



121

Biblioteka Politechniki Krakowskiej



100000299882

REPORTS

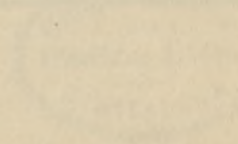
STATISTICAL REPRESENTATIONS

NAVIGABLE INLAND WATERWAYS

OF THE UNITED STATES OF AMERICA, TERRITORIES, DISTRICTS,
AND DISTRICTS OF COLUMBIA

Prepared by the Bureau of Navigation, Department of Commerce

1914



Published by the Bureau of Navigation, Department of Commerce, Washington, D. C., 1914.

X
2.364

COMMERCIAL. No. 4 (1905).



FURTHER REPORTS

II-352450

FROM

HIS MAJESTY'S REPRESENTATIVES

ON

NAVIGABLE INLAND WATERWAYS

IN

AUSTRIA-HUNGARY, BELGIUM, FRANCE, GERMANY,
AND THE NETHERLANDS.

[In continuation of "Commercial No. 7 (1903)."]

*Presented to both Houses of Parliament by Command of His Majesty.
December 1905.*



No. 25826

LONDON:
PRINTED FOR HIS MAJESTY'S STATIONERY OFFICE,
BY HARRISON AND SONS, ST. MARTIN'S LANE,
PRINTERS IN ORDINARY TO HIS MAJESTY.

And to be purchased either directly or through any Bookseller, from
WYMAN AND SONS, LTD., FETTER LANE, E.C.; and
32, ABINGDON STREET, WESTMINSTER, S.W.; or
OLIVER AND BOYD, EDINBURGH; or
E. PONSONBY, 116, GRAFTON STREET, DUBLIN.

[Cd. 2760.] Price 1d.

F. 2.
50.

BNW-0-248/2010

CONTENTS

	Page
Despatch addressed to His Majesty's Representatives in Austria- Hungary, Belgium, France, Germany, and the Netherlands ...	1

Replies to preceding Despatch.

AUSTRIA-HUNGARY—

1. Sir E. Goschen to the Marquess of Lansdowne ...	2
One Inclosure.	

BELGIUM—

2. Sir C. Phipps to the Marquess of Lansdowne ...	3
---	---

FRANCE—

3. Sir F. Bertie to the Marquess of Lansdowne ...	4
One Inclosure.	

GERMANY—

4. Sir F. Lascelles to the Marquess of Lansdowne ...	8
One Inclosure.	

NETHERLANDS—

5. Mr. Mounsey to the Marquess of Lansdowne ...	12
One Inclosure.	

Further Reports from His Majesty's Representatives on Navigable Inland Waterways in Austria-Hungary, Belgium, France, Germany, and the Netherlands.

The Marquess of Lansdowne to Sir E. Goschen, Sir C. Phipps, Sir F. Bertie, Sir F. Lascelles, and Mr. Mounsey.

Sir, Foreign Office, April 22, 1905.

I REQUEST that your Excellency will furnish me with a Report on the navigable inland waterways of the country to the Government of which you are accredited, in continuation of the Report furnished in reply to my Circular despatch of the 25th February, 1901.

I am, &c.
(Signed) LANSDOWNE.

Replies to preceding Despatch.

AUSTRIA-HUNGARY.

No. 1.

*Sir E. Goschen to the Marquess of Lansdowne.—(Received
November 8.)*

My Lord,

Vienna, November 4, 1905.

IN accordance with the instructions contained in your Lordship's Circular of the 22nd April last, I have the honour to transmit herewith a Memorandum by Mr. Bennett bringing up to date the Report on the Navigable Inland Waterways of Austria-Hungary, furnished in reply to your Lordship's Circular despatch of the 25th February, 1901. This Memorandum would have been sent in earlier had it not been thought probable that a decision would have been taken before the end of this year as to the respective advantages of lifts and locks.

I have, &c.
(Signed) W. E. GOSCHEN.

Inclosure in No. 1.

Memorandum.

OWING partly to technical and partly to financial reasons, the river regulation and canal construction prescribed by the Law of the 11th June, 1901,* have not yet been actually commenced. Details of the great scheme, however, are being carefully worked out by a specially-appointed Department of the Austrian Ministry of Commerce, and it is confidently expected that the actual work will be begun in the course of the year 1906.

The principal technical difficulty appears to be connected with the system of "lifts," which it is proposed should be employed on the canals in lieu of "locks." An international competition for various types of "lifts" was held at Vienna in 1903, but the finding of the expert jury appointed by the

* See "Commercial No. 7 (1903)," p. 15.

Government to report on the rival schemes was not made known until the end of last year. A trial "lift" is now to be constructed at Anjezd, near Preran, in connection with the Danube-Oder Canal, and will be tested prior to the actual commencement of the canal construction. Upon the result of this trial will depend the Government's final decision in favour of "lifts" or "locks" for the entire canal system.

Particulars respecting this contemplated system of canals may be seen at the Commercial Intelligence Branch of the Board of Trade, where an official map of the existing and projected waterways of Austria may also be consulted.

A. PERCY BENNETT.

Vienna, November 4, 1905.

BELGIUM.

No. 2.

Sir C. Phipps to the Marquess of Lansdowne.—(Received June 16.)

My Lord,

Brussels, June 15, 1905.

WITH reference to your Lordship's despatch of the 22nd April, I have the honour to state that, according to a Memorandum kindly supplied to me by the Belgian Government, the most recent statistics on the subject of Belgian waterways are as follows:—

THE total Expenditure on the Waterway System of the State from 1900 to 1902 was—

	1900.	1901.	1902.
	Fr.	Fr.	Fr.
Ordinary (maintenance, improvements, exceptional expenses) ...	5,163,202 *(206,528l.)	4,057,247 (162,290l.)	4,201,502 (168,060l.)
Extraordinary	14,012,183 (560,487l.)	14,474,391 (578,975l.)	16,520,945 (660,837l.)

During the period 1900-1903 the kilometric tonnage of the traffic on the waterways amounted to—

1901	...	...	...	852,137,505
1902	...	...	...	918,292,454
1903	...	...	...	1,035,422,443

* Approximately, at 25 francs to 1l.

I am informed that there is nothing further to add to the Memorandum inclosed in my despatch of the 10th June, 1903.*

I have, &c.

(Signed) CONSTANTINE PHIPPS.

FRANCE.

No. 3.

Sir F. Bertie to the Marquess of Lansdowne.—(Received July 25.)

My Lord,

Paris, July 24, 1905.

IN compliance with the instructions contained in your Lordship's despatch of the 22nd April last, I transmit herewith a Supplementary Report by Sir Henry Austin Lee in continuation of the Report by Mr. O'Beirne on French navigable inland waterways, which was transmitted in Sir Edmund Monson's despatch of the 14th September, 1902.

I have, &c.

(Signed) FRANCIS BERTIE.

Inclosure in No. 3.

Memorandum respecting French Navigable Inland Waterways.

THERE is but little to add to Mr. O'Beirne's Report on recent improvements in French navigable inland waterways and their results, which was issued in 1903.

The French Government were authorized by a Law of the 23rd December, 1903, to carry out a certain number of improvements and new works at an estimated expenditure of 8,240,000*l.*, of which a sum of 1,160,000*l.* is to be appropriated to completing works of improvement already begun on waterways, and of 7,076,000*l.* is to be devoted to new works.

The original proposals mentioned by Mr. O'Beirne in his Report, p. 28, which were voted by the Chamber of Deputies, provided for a total expenditure of over 21,000,000*l.*, but the Senate refused to sanction this heavy outlay, and considerably modified and reduced the Chamber's proposals.

As now voted, the first category of works provided for by the Law comprises an expenditure of—

	£
For deepening and improving the Canal de la Deule...	98,800
" " " Canal de Lens ...	48,000
" " " Canal d'Aire ...	180,000
For lengthening and improving the Canal d'Orleans	280,000
For deepening and improving the Canals de la Garonne	120,000
" " " Canal du Midi ...	440,000
Total... 	1,166,800

* See "Commercial No. 7 (1903)," p. 21.

The expenditure on new works comprised in the second category is made up as follows:—

	£
For the construction of the Canal du Nord ...	2,400,000
For lengthening the Canal de l'Oureq ...	1,440,000
For improvements on the Canal from Combleux to Orleans ...	160,000
For deepening a portion of the Loire ...	66,400
For the construction of the canal from Cette to the Rhone ...	169,600
For the construction of the canal from Marseilles to the Rhone ...	2,840,000
Total ...	7,076,000

Of the various works above referred to, special laws relating respectively to the Canal du Nord, the canal from Marseilles to the Rhone, and the canal from Cette to the Rhone were voted by Parliament in December 1903, and declared of public utility. In the case of the Canal du Nord, the Chamber of Commerce of Douai will contribute half, viz., 1,200,000*l.* of the estimated expenditure, for which it is authorized to raise loans at a rate of interest not to exceed 4 per cent. The Chamber is further authorized to levy tolls during fifty years from the date of the completion of the canal to meet its financial charges.

With regard to the canal from Marseilles to the Rhone, the Chamber of Commerce of Marseilles, the Department of the Bouches du Rhone, and the city of Marseilles will provide a subsidy of 1,420,000*l.*, or half of the estimated expenditure, to be reimbursed by receipts from tolls.

As regards the canal from Cette to the Rhone, similar arrangements have been made between the Government and the Chamber of Commerce of Cette. The latter agrees to contribute, with the aid of the Department of Herault, the town of Cette, and the Municipal Councils of Beaucaire and Aigues-Mortes, a subsidy equal to one-half (84,800*l.*), while the remaining half of the expenditure will be borne, as in the case of the other canals, by the State, and will appear in the annual credits fixed in the Budget for the Ministry of Public Works.

The following Tables with regard to kilometric tonnage, kilometric tonnage of the principal French Railways, average rate per ton per kilom., and the weight of exports from the principal French ports contained in Mr. O'Beirne's Report have been brought up to date and the latest figures inserted:—

KILOMETRIC Tonnage.*

			Rail.	Water.
1883...	...	...	11,000 millions	2,000 millions.
1900...	...	...	16,557 "	4,675 "
1901...	...	...	16,015 "	4,380 "
1902...	...	...	16,200 "	4,465 "
1903...	...	...	(Not yet issued)	4,955 "

* See "Commercial No. 7 (1903)," p. 31.

KILOMETRIC Tonnage (Ordinary Goods Train).*

	1886.	1899.	1900.	1901.	1902.
Nord ...	1,692,282,018	3,162,215,735	3,458,327,444	3,247,122,735	3,191,707,922
Est ...	1,298,380,244	2,024,086,474	2,168,501,357	2,057,987,745	2,132,136,886
Ouest ...	955,209,413	1,286,971,661	1,315,713,675	1,289,051,619	1,379,082,314
P.L.M. ...	3,701,684,950	5,198,924,700	5,437,612,309	5,289,519,636	5,387,448,435

AVERAGE Rate per Ton per Kilometre (Ordinary Goods Train).†

	1880.	1899.	1900.	1901.	1902.
Nord ...	Centimes. † 5·47	Centimes. 4·18	Centimes. 4·04	Centimes. 4·04	Centimes. 4·04
Est ...	5·61	4·74	4·62	4·64	4·63
Ouest ...	6·14	5·57	5·24	5·04	5·12
P.L.M. ...	6·25	5·21	4·60	4·60	4·55

* See "Commercial No. 7 (1903)," p. 34.

† See "Commercial No. 7 (1903)," p. 35.

‡ 10 centimes=1 penny.

EXPORTS (in tons).*

	1880.	1899.	1900.	1901.	1902.
Marseilles ...	815,840	1,145,906	1,076,015	1,135,455	1,184,040
Bordeaux ...	490,884	806,196	714,331	646,573	700,043
Dunkirk ...	102,649	463,471	514,867	438,993	401,805
Havre ...	211,442	274,019	281,884	289,789	253,895

Paris, July 24, 1905.

GERMANY.

No. 4.

Sir F. Lascelles to the Marquess of Lansdowne.—(Received April 29.)

My Lord,

Berlin, April 27, 1905.

IN reply to your Lordship's Circular of the 22nd instant requesting me to bring up to date the Report on the Navigable Inland Waterways of Germany sent in from this Embassy in 1901, I have the honour to state that, since the issue of that Report, there have been no changes made. It will, in order to complete it, only be necessary to add the inclosed Memorandum by Mr. Gastrell, summarizing the new Prussian Bill sanctioning the construction of extensive new waterways and the improvement of some of the existing ones.

I have, &c.

(Signed) FRANK C. LASCELLES.

Inclosure in No. 4.

Memorandum on the new Prussian Canal System.

THE Law, dated the 1st April, concerning the building of new canals in Prussia, and the improvement of its existing waterways, has now been published. A copy† of it is inclosed herewith. The documents (in book form), recently laid before the Prussian Landtag, are also forwarded. Valuable maps of the proposed changes will be found therein.†

The chief points of the scheme, as now sanctioned, are summarized below. The total cost is 16,728,750*l.*, of which

* See "Commercial No. 7 (1903)," p. 36.

† Sent to the Library of the House of Commons.

12,537,500*l.* fall to the cost of building the canal from the Rhine to the Weser, including the canalization of the Lippe and various accessory works. A sum of 2,150,000*l.* is granted for the making of a canal for large vessels from Berlin to Stettin; 1,058,750*l.* goes to improving the waterway between the Oder and Vistula, and to better a portion of the Warthe, and 982,500*l.* is allowed for the canalization of part of the Oder.

* § 1. Plans are to be drawn up for the following works, for which specified sums are granted:—

1. The construction of a ship canal from the Rhine to the Weser, including the canalization of the Lippe and other works, namely:—	
(a.) A ship canal from the Rhine, in the neighbourhood of Ruhrort, or from a point further north, to the Dortmund-Ems Canal, in the neighbourhood of Herne (Rhine-Herne Canal), including a Lippe branch canal from Datteln to Hamm...	£ 3,725,000
(b.) Various accessory works on the Dortmund-Ems Canal, in the section from Dortmund to Bevergern	307,500
(c.)—1. A ship canal from the Dortmund-Ems Canal, in the neighbourhood of Bevergern, to the Weser, in the neighbourhood of Bückeberg, with branch canals to Osnabrück and Minden, including the construction of water basins by means of dams in the upper districts supplying the Weser with water, and certain works for regulating the Weser below Hameln	4,050,000
(c.)—2. A connecting canal from the neighbourhood of Bückeberg to Hanover, with a branch canal to Linden... ..	1,975,000
(d.) The canalization of the Lippe, or the building of Lippe branch canals, from Wesel to the Dortmund-Ems Canal at Datteln and from Hamm to Lippstadt	2,230,000
(e.) Improving the cultivation of the soil, in connection with the projects ((a) to (d) above) and with the existing Dortmund-Ems Canal with the co-operation of the persons chiefly interested	250,000
	<hr/>
Total for the canal from the Rhine to the Weser, including the canalization of the Lippe and various accessory works	12,537,500
2. For the construction of a canal for large vessels from Berlin to Stettin (Berlin-Hohensaathen waterway)	2,150,000
3. For the improvement of the waterway between the Oder and Vistula and of the Warthe, from the mouth of the Netze to Posen... ..	1,058,750
4. For the canalization of the Oder, from the mouth of the Glatz-Neisse to Breslau, also for experimental works on the section from Breslau to Fürstenberg (on Oder), and for making one or more water basins by dams	982,500
	<hr/>
Grand total	16,728,750

* The references are to the sections of the Law of April 1.

§ 2 (A).—The carrying out of the project described in § 1, under 1 (a) to (c), the building of the canal from the Rhine to the Weser (connecting to Hanover), is only to be proceeded with if, before the 1st July, 1906, the various provinces concerned, or other public bodies, legally undertake the following obligations:—

1. As regards the Rhine–Herne Canal, including the branch Lippe Canal from Datteln to Hamm (§ 1, 1 (a)), to pay to the State any deficit, resulting from the receipts not covering the costs of maintenance, up to a sum of 26,750*l.* per annum, and to pay out of their own funds 3 per cent. interest annually on a share of the cost of construction amounting to 1,241,500*l.*, and, from the sixteenth year of working onwards, certain sums for amortisation in so far as the current receipts do not permit a payment of 3½ per cent. on the capital invested.

2. As regards the canal from Bevergern to the Weser, connecting to Hanover, &c. (§ 1, 1 (c)), to pay to the State (in certain events as above, under 1) any deficit up to 42,275*l.* a-year, and to pay, for the first five years after the traffic begins, 1 per cent.; for the following five years, 2 per cent.; and afterwards 3 per cent. on a sum of 1,867,500*l.*, and to pay from the sixteenth year certain sums for amortisation.

The connection between the Weser and the canal from the Rhine to the Weser, at Minden, is only to be built if the State of Bremen has undertaken to construct at Hemelingen on the Weser, a weir with canal, and to pay one-third of the sum of 330,000*l.* to be spent on works in the upper regions of that river and below Hameln.

(B.)—The acquisition of lands for the canalization of the Lippe, &c. (§ 1, 1 (d)), is to be proceeded with as soon as possible, and at latest within one year of the opening of the Rhine–Herne Canal, on the provinces concerned guaranteeing (in certain events, as above) to make good any deficit in covering the working expenses up to 21,500*l.* each year, and to pay 3 per cent. on a sum of 743,500*l.*, and, after the sixteenth year, certain sums for amortisation.

Any excess of receipts over expenditure in any of the above undertakings, after paying 3½ per cent. on capital, is to be devoted to repaying capital and interest, &c. (§ 1, under 1 (a), (c), and (d)).

§ 3.—The Berlin–Stettin Canal (§ 1, under 2) is only to be proceeded with if the public bodies of the districts concerned guarantee to make good any deficit up to 32,750*l.* a-year on the working expenses, and to pay 3 per cent. on 725,000*l.* and certain sums for amortisation.

§ 4.—The works mentioned in § 1, under 3—on the waterway between the Oder and Vistula, and on the Warthe—are only to be begun if, before the 1st July, 1906, the Province of Posen, or other public bodies, have guaranteed any deficit up to 27,800*l.* a-year and 1 per cent. interest for the first five years

after their completion, 2 per cent. for the following five years, and 3 per cent. afterwards on a sum of 315,000*l.*, and after the sixteenth year certain sums for amortisation.

§ 5.—The carrying out of the undertakings, described under § 1, under 4, is only to be proceeded with if, before the 1st July, 1906, the Province of Silesia, or other public bodies, guarantee to make good any deficit up to 10,750*l.* yearly, and to pay 1 per cent. interest during the first five years, 2 per cent. for the next five years, and then 3 per cent. on a sum of 255,000*l.*, and after the sixteenth year certain sums for amortisation.

§ 10.—The Prussian Minister of Finance is empowered to raise by loan the sums required for the undertakings listed in § 1 (less the amount contributed by Bremen in § 2, (A) 2, § 4).

§ 11.—It is here laid down that the improvement of the conditions of agriculture in the districts concerned is to be kept in view and furthered as far as possible. The officials, having jurisdiction over agricultural affairs, are to co-operate in carrying out these projects.

§ 12.—Damages are to be paid if neighbouring properties cannot be duly protected from injury caused by the carrying out of the plans.

§ 16.—This gives powers of expropriation up to the 1st July, 1909. Lands lying beyond a distance of 1 kilom. on either side of the canal cannot be expropriated.

§ 17.—A Committee, to assist in the carrying out of these projects, will be formed of Government Commissioners and of representatives of the various interested parties.

§ 18.—On the canal from the Rhine to the Weser, on the branch to Hanover, on the Lippe Canal, and on the branch canals of these waterways a uniform towing system is to be worked by the State. "Mechanical towing" on them is not permitted to private persons. Special permission will be required to use them for ships having their own motive power. A special Law will deal with this question.

§ 19.—In the interests of shipping, fees will be levied on the "regulated" rivers. They are to be so fixed that their proceeds shall afford a fair rate of interest on the capital expended by the State in improving them for shipping purposes, and also funds for gradual amortisation. Their collection is to commence, at latest, when the Rhine-Weser Canal, or a portion thereof, is opened to traffic.

I have, &c.

(Signed)

WILLIAM S. H. GASTRELL.

Berlin, April 11, 1905.

NETHERLANDS.

No. 5.

Mr. Mounsey to the Marquess of Lansdowne.—(Received May 31.)

My Lord,

The Hague, May 30, 1905.

WITH reference to your Lordship's despatch of the 22nd ultimo, I have the honour to transmit herewith a Report by Mr. W. C. Robinson, His Majesty's Consul at Amsterdam, in continuation of his Reports of 1901 and 1903, on the navigable inland waterways of the Netherlands.

I have, &c.

(Signed) GEORGE A. MOUNSEY.

Inclosure in No. 5.

Consul Robinson to Mr. Mounsey.

Sir,

Amsterdam, May 27, 1905.

IN compliance with the request of the Marquess of Lansdowne, forwarded to me by you, to be furnished with a further Report respecting the inland waterways of the Netherlands, I have the honour to supply the following information, which is chiefly derived from two documents* issued in the latter part of the year 1904; the first (Scheiding van Maas en Waal) is a description of the very important work undertaken in accordance with the Bill passed in the year 1883 for the authorization of the measures necessary to separate the Rivers Maas and Waal, and the second is a report furnished to the International Engineering Congress held at St. Louis, Missouri, United States of America, from the 3rd to the 8th October, 1904, on the improvements carried out in three of the most important waterways, namely, the North Sea Canal, from Amsterdam to Ymuiden on the North Sea, the canal from Ter Neuzen to Ghent, and on the Merwede Canal from Amsterdam to the River Lek at Vianen.

With respect to the first-named work, the separation of the Rivers Maas and Waal from each other, this operation was found desirable in consequence of the repeated disastrous inundations of the years 1876 and 1880 caused by the junction of the two rivers at a point at which the River Maas was of insufficient capacity to carry off the additional water poured into it by the Waal. A remedy was suggested by the closing of that part of the Maas between Heusden and Woudrichem, and by the opening of a new channel from Heusden and Keizersveer, on the Oude Maas, discharging via the canalized Amer into the Hollandsch Diep.

* Sent to the Library of the House of Commons,

This work has now been completed at a total cost which has been stated to me at about 21,000,000 florins (1,750,000*l.*). The new channel was opened on the 18th August, 1904. The result will, it is hoped, be that such disasters as those above mentioned, involving immense outlays and great distress, may be avoided in future rainy periods, such as the years from 1876 to 1880. Since the year 1883 the country has not experienced any recurrence of such periods, and this expensive and very complicated work has, in consequence, been criticized in some quarters as more or less unnecessary, but no one whose personal recollections include the terrible experiences of previous years will be inclined to begrudge these safeguards.

The second document which I have quoted includes a detailed description of the late improvements in two great waterways and of the construction of the third. The North Sea Canal has been brought up to date as to its capacities for admitting to the Port of Amsterdam vessels of the largest modern construction, and every effort has been made to remove as far as possible all impediments to the traffic throughout its course. Besides steadily increasing the depth of the canal, and the dimensions of the great sea-locks at Ymuiden, such improvements in the bridges which necessarily cross it at various points as can possibly be carried out have been undertaken, and are now rapidly approaching completion.

At the same time, the harbour of Amsterdam has been greatly improved and enlarged, both as regards water and quay space, and considerably increased accommodation has been given to the shipping trade. No effort has been spared to place the port on a complete equality as regards its arrangement with the most important and best planned of its neighbouring competitors. It possesses the great advantage of a situation on a very large water area which is completely unaffected by the tides, being closed at both the western extremity at Ymuiden, on the North Sea, and at the eastern extremity at Schellingwoude, on the Zuiderzee, by great sea-locks, so that dock gates and sluices in the interior of the harbour are rendered nearly unnecessary, except for the purpose of regulating the inland water supply.

The process of enlarging the accommodation of the Ter Neuzen-Ghent Canal so as to enable it to carry vessels of 28 feet draught and corresponding tonnage, is being vigorously carried out at a cost estimated at about 943,750*l.*, the whole of which will be borne by Belgium. The improvement will enable sea-going vessels of the largest class to reach the Port of Ghent, and will also considerably benefit the inland water traffic from the Rhine and other quarters.

The Merwede Canal, completed in 1893, was chiefly designed for the water traffic between Amsterdam, the Rhine, and Germany. It runs from Amsterdam to the River Lek at Vianen, and from thence to Gorinchem, where it joins the River Waal. The River Lek has improved so considerably of

late years that the traffic for the Rhine generally now takes this course. The greatly increasing traffic has rendered the construction of a new lock at Utrecht of considerably larger dimensions necessary, at a cost of about 62,500*l*.

An interesting and useful description of the development of Dutch harbours will be found in a paper* drawn up by Mr. H. Wortman, Government Engineer of the Royal Corps of the Water Department at this city; it was submitted to the International Engineering Congress of 1904 at St. Louis, United States of America, and published by the American Society of Civil Engineers.

I have, &c.

(Signed)

W. C. ROBINSON.

Biblioteka Politechniki Krakowskiej



II-352450

WYDZIAŁY POLITECHNICZNE KRAKÓW

BIBLIOTEKA GŁÓWNA

II

8206

L. inw.

Druk. U. J. Zam. 356. 10.000.

Biblioteka Politechniki Krakowskiej



100000313213

Biblioteka Politechniki Krakowskiej



100000299882