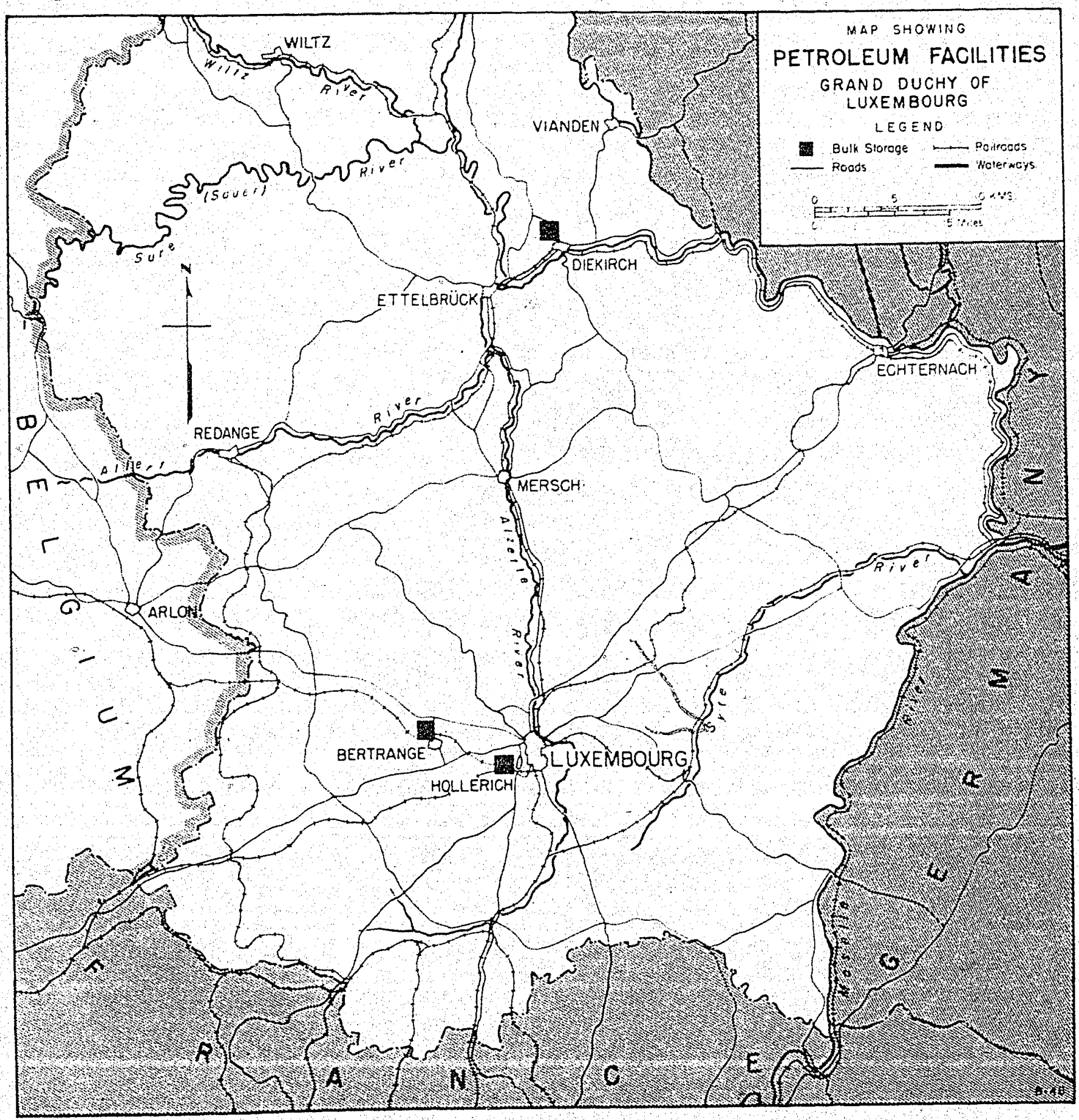
4.10.3 Bouvignes

Bouvignes (latitude 50 16'N, longitude 4 54'E) lies some 14 miles almost due south of Namur. This small plant belongs to Belgian Shell Co., S.A. It is supplied by rail, and has drum and tank filling facilities, a warehouse and storage capacity for 50 M^3 (315 barrels) of gasoline.

4.11 GRAND DUCHY OF LUXEMBOURG (LUXEMBURG)

4.11.1 General Remarks

The petroleum business of the Grand Duchy of Luxembourg was largely confined to distributing activities. The country was supplied variously from Rotterdam, Anvers and Gand. Most of the business was in the hands of Standard Luxemburgische Mineralöl-Gesellschaft (a) affiliated with Standard Oil Company (N.J.) and Societe Belgo-Luxembourgeoise des Carburants, S.A., affiliated with the Royal Dutch Shell Group. The Texas Company, S.A.B., also has a small plant in the city of Luxembourg.



(a) Formerly Standard Luxembourgeoise des Pétroles--name changed September 1940.

Unfortunetely but few of the companies kept separate records of the business done in Luxembourg--most of them handling it thro gh their Belgian subsidiaries. It is known, however, that the country was abundantly supplied with pumps--the Shell group alone having some 500(a).

Summary of the Storage Facilities, Luxembourg

Location	Company	Owner Company or Control	Tank Capacity	
			M^3	Bbls.
Bertrange (near Luxembourg)	Société Belgo-Luxembourgeoise des Carburants, S.A.	Royal Dutch Shell group	1,355	8,536
Hollerich (near Luxembourg)	Standard Luxemburgische Mineralöl-Gesellschaft	Standard Oil. Co. (N.J.)	x	x
Luxembourg	The Texas Company, S.A.B.	The Texas Co.	149	942
Diekirch	Société Belgo-Luxembourgeoise des Carburants, S.A.	Royal Dutch Shell group	210	1,323
		Total	1,714	10,801

4.11.2 Société Belgo-Luxembourgeoise des Carburants, S.A.

This company, affiliated with the Royal Dutch Shell group, has two plants in Luxembourg, one at Bertrange and the other at Diekirch.

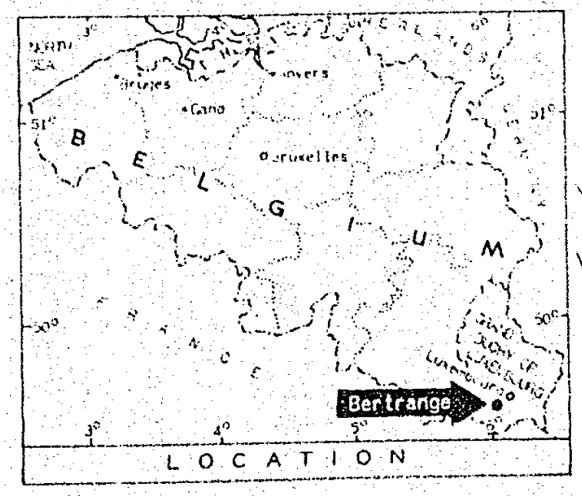
Summary of Data, Bertrange Plant

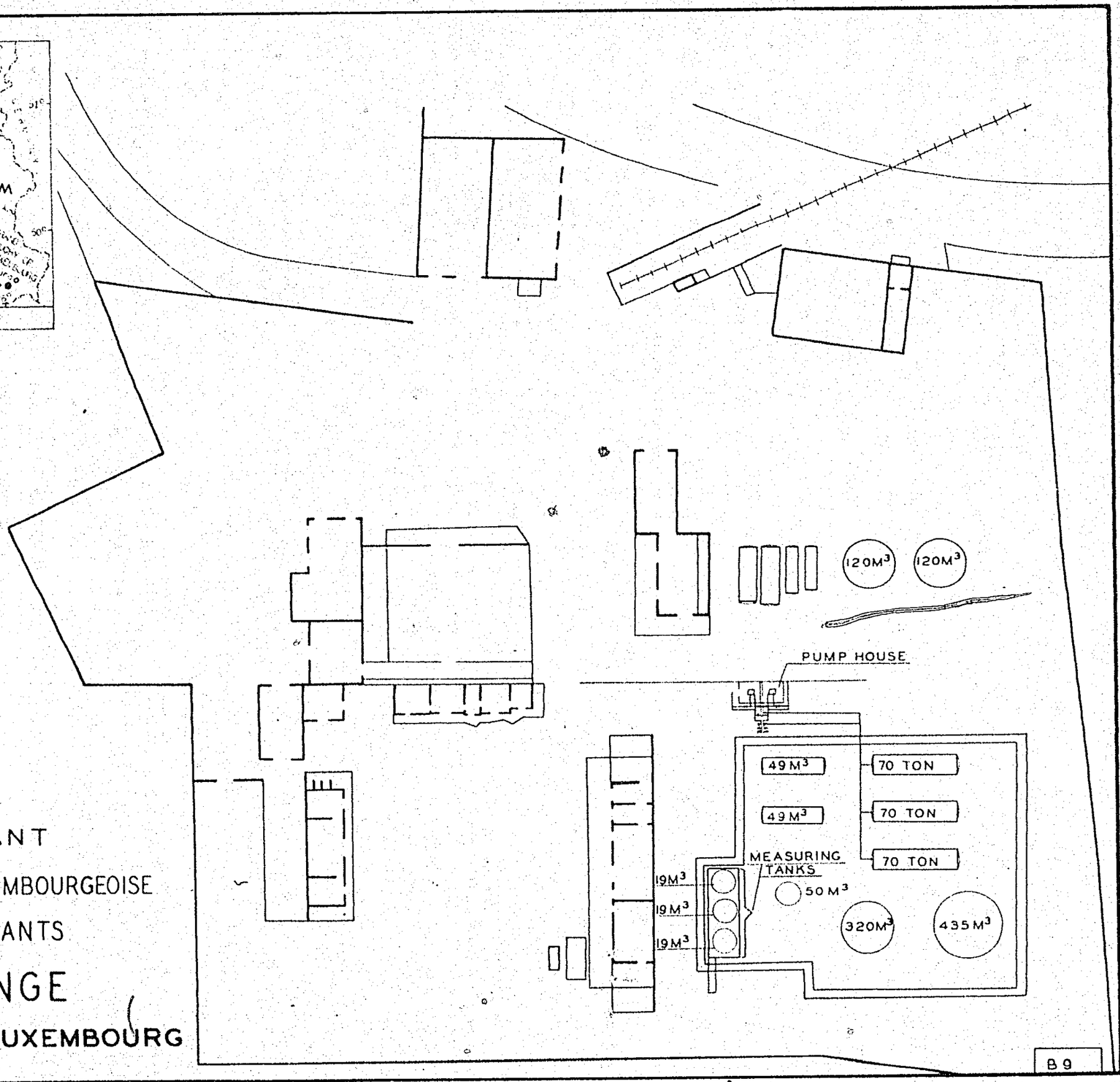
No. of Tanks	Tankage Capacity		Product Normally Stored	Remarks
	M^3	Bbls.		
1 above ground	435	2,740	Gasoline	This is a railside plant which used to receive its supplies by rail tank car from Rotterdam, Gent and Anvers. It is equipped with a small crude oil distilling plant. A layout plan is shown on page 176.
1 above ground	320	2,016	Gasoline	
2 above ground	2 x 120 = 240	1,512	Black Oils	
2 below ground	2 x 70 = 140	882	Gasoline	
1 below ground	70	441	Benzol	
1 below ground	50	315	Aviation Gasoline	
1 below ground	50	315	Benzol	
1 below ground	50	315	Gasoline/Benzol mixture	
Total	1,355	8,536		

Summary of Data, Diekirch Plant

No. of Tanks	Tankage Capacity		Product Normally Stored	Remarks
	M^3	Bbls.		
6 below ground	6 x 35 = 210	1,323	Gasoline and Black Oils	This plant was supplied by tank truck from Bertrange
Total	210	1,323		

(a) Herdoll, Satam and Beck meters.





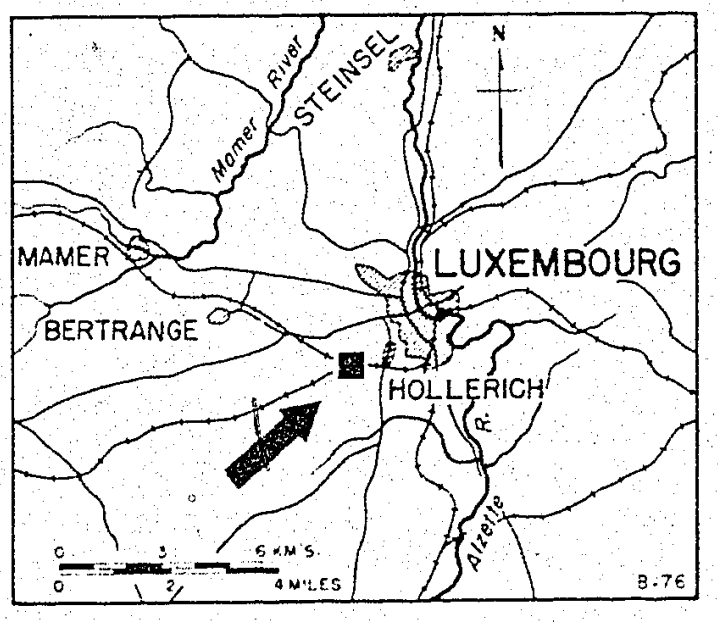
BULK PLANT

SOCIÉTÉ BELGO-LUXEMBOURGEOISE

DES CARBURANTS

BERTRANGE

GRAND DUCHY OF LUXEMBOURG



4.11.3 Standard Luxemburgische Mineralol-Gesellschaft

There is a Standard plant at Hollerich, but no information concerning it is available.

4.11.4 The Texas Company, S.A.B.

This plant is located at Hollerich, near the city of Luxembourg. Normally it is supplied from Anvers, a distance of 171 miles, by rail. The tank capacity is 942 barrels. The plant occupies 2,965 acres. A layout plan is shown on page 178.

Detailed Plant Information, The Texas Company, S.A.B.

B u i l d i n g s

Description	Dimensions	Capacity	Construction
1. Lube Oil Warehouse	30'0" x 65'0"	600 drums	Concrete
2. Storehouse	30'0" x 30'0"	270 drums	Concrete
3. Manipulation Warehouse	30'0" x 52'0"		Concrete
4. Garage	30'0" x 32'3"	3 cars	Concrete
5. Pumphouse	8'0" x 10'0"		Brick
6. Restroom for Workmen	19'8" x 13'1"		Brick
7. Office	19'8" x 13'1"		Brick

T a n k a g e

Product	Size	Capacity	Description
1. Gasoline	8'2" x 32'9"	315 bbls.	Buried hor. tank
2. Gasoline	8'2" x 32'9"	315 bbls.	Buried hor. tank
3. Benzol	6'7" x 26'3"	158 bbls.	Horizontal tank
4. Kerosine	6'7" x 26'3"	158 bbls.	Raised hor. tank
	Total	946 bbls.	

Firewall Construction: Concrete

P i p e L i n e s

Product	Size	Length
1. Gasoline	2 1/2""	1,625'
2. Kerosine	2 1/2"	1,500'

P u m p s

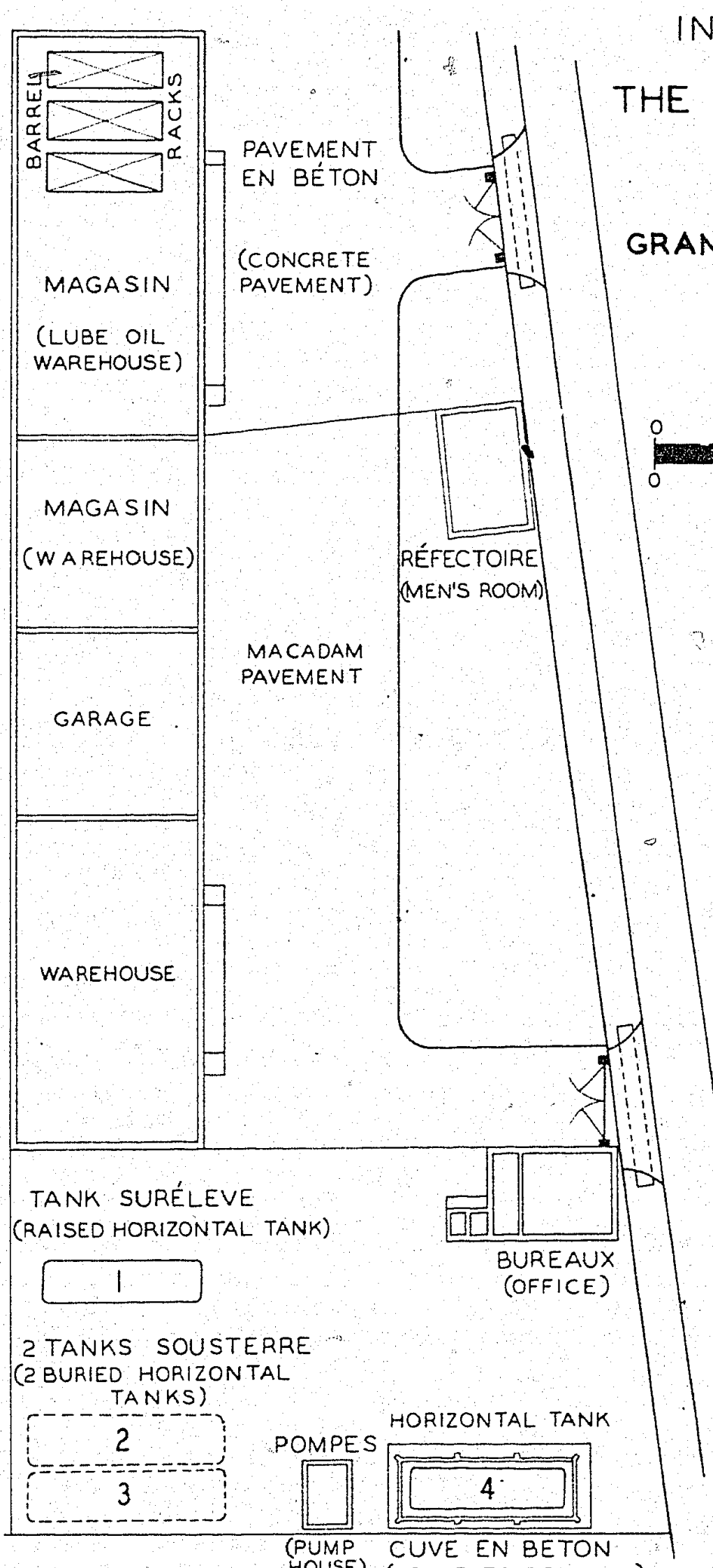
Product	Capacity	Operation	Horse Power
1. Gasoline	100 G.P.M.	Gasoline)	5 H.P.
2. Kerosine	100 G.P.M.	Motor)	

INLAND BULK PLANT

THE TEXAS COMPANY, S.A.B.

LUXEMBOURG

GRAND DUCHY OF LUXEMBOURG

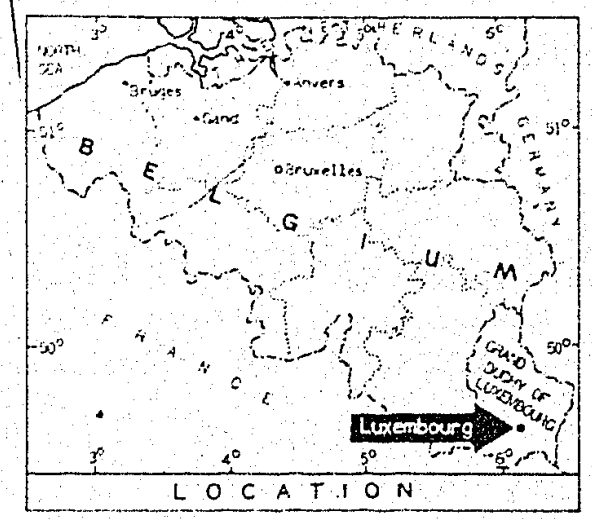


SCALE

0 5 10 15 20 METERS

0 20 40 60 FEET

NO.	PRODUCTS	CAPACITY	
		M^3	BBLS
1	KEROSINE	25	158
2	GASOLINE	50	315
3	GASOLINE	50	315
4	BENZOL	25	158
	TOTAL	150	946



B 21

Detailed Plant Information, The Texas Company, S.A.B. (continued)

Fence

Height	Length	Construction
6'7"	465'	Concrete

Yard Area and Roadways

	Construction	Area
1. Yard	Macadam	4,420 sq. ft.
2. Yard	Concrete	2,480 sq. ft.
3. Entrance Road	Macadam	130 sq. ft.
4. Entrance Road	Concrete	130 sq. ft.

Dock: None

Electric Characteristics

	A.C. or D.C.	Voltage	Phase	Cycle
Lights	A.C.	220	3	50
Power	A.C.	220	3	50

Sewerage Disposal: Septic Tank

Boilers: None

Water Supply: Well

STATISTICAL SUMMARY OF STORAGE FACILITIES, BELGIUM

x = Data Unknown - = Not Applicable

IDENTIFICATION OF PLACES						IDENTIFICATION OF PLANTS		CAPACITY OF STORAGE TANKS							
		Locations on Index Map(a)						Black		White		Total Plant			
Province	City	Lat. N °	Lat. N m	Long. E °	Long. E m	Owners of Plants	Location of Plants	M³	Barrels	M³	Barrels	M³	Barrels	Supplied by	Remarks
Anvers (Antwerpen)	Anvers (Antwerpen)	51	13	4	25	S. A. L'Alliance	Petroleum Harbor area	15,172	95,178	22,508	141,600	37,680	237,378	Ocean tanker	
						S. A. Huiles, Essences et Graisses Minérales	Ibid.	x	x	x	x	7,130	44,919	Ocean tanker	Controlled by L'Alliance, S. A.
						Atlantic Oil Storage Co., S.A.	Ibid.	10,029	62,197	14,320	90,282	24,349	153,479	Ocean tanker	
						Compagnie Industrielle Atlas, S.A. (Refinery)	Ibid.	x	x	x	x	16,000	100,800	Ocean tanker	
						Belgian Gulf Oil Co., S.A.	Ibid.	x	x	x	x	73,145	460,613	Ocean tanker	Gulf Oil Corp., Pittsburgh
						Bedford Petroleum Co., S.A.R.	Ibid.	x	x	x	x	9,440	59,472	Ocean tanker	
						Belgian Shell, S.A.	Ibid.	14,143	89,100	20,682	130,300	34,825	219,400	Ocean tanker	
						Orion, S.A.	Ibid.	x	x	x	x	7,788	49,063	Ocean tanker	
						S.A. Belge des Huiles de "Créosote"	Ibid.	x	x	x	x	19,155	120,676	Ocean tanker	
						Redeventza, S.A. Belge pour le Raffinage du Pétrole	Ibid.	x	x	x	x	46,000	289,800	Ocean tanker	
						Leysen et Pauwels, S.A.	Ibid.	x	x	x	x	125	788	Ocean tanker	
						S.A. d'Entreposage et de Transports	Ibid.	x	x	x	x	2,165	13,640	Ocean tanker	
						S.A. Entrepôts et Réservoirs	Ibid.	x	x	x	x	760	4,788	Ocean tanker	Turpentine
						Tankage et Transport, S.A.	Ibid.	x	x	x	x	53,465	336,829	Ocean tanker	
						Société Franco-Belge d'Entreposage de Pétrole	Ibid.	x	x	x	x	28,213	177,742	Ocean tanker	
						Standard American Petroleum Company	Ibid.	50,258	316,668	38,744	244,087	89,012	560,775	Ocean tanker	
						The Texas Company, S.A. Belge	Ibid.	17,822	112,284	27,473	173,080	45,295	285,364	Ocean tanker	Affiliated with The Texas Company, New York
						Transport & Trading Co.	Ibid.	13,770	86,751	11,260	70,938	25,030	157,689		
						Vacuum Oil Company, S.A.R.	Ibid.	x	x	x	x	536	3,380	Ocean tanker	Affiliated with Socony-Vacuum Oil Co., Inc., New York
						Raffineries et Distilleries Anversoises, S.A., "Radian" (Affiliated with Tankage et Transport, S.A.)	Ibid.	x	x	x	x	x	x	Ocean tanker	Storage provided by Tankage et Transport, S.A. Exact capacity unknown
	These plants are near Anvers, but outside the Petroleum Harbor area.					Antwerp Oil Terves, Ltd.	Hemixem	x	x	x	x	70,800	446,040	Ocean tanker	Owned jointly by several international oil groups.
						Belgian Gulf Oil Co., S.A.	Burght	x	x	x	x	x	x	Barge	
						Raffinerie Belge de Petroles	Darse 4, Anvers	x	x	x	x	51,904	327,000	Ocean tanker	Affiliated with British Lianosoff White Oil Co., Ltd.
	Malines (Mechelen)	51	2	4	29	Belgian Shell, S.A.		-	-	200	1,260	200	1,260	By barge and rail	Gasoline tanks and warehouse. Drum and tank truck filling.
Brabant	Bruxelles (Brussel)	50	52	4	22	Belgian Shell, S.A.	Anderlecht	90	567	481	3,030	571	3,597	Barge and rail	Gasoline tanks, warehouse. Drum and tank truck filling. See layout plan, page 113.
						Belgian Shell, S.A.	Haren	x	x	x	x	6,305	39,722	Barge and rail	Gasoline tanks, warehouse. Drum and tank truck filling. See layout plan, page 112. Fully equipped repair shop for tank trucks at Vilvorde. Also garage for 44 tank trucks.

(a) Latitudes and longitudes taken from "The Times Gazetteer of the World", The Times, Printing House Square, London E. C., 1928, except those marked ■ which do not appear in "The Times Gazetteer" and were taken from maps furnished by Army Map Service. ▲ which appear in neither of the publications mentioned and were taken from "Philip's New Handy General Atlas and Gazetteer", London, 1930, and those

IDENTIFICATION OF PLACES					IDENTIFICATION OF PLANTS		CAPACITY OF STORAGE TANKS							
		Locations on Index Map					Black		White		Total Plant			
Province	City	Lat. N. °	'	Long. E. °	'	Owners of Plants	Location of Plants	M3	Barrels	M3	Barrels	M3	Barrels	Supplied by	Remarks
Brabant (Continued)	Bruxelles (Brussel)	50	52	4	22	Standard American Petroleum Company, affiliated with Standard Oil Co. (N.J.)	Haren	x	x	x	x	x	x	x	Standard records show "Supplied by rail only".
						The Texas Company, S.A.B.,	Marly	-	-	3,680	23,185	3,680	23,185	Barge from Anvers	Five gasoline tanks, 1 benzol tank, 1 kerosine tank. One warehouse, 6,195 sq. ft. Plan on page 114.
						L'Alliance, S.A. (Affiliated Anglo-Iranian Oil Co.,Ltd.)	Vilvorde	x	x	x	x	1,270	8,001	Barge from Anvers	Ten tanks. Layout plan on page 116.
						Belgian Shell, S.A.	Vilvorde	x	x	x	x	7,000	44,100	Barge	Also garage accommodating 44 trucks.
						Belgian Gulf Oil Company, S.A.	Location unknown	x	x	x	x	x	x	Barge	Small plant.
	Louvain (Leuven)	50	52	4	43	Belgian Shell, S.A.	At Wilsele on canal from Louvain to Malines	70	441	1,059	6,671	1,129	7,112	Barge from Anvers	3 gasoline tanks: 1 of 989 M3 and 2 of 70 M3 each. Plan, page 118.
Flandre Occidentale (West Vlaanderen)	Zeebruges (Zeebrugge)	51	19	3	12	Standard American Petroleum Company	Near Zeebruges	-	-	-	-	-	-		Packages only.
	Blankenberghe (Blankenberge)	51	18	3	8	Standard American Petroleum Company	Near Blankenberghe	-	-	-	-	-	-		Packages only.
	Ostende (Oostende)	51	13	2	57	The Texas Company, S.A.B.	Three miles north of center of city, on road to Zeebruges and on north side of Fishing Fleet Basin	50	315	60	380	110	695	Rail or road from Anvers or Gand	1 gasoline tank - 190 barrels 1 kerosine tank - 190 barrels 1 gas oil tank - 315 barrels Layout plan on page 126.
	Nieuport (Nieuwpoort)	51	8	2	46	Standard American Petroleum Company	Near the town	-	-	-	-	-	-		Packages only.
	Furnes (Veurne)	51	3	2	40	Standard American Petroleum Company	Near the town	x	x	x	x	x	x	Barge	
	Bruges (Brugge)	51	2	3	14	Belgian Shell, S.A.	On Bruges-Ostende Canal	7,523	47,400	984	6,200	8,507	53,600		Location plan, page 128.
						L'Alliance, S.A.	At Bruges	x	x	x	x	690	4,347		Layout plan, page 129.
						Standard American Petroleum Company	At Bruges	x	x	x	x	x	x		
	Thielt (Tielt)	51	0	3	20	Standard American Petroleum Company	Near the town	x	x	x	x	x	x	Road only	Commission agent.
	Iseghem (Izegem)	50	56	3	13	The Texas Company, S.A.B.	Near the town	-	-	150	942	150	942	Rail or road from Anvers or Gand	3 tanks, 314 bbls. each 1 warehouse - 3,995 square feet Layout plan, page 131.
	Courtrai (Kortrijk)	50	50	3	16	Standard American Petroleum Company	At Courtrai	x	x	x	x	x	x	Rail only	Salaried agent.
	Wevelghem (Wevelgem)	50	49	3	11	Belgian Shell, S.A.	Near Courtrai	-	-	45	284	45	284	Rail	Tanks--gasoline. Warehouse. Drum and tank truck filling.
	Mouscron (Moeskroen)	50	45	3	10	Standard American Petroleum Company	Belgian-French border	x	x	x	x	x	x	Road only	Commission agent
	Herseaux (Herseeuw)	50	43	3	14	Standard American Petroleum Company		x	x	x	x	x	x	Rail	Salaried agent
Flandre Orientale (Oost Vlaanderen)	Gand (Gent)	51	3	3	45	The Texas Company, S.A.B.	See location map, page 136.	-	-	949	5,980	949	5,980	Water from Anvers (47 miles)	Four tanks. Layout plan, page 138.
						L'Alliance, S.A.	Next to the Texas Company's plant.	x	x	x	x	1,000	6,300	Water from Anvers	Seven tanks. Layout plan, page 140.
						Standard American Petroleum Company	Next to the Texas Company's plant	x	x	x	x	x	x	Water from Anvers	
						Purfina, S.A.	Next to the Texas Company's plant	x	x	x	x	x	x	Water from Anvers	
						Belgian Gulf Oil Company, S.A.	Unknown	x	x	x	x	x	x	Water from Anvers	

Sheet 3 of 4

STATISTICAL SUMMARY OF STORAGE FACILITIES, BELGIUM
(Continued)

IDENTIFICATION OF PLACES						IDENTIFICATION OF PLANTS		CAPACITY OF STORAGE TANKS							
		Locations on Index Map						Black		White		Total Plant			
Province	City	Lat.N °	Lat.N m	Long.E °	Long.E m	Owners of Plants	Location of Plants	M³	Barrels	M³	Barrels	M³	Barrels	Supplied by	Remarks
Flandre Orientale (Oost Vlaanderen) (Continued)	Kierbrugge	51	8	3	45	Belgian Cracking Company, S.A.	NE of Langerbrugge and SE of Kierbrugge, W of railway.	x	x	x	x	10,984	69,200		Refinery. Inactive. Intact.
	Wondelghem (Wondelgem)	51	5	3	43 ▲	Belgian Shell, S.A.	At Wondelghem	34,967	220,300	12,571	79,200	47,538	299,500		Inactive. Intact.
	Doornzeele	51	9	3	47 ▲	L'Alliance, S.A.	On Gand-Terneuzen Canal	x	x	x	x	47,500	299,250		Layout plan, page 142.
						Belgian Government		x	x	x	x	17,000	107,100		
	Terdonck	51	9	3	47 ▲	Belgo-Petroleum, S.A.	At Terdonck	x	x	x	x	26,700	168,210		Refinery. Inactive. Intact
	Ertvelde	51	10	3	45	Purfina, S.A.	Between Ertvelde and Riemo. Exact location unknown.	x	x	x	x	19,047	120,000		Specialty plant. Inactive. Intact.
	Selzaete	51	12	3	48	Standard American Petroleum Company	In Selzaete	x	x	x	x	x	x		Package plant.
	Hofstade	50	58	4	2 ■	Belgian Shell, S.A.	Near Hofstade	-	-	100	630	100	630	Rail	Gasoline tanks. Warehouse. Drum and tank truck filling.
Hainaut (Henegouwen)	Chercq (Tourna	50	35	3	24 ■	Belgian Shell, S. A.	--	50	315	115	725	165	1,040	Rail	Gasoline tanks. Warehouse. Drum and tank truck filling.
	Tournai (Doornik)	50	37	3	23	L'Alliance, S.A.	--	x	x	x	x	460	2,898	Water	1 tank of 350 M3. 4 tanks of 27.5 M3 each. Layout plan, page 146.
						Standard American Petroleum Company	--	x	x	x	x	x	x	Rail only	Large bulk plant.
	Mons (Bergen)	50	27	3	57	Standard American Petroleum Company	--	x	x	x	x	x	x	Rail and barge	Large bulk plant.
						The Texas Company, S.A. Belge	--	x	x	117	740	117	740	Rail or road from Anvers or Bruxelles	3 gasoline tanks of 188 barrels. 1 kerosine tank of 176 barrels. 1 warehouse. Plan, page 149.
						Belgian Shell, S.A.	On canal, from Mons to Condé	30	189	6,394	40,281	6,424	40,470	Barge from Bruxelles	Railway connections. See layout plan on page 148.
	Beaumont	50	15	4	15	Standard American Petroleum Company	--	x	x	x	x	x	x	Railway only	Salaried agent.
	Marcinelle	50	24	4	26 ▲	Belgian Shell, S.A.	Near Charleroi	45	284	140	882	185	1,166	Rail	Gasoline tanks. Warehouse. Drum and tank truck filling.
	Charleroi	50	24	4	28	L'Alliance, S.A.	Layout plan, page 150.	x	x	x	x	750	4,725		3 tanks of 200 M3 each. 2 tanks of 60 M3 each. 1 tank of 30 M3.
	Lodelinsart	50	26	4	27 ▲	Standard American Petroleum Company	At the town	x	x	x	x	x	x	Railway only	Salaried agent.
	Farciennes	50	26	4	33	The Texas Company, S.A.B.	Rue Jules Henin.	x	x	142	897	142	897	Rail and road	Layout plan, page 153.
Liége (Luik)	Ampsin	50	33	5	17 ■	Belgian Shell, S.A.	On Meuse River	-	-	50	315	50	315	Tank truck from Sclessin (Liége)	Gasoline tanks. Warehouse. Drum and tank truck filling.
	Sclessin	50	37	5	33 ▲	Belgian Shell, S.A.	Sclessin, suburb of Liége	744	4,687	2,251	14,181	2,995	18,868	Gasoline by barge from Rotterdam and Anvers.	Railway connections. See layout plan on page 152.
						Standard American Petroleum Company	--	x	x	x	x	x	x		Large plant.
						The Texas Company, S.A.B.	--	x	x	x	x	149	942		See layout plan, page 160.
	Angleur	50	36	5	35	L'Alliance, S.A.	Near Liége	x	x	x	x	1,070	6,741		Mine tanks. Layout plan, page 162.

IDENTIFICATION OF PLACES						IDENTIFICATION OF PLANTS		CAPACITY OF STORAGE TANKS							
		Locations on Index Map						Black		White		Total Plant			
		Lat. N		Long. E											
Province	City	°	m	°	m	Owners of Plants	Location of Plants	M^3	Barrels	M^3	Barrels	M^3	Barrels	Supplied by	Remarks
Liége (Luik)	Dolhain	50	37	5	56 ▲	Belgian Shell, S.A.	Near Verviers	45	284	45	284	90	568	Rail	Gasoline tanks. Warehouse. Drum and tank truck filling.
(Continued)	Eupen	50	38	6	3	Standard American Petroleum Company	23 miles SE of Liége	x	x	x	x	x	x	Railway only	Commission agent.
	Stavelot (Stablo)	50	23	5	57	Belgian Shell, S.A.	--	-	-	50	315	50	315	Rail	Gasoline tanks. Warehouse. Drum and tank truck filling.
Limbourg (Limburg)	Curange	50	56	5	17	Belgian Shell, S.A.	Near Hasselt	106	668	70	440	176	1,108	Rail	Gasoline tanks. Warehouse. Drum and tank truck filling.
						Standard American Petroleum Company	Near Hasselt	x	x	x	x	x	x	Road only.	Salaried agent.
	Kermpt	50	57	5	15	The Texas Company, S.A.B.	Layout plan, page 165.	-	-	77	490	77	490	Rail from Anvers	1 gasoline tank - 315 barrels. 1 kerosine tank - 176 barrels. 1 warehouse - 736 square feet.
Luxembourg (Luxemburg)	Marloie	50	12	5	19 ▲	Belgian Shell, S.A.	Near Ardennes	45	284	65	409	110	693	Rail	Gasoline tanks. Warehouse. Drum and tank truck filling.
						Standard American Petroleum Company	--	x	x	x	x	x	x	Rail	
						The Texas Company, S.A.B.	Layout plan, page 169.	24	158	76	473	100	631	Rail from Anvers	1 gasoline tank - 315 barrels. 1 gasoline tank - 158 barrels. 1 gas oil tank - 158 barrels. 1 warehouse - 1,130 square feet.
	Bertrix	49	51	5	15	Standard American Petroleum Company	--	x	x	x	x	x	x	Railway only.	Salaried agent.
	Longlier	49	52	5	27 ■	Belgian Shell, S.A.	--	50	315	65	410	115	725	Rail	Gasoline tanks. Warehouse. Drum and tank truck filling.
	Arlon (Aarlen)	49	42	5	49	Standard American Petroleum Company	--	x	x	x	x	x	x	Railway only	Salaried agent.
	Vielsalm	50	17	5	57	Standard American Petroleum Company	--	x	x	x	x	x	x	Rail	Salaried agent.
Namur (Namen)	St. Servais	50	25	4	52 ▲	Standard American Petroleum Company	--	x	x	x	x	x	x	Railway only	Salaried agent.
	Namur (Namen)	50	28	4	53	Belgian Shell, S.A.	Jambes-les-Namur	45	283	85	536	130	819	Rail	Gasoline tanks. Warehouse. sine. Warehouse. Drum and tank truck filling.
						The Texas Company, S.A.B.	See layout sketch, page 172.	36	228	108	684	144	912	Rail or road from Anvers or Bruxelles	2 gasoline tanks - 228 bbls. each. 1 gas oil tank - 228 bbls. each. 1 benzol tank - 228 bbls. each. 1 warehouse - 630 square feet. 1 warehouse - 1,036 square feet.
	Bouvignes	50	16	4	54	Belgian Shell, S.A.		-	-	50	315	50	315	Rail	Gasoline tanks. Warehouse. Drum and tank truck filling.

STATISTICAL SUMMARY OF STORAGE FACILITIES, GRAND DUCHY OF LUXEMBOURG

Grand Duchy of Luxembourg	Luxembourg (Luxemburg)	49	37	6	3	Société Belgo-Luxembourgeoise des Carburants, S.A.	At Bertrange	240	1,512	1,115	7,024	1,355	8,536	Rail from Anvers, Gand, Rotterdam	Layout plan, page 176.
						Standard Luxemburgische Mineralöl-Gesellschaft (Standard Oil Co., N.J.)	At Hollerich, near Luxembourg	x	x	x	x	x	x	Rail from Anvers	
						The Texas Company, S.A.B.	Near Hollerich	-	-	150	946	150	946	Rail from Anvers	1 warehouse - 1,950 squre feet. Layout plan, page 178.
	Diekirch	49	52	6	11	Société Belgo-Luxembourgeoise des Carburants, S.A.		x	x	x	x	210	1,323	Road from Bertrange	6 underground tanks. Gasoline and black oils.

STATISTICAL SUMMARY OF DATA ON OCEAN AND RIVER TERMINALS
BELGIUM

x = Data Unknown — = Not applicable

IDENTIFICATION OF PLACE AND PLANT	Identification of Place	Place		Gand (Gent)	Doornzeele	Doornzeele	Bruges (Flandre Occidentale)
		Location: Lat.		51° 3' N	51° 9' N	51° 9' N	51° 14' N
		Long.		3° 45' E	3° 47' E	3° 47' E	3° 12' E
	Identification of Plant	Name		Belgian Shell, S. A.	L'Alliance S. A.	Belgian Government	Belgain Shell, S.A.
		Location		Gand-Terneuzen Canal	West bank of Gand-Terneuzen Canal(c), about 6 miles N of Gand	x	6 miles from Bruges on Zeebruges(Zeebrugge)Canal(d)
		Owner		Royal Dutch Shell group	Anglo-Iranian Oil Co., Ltd.	Belgian Government	Royal Dutch Shell group
		Nature		Refinery	Water-fed terminal	Water-fed terminal	Water-fed bulk plant
STORAGE DATA	SITUATION OF TANKS	Underground		None	x	x	x
		Aboveground		All	x	x	x
	TYPES OF TANKS			Normal, vertical cylindrical steel	x	x	Normal, vertical cylindrical steel
	CAPACITY OF STORAGE TANKS	Black	Number	25	x	x	2
			M³	34,968	x	x	7,522
			Barrels	220,300	x	x	47,400 (gas oil)
		White	Number	4	x	x	1
			M³	12,571	x	x	984
			Barrels	79,200	x	x	6,200 (gasoline)
		Total Plant	Number	29	30	x	3
			M³	47,539	47,500	17,000	8,507
			Barrels	299,500	299,250	107,100	53,600
		Total Place	Number	x	x	x	x
			M³	x	x	x	x
			Barrels	x	x	x	x
	STORAGE FOR CASED GOODS			x	x	x	Ample
	FIRE PROTECTION			x	x	x	x
	CAMOUFLAGE			x	x	x	x
	DAMAGE			None reported	x	x	None reported
SUPPLY & DISTRIBUTION	DESCRIPTION OF PUMPING EQUIPMENT			x	x	x	x
	LOADING RACKS			Yes	x	x	x
	CASE & CAN PLANT			No	x	x	x
	SUPPLY			By water	By water	By water	By water
	DISTRIBUTION			By water, rail, road	By water, rail, road	By water, rail, road	By water, rail, road
BERTH	Common Name of Berth			Quai de Mondelghem (Mondelgem) (a)	x	x	Bassin Emile Cousin, East Berth No. 12
	Used by			Royal Dutch Shell group	x	x	Belgian Shell Co. S.A.R.
	Length of Berth			164 feet	xx	x	492 feet
	Width of Berth			x	x	x	x
	Fresh water supply at dock?			Yes	x	x	Yes
	Ships Accommodated:						
	Maximum length of vessel in feet			492	492	x	447
	Maximum beam of vessel in feet			57' 4"	57	x	61
	Maximum draft of vessel in feet			25' 6" (b)	36	x	22
	DWT accommodated			x	x	x	x

DISCHARGE DATA		Crude Oil	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel
Products:																					
PIPE LINES	Number of pipe lines	1	1	1	1-1	1														1	1
	Length of pipe lines: meters																				
	feet																				
	Diameter of pipe lines: inches	8	8	6	6-6	6	DATA UNKNOWN					DATA UNKNOWN								8	8
	Pressure allowed in pounds	45	45	75	-	45														45	45
	Discharge rate, long tons per hour																			125	150
	Side or stern discharge	Side					x					x					Side				
	Steam	x					x					x					Ships'				

PORT PARTICULARS	
Tugs required docking	Yes - 7 tugs of 350-500 H.P. / x / x / 2 tugs of 300-350 H.P.
Tugs required undocking	Normally available / x / x / Normally available
Bottom	x / x / x / Mud

REMARKS

(a) Vessels dock close alongside the quay. From sea ships transit the Terneuzen Canal by way of two locks. Terneuzen lock 885 feet long, 59 feet wide.
(b) No rise and fall of tide at berth.
(c) 7 - 9 miles from Gand on Gand-Terneuzen railway.
(d) The Canal Bruges-Zeebruges is about 6 miles long, 72 feet wide at bottom and 230 feet wide at water level. Along the entire length the canal is dredged to a depth of 36 feet.

A P P E N D I X 1

CONVERSION FACTORS USED IN THIS REPORT

The conversion factors used in this report are as follows:

Basis.- One metric ton of 1,000 kilograms is divided by the volume of one barrel (159 liters) multiplied by the density of the oil at 60° F. (15.5° C.). This reduces to the factor of 6.3 divided by the density of the oil.

Product	Bbls/Metric Ton
Propane	12.4
Butane	11.0
Natural Gasoline	9.16
Aviation Gasoline	8.5
Motor Gasoline	8.5
Light Aromatics (Benzol, Toluol, and Zylenes)	7.2
Ethyl Alcohol	8.0
Methyl Alcohol	8.0
Kerosine	7.9
Diesel Oil)	
Gas Oil)	7.2
Lubricants	7.0
Residual Fuel Oil	6.5
Paraffin Wax	7.5
Asphalts	6.0
Synthetics (average)	8.0
All Products, (average)	7.5

Crude Oils

Albania	6.6
Austria	6.8
Czechoslovakia	6.8
Estonia (Shale Oil)	7.0
France	7.0
Germany	7.0
Hungary	7.7
Italy	7.7
Poland	7.4
Rumania	7.5
Russia	7.28
Crude Oils (Locality unspecified)	7.0
Shale Oils (Locality unspecified)	7.0
Yugoslavia	7.5

Conversion factors are of necessity subject to variations from time to time and from place to place. If meticulous accuracy is necessary, conversion factors must be derived from actual specifications.

APPENDIX 2 - PETROLEUM PRODUCTS SALES, 1939

(Includes resales, hence does not represent sales to domestic consumption exclusively)

BELGIUM

Figures in Barrels (42 U.S. Gallons)

Figures in Tons (2,000 lbs.)

	Gasoline (Aviation & Motor)	Kerosine (Power & Illuminating)	Motor Oils, 1st Grade	Motor Oils Other	Industrial Oils(e)	Gas & Diesel Oil	Fuel Oil	Crude Oil	Other Products	Total Barrels	Grease	Asphalt	Wax	Total Tons
Standard Oil Co. of N.J. Affiliates(a)	826,652	92,973	-	-	108,728	465,601	53,295	101,601	-	1,648,850	-	1,945	1,801	3,746
Socony-Vacuum Oil Co.	-	-	-	-	28,319	-	-	-	-	28,319	-	-	-	-
The Texas Co., S. A. B.	375,671	24,096	7,429	3,603	46,309	82,201	-	-	-	539,309	800.6	1,543	3.4	2,347.2
H. F. Cruickshank Corp.	-	-	203	-	2,053	-	-	-	-	2,256	26	-	-	26
Atlantic Refining Company	143,162(b)	919(c)	-	576(d)	71,023	3,177(f)	-	-	-	218,857	-	-	1,373.7	1,373.7
Sun Oil Co.	-	-	1	-	81,150	-	-	-	-	81,151	-	-	-	-
L. Sonneborn Sons, Inc.	-	-	1,716	-	-		-	95	-	1,811	-	-	-	-
Tidewater Assoc. Oil Co.	-	-	731.3	6.7	19.5	-	-	-	-	757.5	11.4	-	-	11.4
Royal Dutch Shell(k)	970,800	900	7,700	2,300	30,100	213,200	395,400(g)	-	-	1,620,400	600	26,000	1,232	27,832
Cities Service Oil Co.	-	-	-	-	-	-	-	-	68,836	68,836	-	-	28	28
Gulf Oil Corp. & Subsidiary	27,024	-	-	-	287,412(i)	122,138	39,870	534	-	476,978(j)	3,359(j)	-	-	3,359
Anglo-Iranian Oil Co., Ltd.	665,700	32,700	-	-	-	407,000(l)	43,500(g)	-	-	1,148,900	5,639	-	-	5,639
Others(h)	-	-	-	-	65	-	-	-	25	90		-	-	-
Total	3,009,009	151,588	17,780	6,486	655,179	1,293,317	532,065	102,230	68,861	5,836,515	10,436	29,488	4,438	44,362

(a) Standard American Petroleum Co., Bedford Petroleum Co., S. A. B.
(b) Naphthas.
(c) Refined oils.
(d) Motor oils and greases.
(e) All lubricating oils and greases.
(f) Fuel and gas oil.
(g) Includes bunkers.
(h) Includes W. B. Dick and Co. and Swan Finch Corporation.
(i) Includes white oils.
(j) Includes waxes.
(k) Includes Belgium and Luxembourg.
(l) Bunkers. Of the 203,900 barrels of diesel oil, internal consumption of 65,300 barrels includes some fuel oil.

LUXEMBOURG

Figures in Barrels (42 U.S. Gallons)

Figures in Tons (2,000 lbs.)

	Gasoline(a) (Aviation & Motor)	Kerosine(c) (Power & Illuminating)	Industrial Oils	Gas & Diesel Oil	Fuel Oil	Other Products	Total Barrels	Grease	Asphalt	Wax	Total Tons
Atlantic Refining Company	2,215	332	-	877(e)	-	-	3,424	-	-	10.8	10.8
Royal Dutch Shell(b)	-	-	-	-	-	-	-	-	-	-	-
Gulf Oil Corp. & Subsidiary	7,489	-	4,648(d)	6,861(f)	11,075	20	30,093	76(g)	-	-	76
Total	9,704	332	4,648	7,738	11,075	20	33,517	76	-	11	87

(a) Naphthas.
(b) Included with Belgium.
(c) Refined oils.
(d) Includes white oils.
(e) Fuel and gas oil.
(f) Gas oil.
(g) Includes waxes.

A P P E N D I X 3

SOURCES OF PORT AND HARBOR MAPS FOR BELGIUM

Maps of ports and harbors having importance for petroleum handling in Belgium are not reproduced in this report, inasmuch as qualified persons have ready access to detailed charts published by the Hydrographic Office, Bureau of Operations, Navy Department, at Washington and charts of the British Admiralty. For convenience, references are given here to maps of various ports. In the following list, BA designates the British Admiralty and HO designates the Hydrographic Office.

Port	Chart Number	Title
Anvers (Antwerpen)	HO 4995	West Schelde, Flushing (Vlissingen) to Antwerp.
Zeebrugges (Zeebrugge)	HO 4994	West Schelde, Ostend to Westkapelle. Plan of Flushing Road (Vlissingen Reede) and Harbor.
Nieuport (Nieuwpoort)	BA 1872	Calais to the River Schelde entrance.
Ostende (Oostende)	BA 125	Ostend roads and approaches. Plan: Port of Ostend.
Blankenberghe (Blankenberge)	HO 4994	West Schelde, Ostend to Westkapelle. Plan of Flushing Road (Vlissingen Reede) and harbor.
Gand (Gent)	HO 4848	Dover and Calais to Orfordness and Scheveningen.
Bruxelles (Brussel)	HO 4848	Dover and Calais to Orfordness and Scheveningen.

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