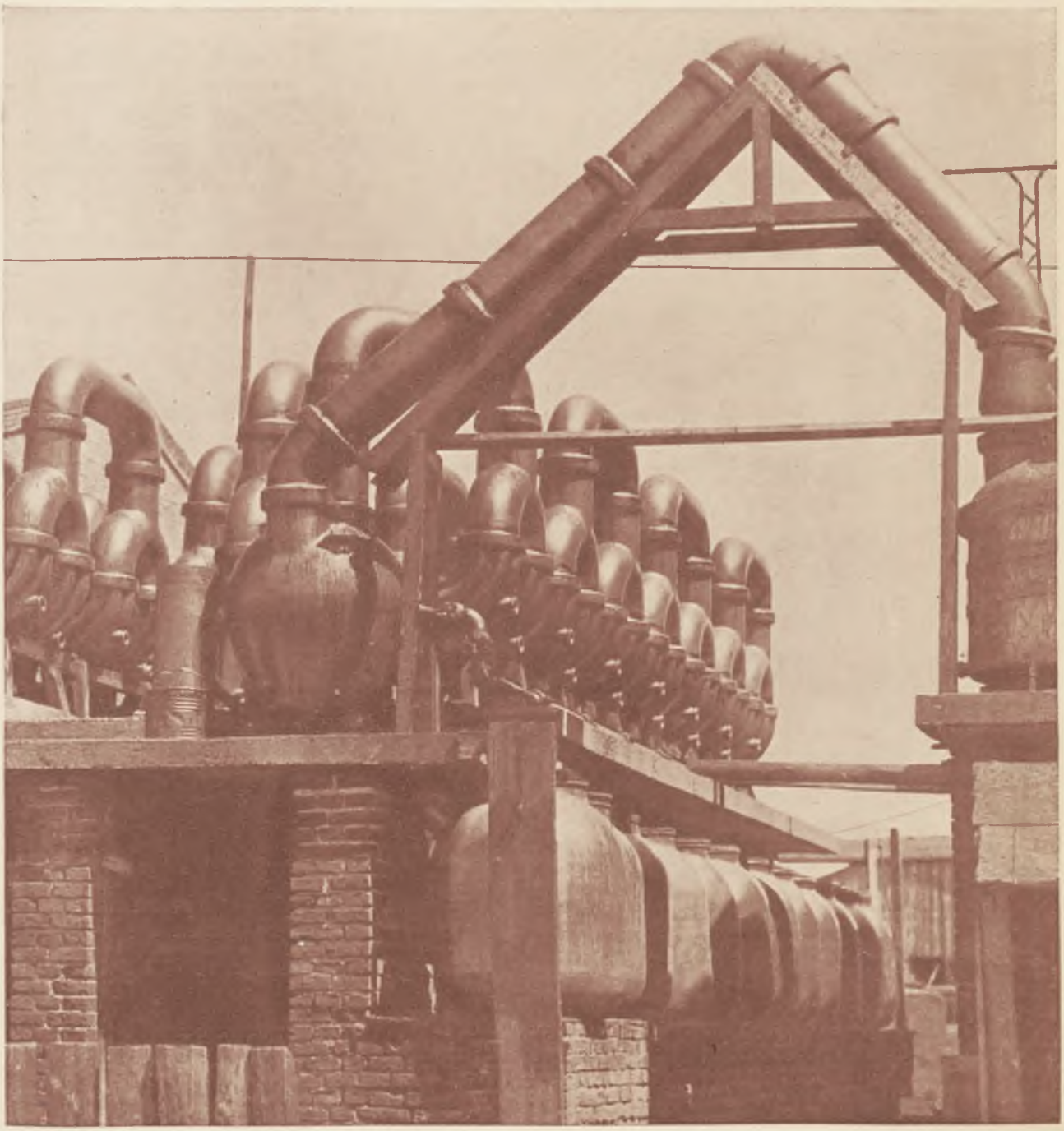
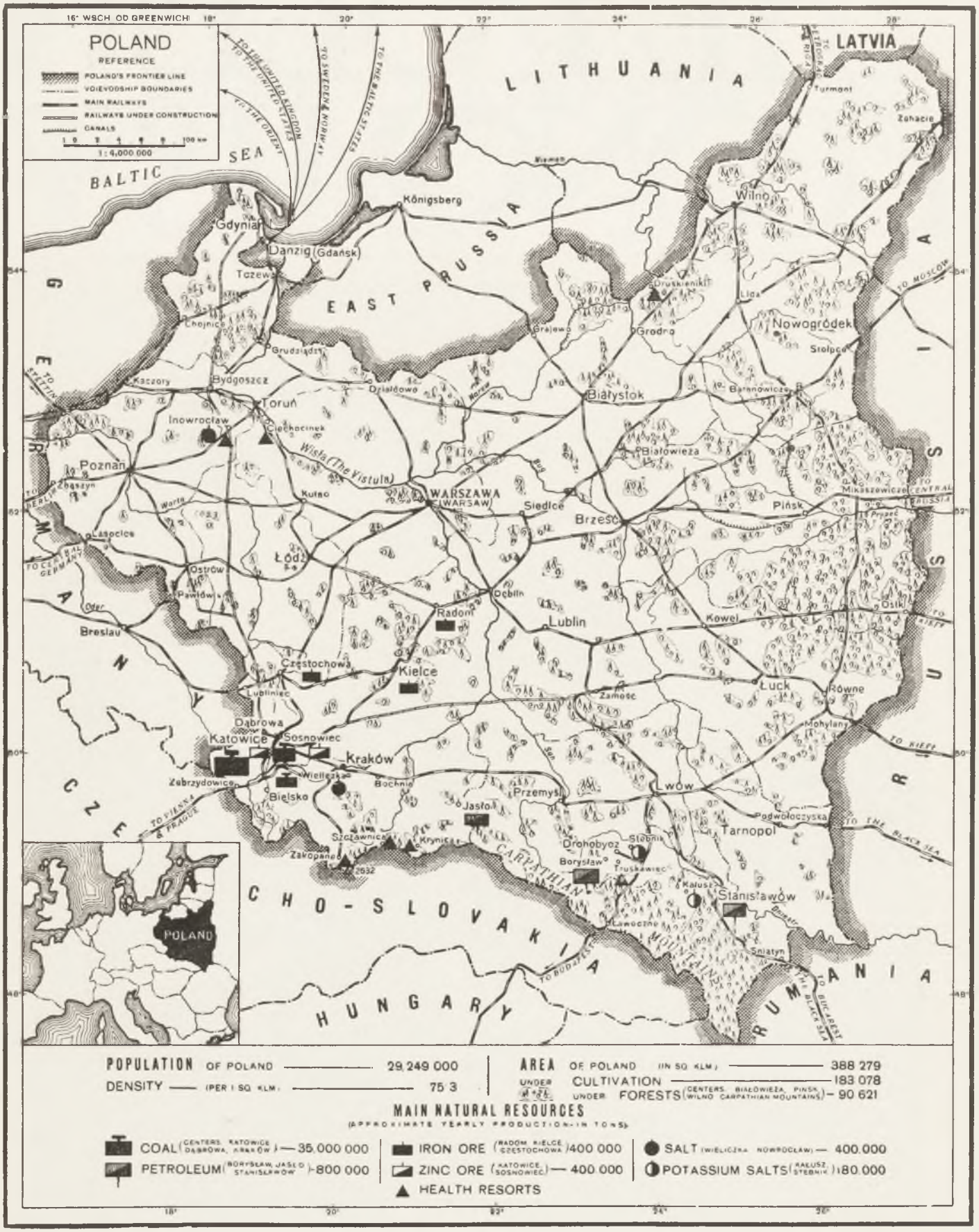
THE POLISH ECONOMIST



SEPTEMBER 1927

PRICE: 1/—, $ -20, OR ℵ 2—.

LOOK AT THIS MAP BEFORE GOING ANY FURTHER



PUBLISHED BY
THE MONTHLY REVIEW OF TRADE, INDUSTRY AND ECONOMICS IN POLAND
THE POLISH ECONOMIST
WARSAW, 2, ELEKTORALNA

REVIEW OF THE ECONOMIC SITUATION IN POLAND

SEPTEMBER 1927

DATA TAKEN FROM THE OFFICIAL SOURCES AND THE PUBLICATIONS OF
THE CHIEF STATISTICAL OFFICE
WARSAW, 32, JEROZOLIMSKA
PUBLICATIONS IN POLISH AND FRENCH

SEPTEMBER exhibited a course of economic life normal for this period of the year. The end of the month came under the influence of the final negotiations for the foreign loan. They were concluded only in the middle of October, but during their course the changing events kept public opinion throughout the whole country under high tension. It was well understood that here was a case — not of this or that sum to be put into circulation, but of a basic understanding with foreign capital for its cooperation in Poland.

As regards agriculture, the harvest was completed in September; work connected with potatoes, sugar beet &c. was taken up only at the end of the month; operations in connection with the next crops were begun — and all this work, though delayed, took place under favourable conditions.

In industry, activity is still increasing, and the number of employed is rising and has broken all former records. The building industry is ending its season working intensively. Other seasonal industries, such as sugar and starch, have begun their yearly campaign.

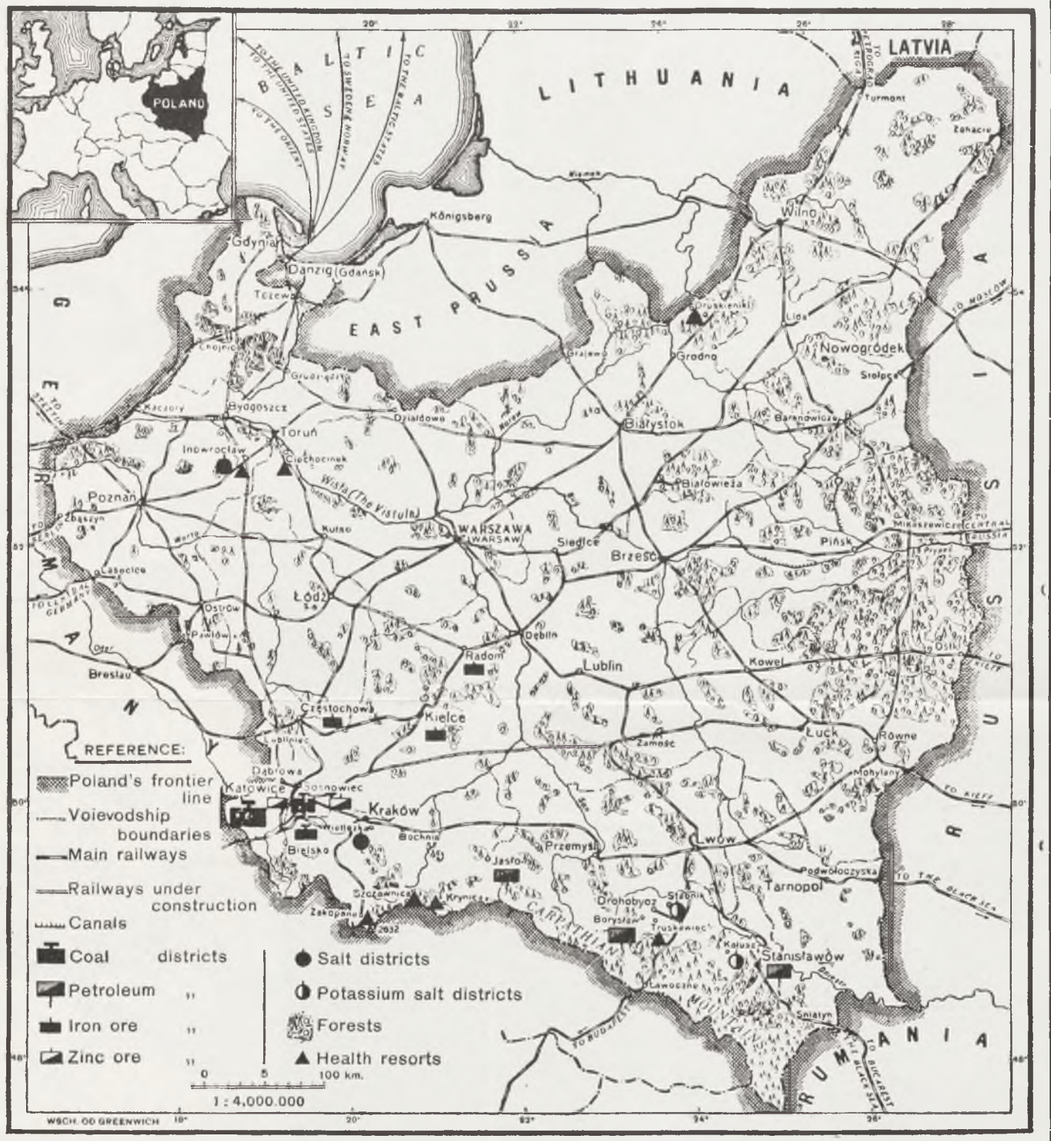
In trade, prospects are shaping themselves favourably. Prices do not show dangerous signs of dearness and their wholesale indexes have even fallen slightly. The home trade turnover is increasing, while foreign trade has decreased a little. The balance of trade in September is again unfavourable but to a lesser degree.

The state of revenue and expenditure is good, in spite of September being a hard month for the Treasury.

The money market has not as yet come out of the constricted phase into which it settled last spring, but already in September it began to anticipate the effects of the foreign loan, which was immediately reflected by increased banking activity, in particulary that of the Bank of Poland where the bullion and foreign currency cover augmented. The Złoty is stabilised.

	UNIT	SEPT. 1926	AUGUST 1927 *)	SEPT. 1927
STATE OF EMPLOYMENT:				
UNEMPLOYED		213.690	156.701	140.494
PART TIME WORKERS		38.151	25.913	25.094
PRODUCTION:				
COAL	thousand tons	3,529·6	3.189·—	3.260·—
OIL		64·1	62·2	61·8
STEEL		76·1	114·7	110·7
IRON		28·6	56·6	59·2
ZINC		10·1	12·9	12·9
AGRICULTURE:				
(estimated crops)				
RYE	thousand tons	5.010	·	5.980 **)
WHEAT		1,280	·	1.480 **)
BARLEY		1.550	·	1.630 **)
OATS		3.050	·	3.420 **)
PRICES:				
WHOLESALE PRICE INDEX	1914=100	189·1	207·1	205·7
INDEX OF COST OF LIVING IN WARSAW		188·5	200·5	202·0
FOREIGN TRADE:				
IMPORTS:		85·4	129·9	127·1
including:		251·9	418·5	346·2
foodstuffs (edible fats, fish & herring, coffee, rice, wheat &c.)		11·5	18·3	18·4
		19·9	*38·1*	*32·6*
animal products (tanned hides, dried skins &c.)		7·7	10·5	12·0
		3·1	*3·3*	*3.1*
ores		2·2	5·3	4·5
		46·4	*95·4*	*95·2*
chemicals (vegetable & animal fats, dyes, colours & varnishes, potassium salts &c.)		8·8	14·7	12·0
		26·6	*76·8*	*40·6*
metals & metal products		3·8	10·9	7·9
		18·2	*55·7*	*34·1*
machinery & apparatus		7·1	19·4	20·3
		2·7	*7·4*	*7·6*
paper & paper wares		4·6	4·6	4·7
		7·2	*7·6*	*7·2*
textiles & textile products		33·6	33·4	35·0
	million gold fr.	*10·9*	*10·3*	*9·9*
EXPORTS:		114·7	120·6	119·1
including:		2.494·0	1.891·6	1.651·3
foodstuffs (sugar, meat, eggs, forage, peas & beans, barley, hops &c.)	and thousand tons	26·2	20·8	25·9
		97·0	*47·0*	*48·5*
live animals — in thousands of heads		4·8	9·2	10·4
		370·2	*244·9*	*356·6*
timber and wood ware (planks, deals & battens, pulpwood, pit props, round wood & logs, veneers &c.)		17·0	35·1	31·9
		415·8	*644·7*	*554·2*
plants & seeds		2·1	1·9	4·1
		4·5	*5·9*	*9·9*
coal and coke		33·0	18·1	15·4
		1.833·9	*1.036·4*	*885·3*
petroleum products		6·8	4·7	3·7
		32·6	*24·6*	*17·5*
iron and iron products		2·5	3·7	31·3
		10·2	*13·7*	*10·2*
zinc		7·5	10·7	9·5
		9·3	*13·5*	*12·8*
textiles and textile products		6·9	8·3	7·3
		2·3	*2·3*	*3·2*
EXCESS OF EXPORTS (+) OR IMPORTS (—)		+ 29·3	— 9·3	— 8·0

*) *Corrected figures.*
**) *Corrected figures, but these data do not take into account damages made by hail and flood.*



POPULATION of Poland	29,249,000	**AREA OF POLAND** (in sq. km.)	388.279
DENSITY (per 1 sq. km.)	75·3	area UNDER CULTIVATION (in sq. km.)	183.078
OCCUPATION:		area UNDER FORESTS (in sq. km.)	90.621
agriculture	65 p. c.		
industry	14 p. c.		
commerce	8 p. c.		
various	13 p. c.		

POLAND'S CHIEF TOWNS

Warszawa (Warsaw)	1,015.420	Poznań	184.756	Katowice	104.868
Łódź	451.974	Kraków	183.706	Lublin	94.412
Lwów	219.388	Wilno	128.954	Bydgoszcz	87.643
Sosnowiec	86.432				
Częstochowa	80.473				
Białystok	76.792				

	UNIT	SEPT. 1926	AUGUST 1927	SEPT. 1927
TRANSPORTS:				
RAILWAY TRAFFIC	truck loaded (15 tons) reg. ton	493.050	511.593	510.120
PORT TRAFFIC:				
Danzig		320.555	349.686	337.605
Gdynia		17.918	38.467	41.801
BUDGET:				
RECEIPTS	million ℔	162·8	192·3	193·8
including:				
taxes and public levies		82·2	94·1	103·2
monopolies		55·2	60·3	62·6
State undertakings		10·9	22·6	12·0
EXPENDITURE		156·1	164·3	181·6
MONEY CIRCULATION:				
BANK OF POLAND NOTES	million ℔	581·5	793·8	844·5
COVER IN GOLD AND FOREIGN CURRENCIES	% %	39·38	50·34	49·06
TOKEN COINS	million ℔	426·7	397·1	408·5
CREDIT:				
(Bank of Poland)				
BILLS DISCOUNTED	million ℔	315·7	407·9	419·7
OFFICIAL DISCOUNT RATE	% %	10·00	8·00	8·00
FOREIGN CURRENCIES:				
(Warsaw Stock Exchange average rates)				
U. S. A. DOLLAR	℔	9·00	8·93	8·90
POUND STERLING		43·79	43·48	43·51
FRENCH FRANC		0·26	0·35	0·35
SWISS FRANC		1·74	1·72	1·72

SUMMARY OF LAWS, ACTS AND EXECUTIVE DECREES

published in the *"Official Journal of Laws of the Republic of Poland"*
("Dziennik Ustaw Rzeczypospolitej Polskiej")
during September 1927

The combating of infectious animal deseases (*"Dz. Ust. R. P."* No. 77, item 673).

The responsibility of the Treasury for postal parcels, telegrams and telephone calls (*"Dz. Ust. R. P."* No. 78, item 679).

The reduction of export duties in respect of certain products originating in the free city of Danzig (*"Dz. Ust. R. P."* No. 78, item 682).

Standardisation of rye flour (*"Dz. Ust. R. P."* No. 78, item 683).

Slight amendment of the Postal and Telegraph tariffs (*"Dz. Ust. R. P."* No. 78, item 684).

Commission fees to be charged by customs agencies of the Polish State Railways (*"Dz. Ust. R. P."* No. 78, item 685).

Manipulation fees to be charged by customs agencies of the Polish State Railways (*"Dz. Ust. R. P."* No. 78, item 686).

The reduction of railway tariffs in respect of coal consignments sent to Italy (San Candido) via Czechoslovakia and Austria (*"Dz. Ust. R. P."* No. 79, item 691).

Amendments of the Polish-German railway goods tariff (*"Dz. Ust. R. P."* No. 79, item 693).

Organisation of alcohol export (*"Dz. Ust. R. P."* No. 80, item 695).

Supplementary railway tariffs for Polish-German freight communication (*"Dz. Ust. R. P."* No. 80, item 696).

Duty on sugar (*"Dz. Ust. R. P."* No. 81, item 700)

Freeing serum and vaccines used in medicine from duty (*"Dz. Ust. R. P."* No. 81, item 712).

Railway tariff reduction for coal and briquettes transported between Poland and Austria (*"Dz. Ust. R. P."* No. 81, item 713).

Organisation of the Customs Guard (*"Dz. Ust. R. P."* No. 82, item 716).

Prolongation of the customs reduction on carbon electrodes[1]) (*"Dz. Ust. R. P."* No. 82, item 717).

Export duties on semi-precious metals[2]) (*"Dz. Ust. R. P."* No. 82, item 718).

Partial change of the decree concerning the treasury and accounts of communal bodies (*"Dz. Ust. R. P."* No. 82, item 721).

Organisation of waterway offices (*"Dz. Ust. R. P."* No. 82, item 728).

Statutes occasioned by changes in the budget for 1925 (*"Dz. Ust. R. P."* No. 83, item 736).

Tariff customs changes for glass and iron sheeting (*"Dz. Ust. R. P."* No. 83, item 738).

Establishment of the State Export Institute[3]) (*"Dz. Ust. R. P."* No. 83, item 739).

Establishment of the Board of Labour Protection (*"Dz. Ust. R. P."* No. 83, item 740).

Settlement of the width of highways in Poland (*"Dz. Ust. R. P."* No. 83, item 743).

Amendment of the decree for customs procedure (*"Dz. Ust. R. P."* No. 83, item 744).

Trade agreement with Norway[4]) (*"Dz. Ust. R. P."* No. 84, items 747 and 748).

Change in the statute for the counteraction of unfair competition (*"Dz. Ust. R. P."* No. 84, item 749).

Freeing certain German estates, rights and interests from liquidation (*"Dz. Ust. R. P."* No. 84, item 752).

Reduced customs duties for machinery and apparatus not manufactured within the country (*"Dz. Ust. R. P."* No. 84, item 758).

Partial changes in the statutes introducing the Austrian trade codex (*"Dz. Ust. R. P."* No. 85, item 762).

Partial changes in the railway freight tariff[5]) (*"Dz. Ust. R. P."* No. 85, item 767).

[1]) *See "The Polish Economist" No. 11/1927, page 455.* [2]) *See "The Polish Economist" No. 11/1927, page 455.* [3]) *See "The Polish Economist" No. 10/1927, page 411* [4]) *See "The Polish Economist" No. 1/1927, page 31.* [5]) *See "The Polish Economist" No. 11/1927, page 456.*

VOLUME II SEPTEMBER 1927 NUMBER 9

THE POLISH ECONOMIST

A MONTHLY REVIEW OF TRADE, INDUSTRY AND ECONOMICS IN POLAND

WARSAW — LONDON — NEW YORK

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* * *

IN JULY the whole economic life of Poland was dominated by the results of the harvest, which were much better than had been the case in 1926. Despite these favourable circumstances the Government found it necessary to restrict the export of rye, one of the staple foods of the population, by imposing a high export duty. The reason for this was that in previous years the local stocks have been so depleted by excessive exports, that it was necessary to import rye from abroad in the following spring season, in order to feed the rural population. In order that this action should not have an injurious effect on the agricultural industry, the Government have announced their intention of granting extended credits to farmers, and of creating grain reserves.

The harvest influenced the level of prices wholesale prices rising by 0·5 per cent, and retail ones falling slightly, and also had a favourable effect on the foreign trade figures, the adverse balance being reduced to less than a half.

Industry and commerce made extensive preparations, in the anticipation of a good autumn season. In this connection, railway traffic increased considerably, despite the fact that transport of agricultural products has not as yet commenced; local sales of coal increased to a large extent; the unemployment figures declined by 60 per cent as compared with those for the end of February last, the highest total so far recorded in the current year. Practically all branches of production increased both their output and their sales, although the petroleum industry was somewhat depressed.

The position of the Treasury was not affected by the good crops, but the continued favourable situation in industry and commerce resulted in an increase of the excess of revenue over expenditure

by 40 per cent, so that the surplus amounted to 13 per cent of the total revenue.

The currency situation was equally favourable, the bullion and foreign currency reserves of the Bank of Poland increased markedly, and the Złoty continued to be stable. The adverse trade balance which has obtained during the past four months did not in the least affect the national currency.

On the money market, the stringency, which was evidenced in June, and which was reflected by the increase in the discount rates, was of a transitory, seasonal character, as it had been brought about by heavy demands for cash on the part of the agricultural community, in connection with the harvest operations, and on the part of industrial circles, as a result of the expansion of trade.

REVIEW OF THE GENERAL ECONOMIC SITUATION IN POLAND

JULY 1927

	UNIT	JULY 1926	JUNE 1927*)	JULY 1927
STATE OF EMPLOYMENT:				
UNEMPLOYED		264.737	190.546	173.445
PRODUCTION:				
COAL	thousand tons	3.481·9	2.773	3.085
OIL	thousand tons	68·6	61·1	62·9
IRON	thousand tons	24·0	46·8	51·4
AGRICULTURAL INDEXES: (CROP ESTIMATES)				
RYE	thousand tons	5.010	—	5.980
WHEAT	thousand tons	1.280	—	1.380
BARLEY	thousand tons	1.550	—	1.710
OATS	thousand tons	3.050	—	3.260
PRICES:				
WHOLESALE PRICE INDEX	(1914 = 100)	181·4	206·4	207·4
INDEX OF COST OF LIVING IN WARSAW	(1914 = 100)	178·1	205·1	198·6
FOREIGN TRADE:				
IMPORTS	million gold ℥	65·8	160·0	136·2
EXPORTS	million gold ℥	120·6	114·0	113·9
EXCESS OF EXPORTS (+) OR IMPORTS (—)	million gold ℥	+ 54·8	— 46·0	— 22·3
TRANSPORTS:				
RAILWAY TRAFFIC	truck loaded (15 tons)	467.759	463.950	506.447
PORT TRAFFIC (DANZIG AND GDYNIA)	reg. ton	351.320	352.733	382.036
BUDGET:				
RECEIPTS	million ℥	157·9	198·8	203·7
EXPENDITURE	million ℥	149·8	180·0	177·1
MONEY CIRCULATION:				
BANK OF POLAND NOTES	million ℥	511·2	727·5	744·9
COVER IN GOLD AND FOREIGN CURRENCIES	% %	36·19	50·77	50·25
TOKEN COINS	million ℥	469·6	393·9	384·4
CREDIT: (BANK OF POLAND)				
BILLS DISCOUNTED	million ℥	304·2	387·8	406·1
OFFICIAL DISCOUNT RATE	% %	10·0	8·0	8·0
FOREIGN CURRENCIES: (WARSAW STOCK EXCHANGE-AVERAGE RATES)				
U. S. A. DOLLAR	℥	9·20	8·93	8·93
POUND STERLING	℥	48·83	43·44	43·43

REMARK: — Figures appearing in the above table are intended exclusively to characterise the economic situation in July 1927; detailed comments on them, and in some cases the latest data, are given in the respective sections of this issue and in the "Latest news".

*) *Corrected figures.*

A MESSAGE OF THE PRESIDENT OF THE REPUBLIC OF POLAND TO THE VIIIth INTERNATIONAL CONFERENCE OF PURE AND APPLIED CHEMISTRY

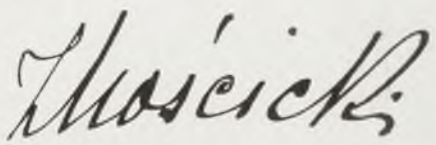
The keynote of the rapid economic development of the world in the nineteenth century was the predominant influence exercised in every branch of human life by the allied metal and machinery industries, which during that period outdistanced all others.

The present century is the one, in which the mantle of power is passing to the chemical industry. In all branches of production mechanical processes give way to chemical processes.

Consequently, upon the assumption of their new rôle, it has become necessary for the chemists of all nations to confer together, not only in respect of the development of their own industry, but also for the advancement of methods of production in all other fields of industrial activity.

In September of this year, the chemists of the world will meet in conference at Warsaw. May the meetings of this assembly prove fruitful in their endeavours to further the grandiose task of the rationalisation of human labour.

Warsaw, August 13, 1927.



THE RÔLE OF THE MODERN CHEMICAL IDNUSTRY

BY

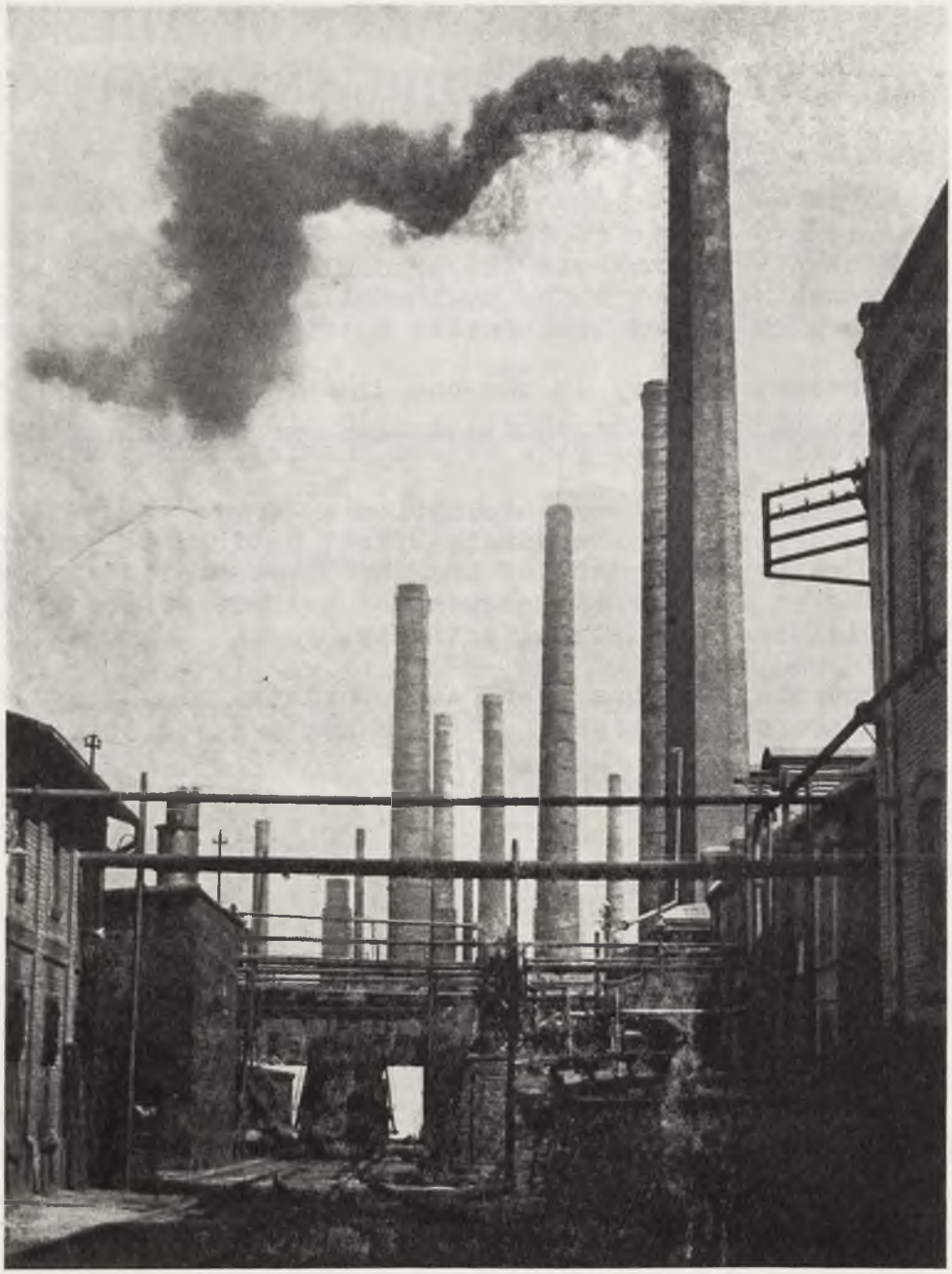
M. E. KWIATKOWSKI

MINISTER OF INDUSTRY AND COMMERCE

CHEMICAL INDUSTRY! How different is the sound of these words in modern times as compared with a few decades or even twenty years back. It may be asserted that, as far as the heavy industry is concerned, this is the youngest of all branches of production, though its origin is traceable to the remote past. But what an evolution it has of late undergone! The definition of the chemical industry itself has been subject to profound changes and radical modifications.

In this age, when the science of chemistry and chemical production in general have gradually become a synonym of its modernity — the chemical industry — as a well defined group of production is rapidly breaking all its boundaries, and is slowly but surely penetrating everywhere and impregnating all fields of production. Consequently, in modern statistics, not infrequently, columns of figures relating to this industry disappear totally as they fall under the heading of some other group, or on the contrary swell into colossal totals.

How remote appears the period of some time ago, when on the banks of the Rhine and in England, France and Switzerland, small chemical workshops engaged in the manufacture of inorganic products were just being established. The staff and work people of a chemical works were represented by some fifteen to twenty persons, and the



A VIEW OF A COAL TAR DISTILLATION WORKS (*PHOT. S. PLATER*)

establishment had frequently no mechanical motive power whatsoever. Instead there were to be seen courageous experimenters engaged in practical and scientific work, surrounded by boilers and presses, books, formulas, and busy with calculations.

The foundations of chemical production were laid by century long, unending and wearisome scientific investigations, on substance and energy, and to-day the chemical industry repays with interest its indebtedness to science, and has itself become a science, and, by the employment of its own methods, its school of thought and its principles, it has penetrated everywhere, has expanded the notion of the practical importance of chemistry in the field of production to such an extent that its scope and radius of activity have become undefinable. Was it not under the influence of chemical processes, that the basic material, black diamond, coal—ceased to be an empiric fuel. The process of production of heat from coal has now become what is frequently referred to as the heavy chemical industry. What an abundance of chemical units there are to be seen in a piece of

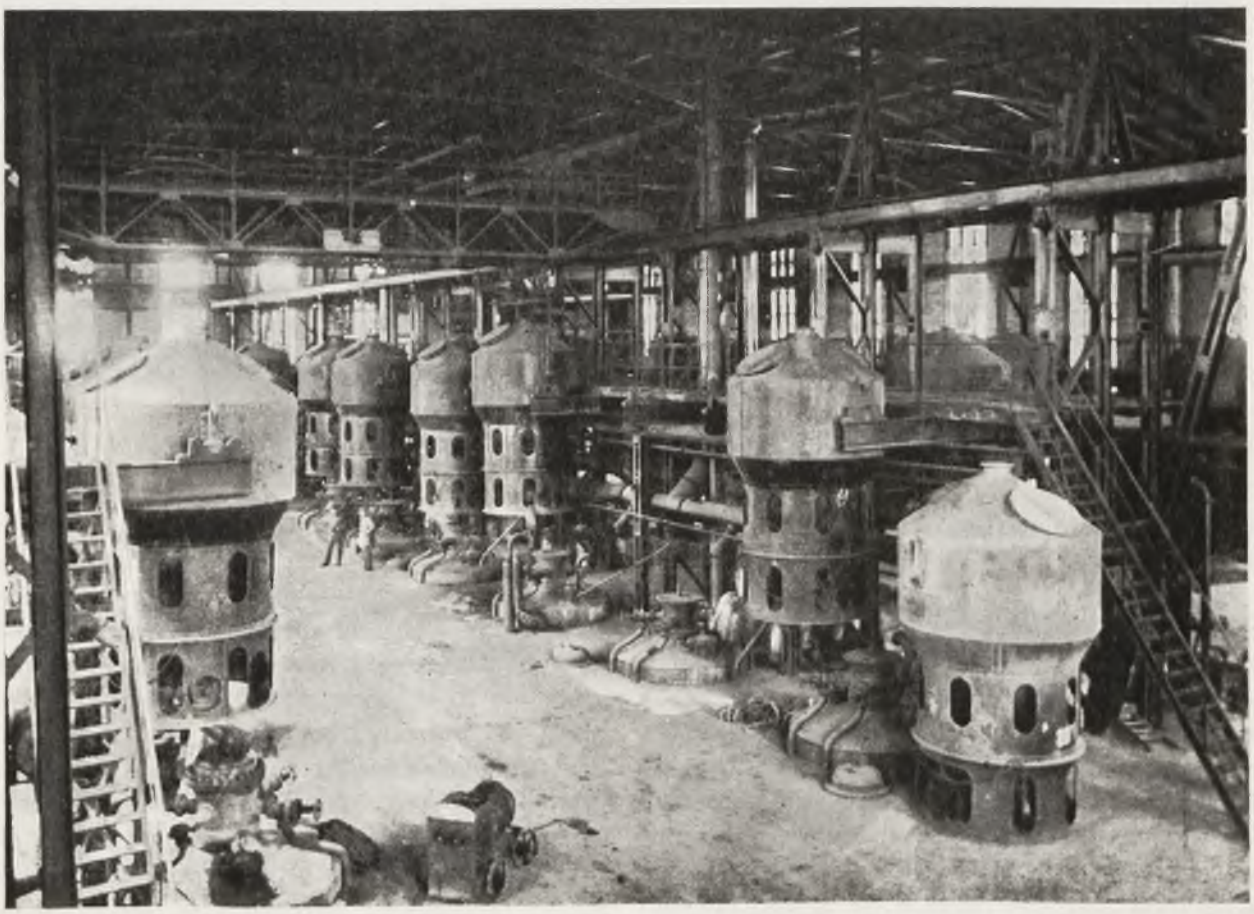
coal. And each of them has its own properties and its own uses. Do we not hesitate more and more before throwing into flames these thousands of complicated chemical compounds embodied in coal and which may be used for millions of different purposes?

The distillation of coal under both low and high temperatures, the transformation into liquid hydrocarbons, the making of gases in specially designed generators for the purpose of obtaining a whole range of intermediates and the unending, scientifically justified prospects for further transformations—can all this be compared with the old coal, which used to be of value only when transformed into heat?

Chemical and industrial processes have to-day modified the use of water, for it is closely bound up with the production of all kinds of materials; it forms a part of mechanical fittings and factory appliances. Be it special steel for the building of turbines and electric power generators, be it metal or mineral parts of equipment, capable of with standing high temperature, moisture, acids, high pressure, be it wooden fire resisting parts &c.— all these are intimately linked up with chemical production. Whether iron or zinc, lead, aluminium or radium, sugar or alcohol, artificial fertilizers or foodstuffs, salts or acids, artificial fibre or soap synthetic dyes or explosives, crude oil and natural gas, medicinal ingredients or essential oils, intermediates of the dry distillation of wood or coal, the working up of peat or bitumens, heat resisting glass and refractory materials &c., — all these are either the direct achievement of chemical production or are the outcome of intensive cooperation with it.

The chemical industry proper, has within the course of the last decades shown an unprecedented and many-sided development.

Statistical returns, relative to the chemical industry proper, show an enormous increase in the number of workmen employed during the last fifteen years; thus in Germany, the increase was about 155.000, in England — 90.000, in the United States of America — 200.000. These figures when taken alone — are neither representative, nor can be regarded as a measure of development of the chemical industry, for in many instances it is impossible in any particular branch to state where the



PLANT AT THE CHORZÓW WORKS FOR THE MANUFACTURE OF AMMONIA FROM CALCIUM CYANAMIDE *(PHOT. S. PLATER)*

chemical side ends and the other side begins, with the result that the persons employed are not included in the relevant statistical returns. On the other hand, a worker engaged in the chemical industry discharges duties different to those of persons engaged in any other branch of industrial activity. Here the qualifications of the individual worker are of more importance than the number of workers.

human and animal life. It is also the science of chemistry that is used as a defence and, in too many cases, misused as a weapon in modern warfare. Famous is the saying in Poland that the chemical industry — like a far-seeing farmer - "feeds and defends". This is an acknowledgement both of its greatness and of its significance for the future generations of the world.

But this acknowledgement is not by any means

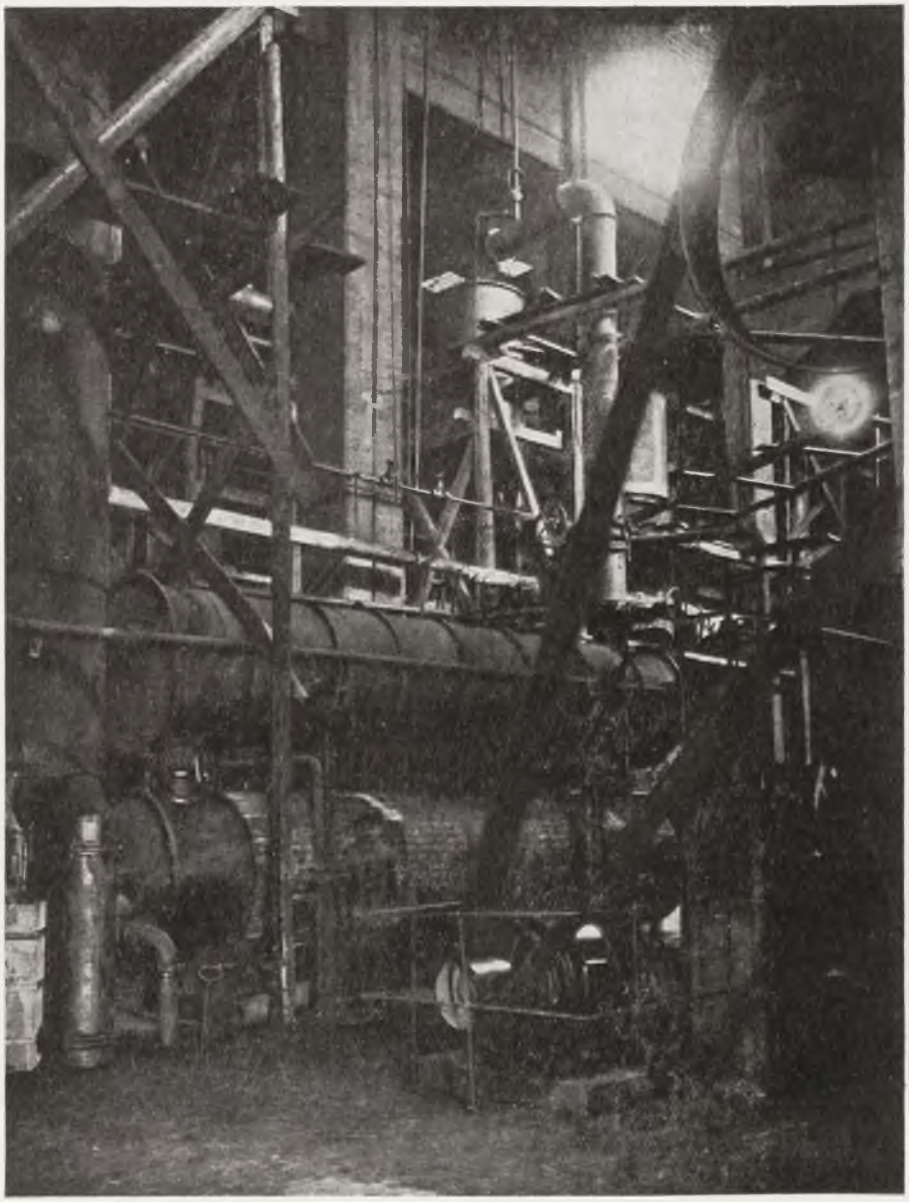
SODA WAREHOUSE AT A POLISH CHEMICAL WORKS (*PHOT. S. PLATER*)

The measure of the importance of the chemical industries under the present conditions may be said to be the scale of the requirements of man. In all phases of human life chemical production plays an active part — no matter whether it is visible or hidden to the naked eye. What miraculous achievements progressive farmers can nowadays perform, thanks to the use of nitrogen, phosphorus and potassium compounds! The home residence, clothing, foodstuffs, communication and a thousand-and-one necessaries of daily life—are the outcome of co-operation with the chemist. It is also he who has placed at the disposal of man countless means for the prolongation and preservation of both

all that is due to the industry. Unlike all other branches of industrial activity, that of chemical production is pre-eminently a "key industry". It is in itself a sort of picture of the basic principle of evolution. From coal, through gas and coal tar, we come to the production of nitrogen compounds and aromatic hydrocarbons. The last mentioned are responsible for the production of a large variety of intermediates, in the same way as the production of nitrogenous substances opens up unlimited possibilities of an economic character. These remarks hold good in respect of all branches and divisions of this industry.

For this reason, the future of mankind with its

varied and increasingly growing needs, is intimately bound up with the development and progress of chemical industrial methods, in which the problems of industrial and scientific research have fused into one organic indivisible whole.



A PORTION OF A FERRO-CYANIDE PLANT NEAR CRACOW
(PHOT. S. PLATER)

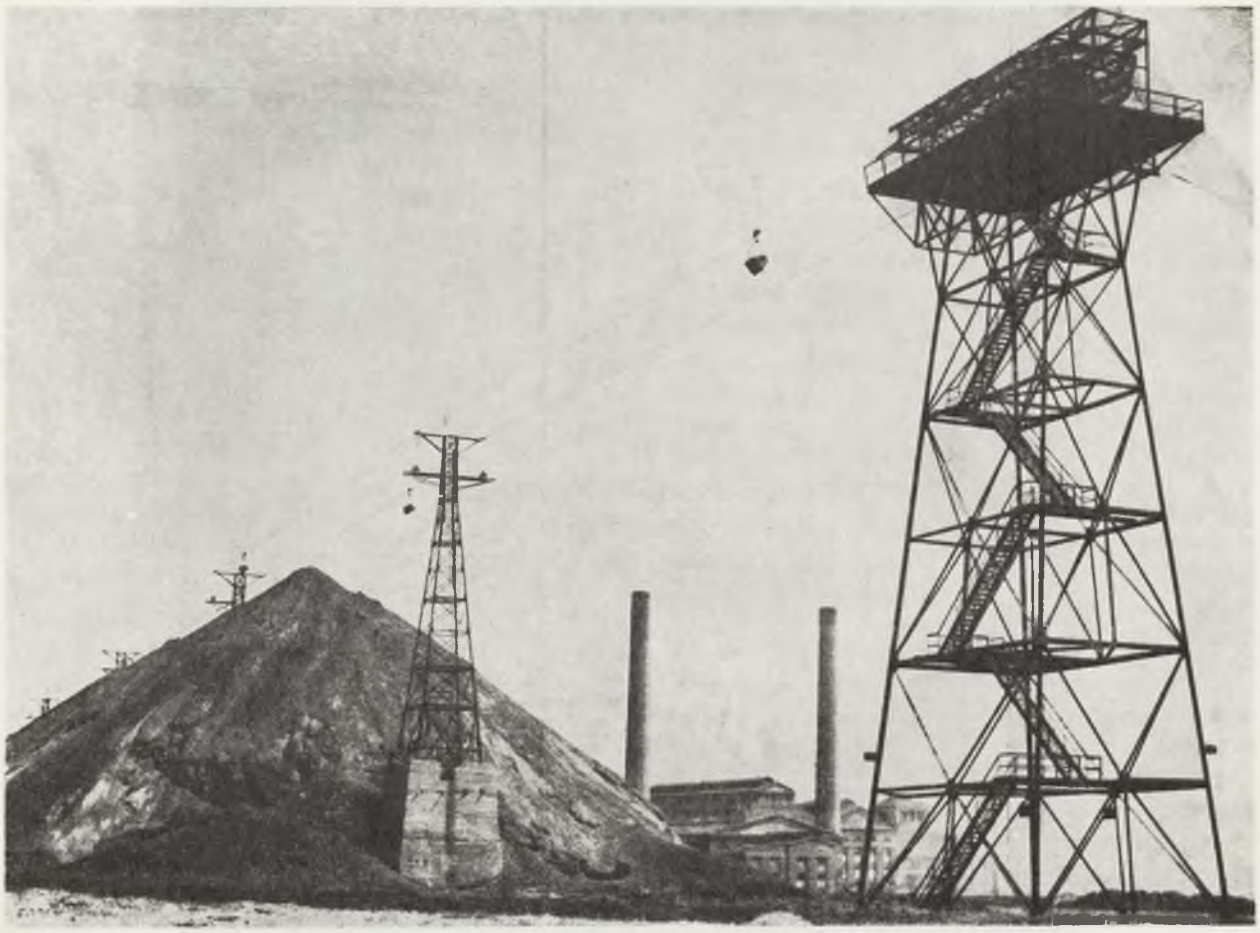
THE VIIIth INTERNATIONAL CONFERENCE OF CHEMISTS IN WARSAW

THE EIGHTH SUCCESSIVE International Conference of Chemists will be opened in Warsaw on the 5th of September next. Over 100 members of the International Union of Pure and Applied Chemistry, representing over 20 countries, will participate.

This institution was founded in London in 1919, at which time the International Union of Scientists resumed its activity. The same year the first conference of the representatives of the Academy of Sciences was held in Brussels, while simultaneously the International Council of Research, an institution to which are admitted the International Unions of all kinds, namely — Physical, Chemical, Astronomical &c. started operations.

The International Union of Pure amd Applied Chemistry aims at the development of knowledge and technology by enabling the chemists of different countries to keep in constant touch with each other, by the establishment of methods to be pursued in connection with chemical research, by the fixing of physical, chemical and technological for-

mulae, by the publication of tables of the gravity of atoms; by the issue of various physical, chemical and technological data; by the elaboration of the means of protection of inventions; by the standardisation of the means used for the preservation of foodstuffs, and finally — by cooperation with the legislative bodies of the different countries with special reference to the protection of workmen against professional diseases resulting from smoke, dust, and gases.



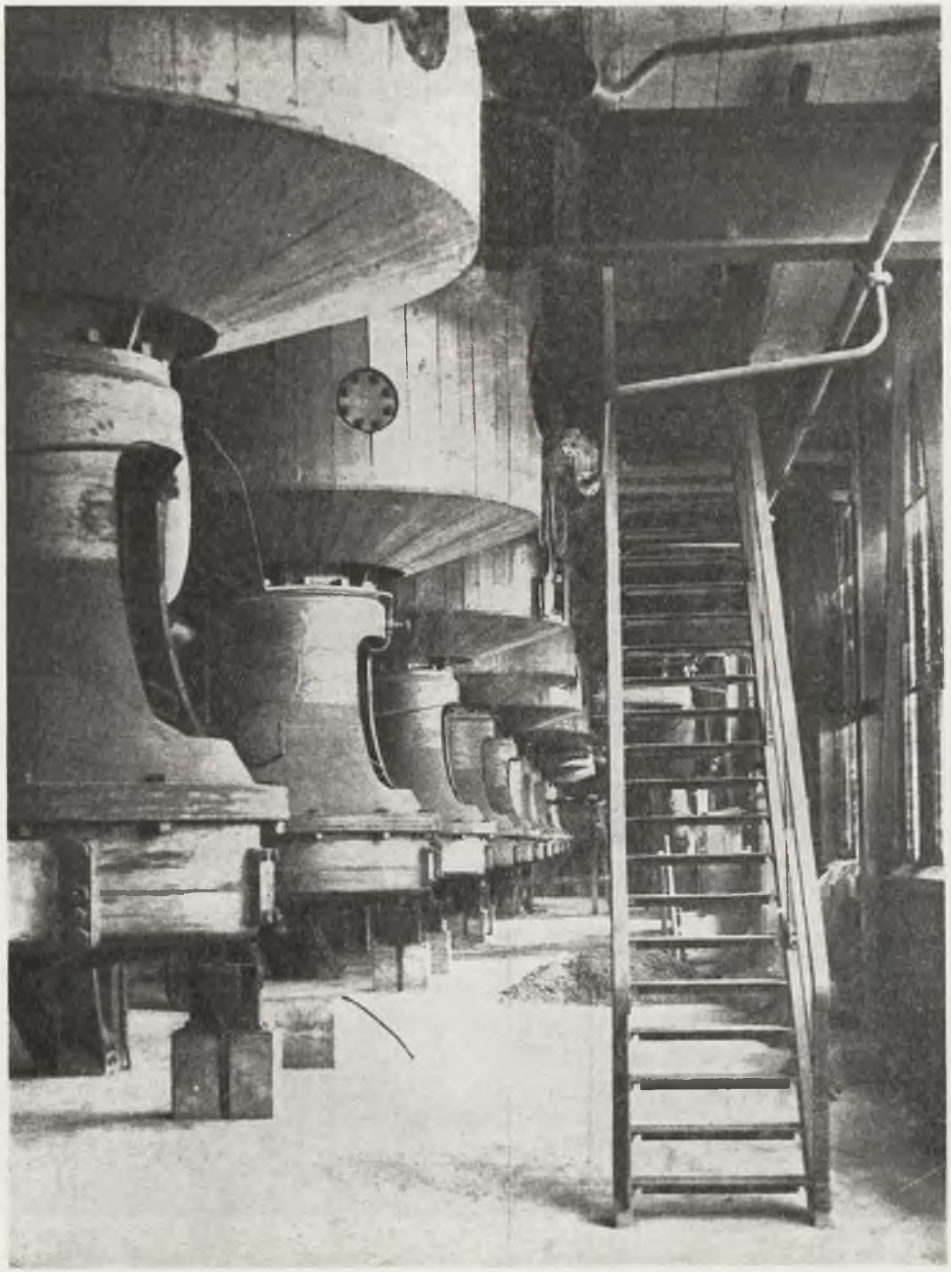
A TRANSPORTER AT A POLISH FERRO-SILICATE WORKS *(PHOT. S. PLATER)*

It will be seen that the programme of activities of the Union is very wide, and it is therefore easy to understand that the Union was compelled to commence its work by a division of labour which was effected by the calling into being of the following committees.

The permanent committees are as follows:

1) Chemical elements,
2) Reform of technical terms employed in inorganic chemistry,
3) Reform of technical terms employed in organic chemistry,
4) Reform of technical terms employed in biological chemistry,
5) Bibliography,
6) Physico-chemical formulae,
7) Pure reagents for research work,
8) Documents regarding raw materials and means of production,
9) Termochemical data,
10) Publication of "Tables Annuelles des Constants",
11) Ceramic industry,
12) Solid fuels,
13) Liquid fuels,
14) Preservation of foodstuffs,
15) Patents,
16) Hygiene of work in the chemical industry.

Most of the committees were appointed at the first Chemical Conference held in Rome in 1920. Subsequent conferences met at Brussels in 1921, Lyons — in 1922, Cambridge — in 1923, Copenhagen — in 1924, Bucarest, — in 1925, and Washington — in 1926. The VIIIth successive conference will be held in Warsaw from the 5th to 7th September next. A résumé of the work performed by the Conference up to the present time has been published by the office of the Union, in Paris, in seven volumes, which embody all the resolutions taken, as well as the numerous papers and reports



AN AMMONIA MAKING PLANT *(PHOT. S. PLATER)*

of the delegates and collaborators in different countries.

The present Conference will not only have to deal with the work already commenced, but it will also have to discuss various amendments to be made to the existing statutes of the Union. This has been found necessary in view of certain changes which have taken place since its foundation; a special commission, which will submit its recommendation to the conference, was set up for this purpose a few years ago. It is anticipated that the amendments to the Statutes, which will be voted at the Warsaw Conference, will materially contribute towards the further development of the work of this useful institution.

It should be stated that post-war conditions have not been conducive to the joining of the Union by representative bodies of all the civilised countries of the world, for the phase which would ensure the fullest and world wide collaborations and the maintenance of contact of chemists, has not as yet been reached.

It is to be hoped that future developments will eventually lead to bring about conditions, which will promote work, cooperation, and understanding between all chemists, regardless of their nationality.

As already stated, the results obtained up to now in this respect are not quite satisfactory, but they testify amply that the internationat union has, to a very large extent, fulfilled its rôle. The Conferences which were held heretofore, were instrumental in the bringing into touch of many chemists, while at the same time many specialists and experts were given the opportunity to exchange

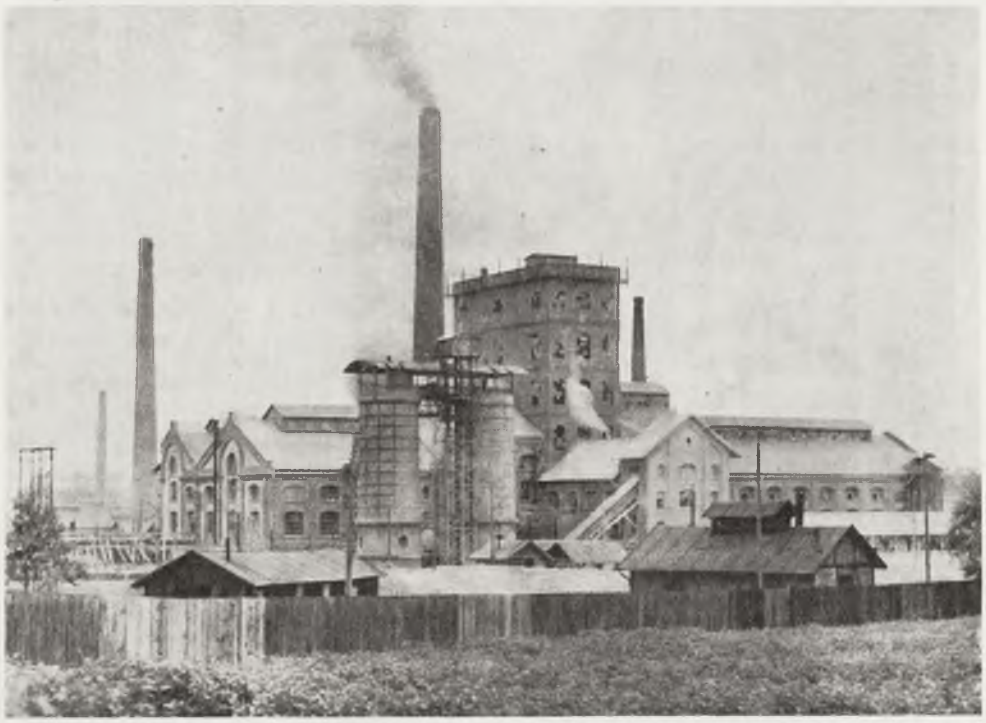
views and even to cooperate closely. The fact of the rapprochement of chemists belonging to different nationalities, though officially not registered, remains, nevertheless, one of the great achievements of the International Union of Chemistry.

THE POLISH CHEMICAL INDUSTRY*)

IN DEALING WITH the chemical industry in Poland, reference will be made to those branches of production which are based on chemical reaction and to processes on a large industrial scale. On the other hand industries which are akin to the chemical industry, such as petroleum refining, cement manufacturing, tanning, &c., as well as the different branches of production based on agriculture, i. e. distilling, sugar and starch making, &c., do not come within the scope of this article.

The bulk of the Polish chemical industry rests on locally produced raw materials, and for this reason, having natural conditions for development, there is every ground for believing that it will make a steady progress and will satisfactorily expand in the future. It is sufficient to say in this connection that Poland is the fourth largest coal producer in Europe, with an annual output amounting to about 40,000.000 tons (after the United Kingdom, Germany and France), the largest European zinc ore producer (about 400.000 tons per annum), and the third largest continental producer of potassium salts.

The enormous coal reserves of Poland are subject to chemical treatment in coke and gas works, the annual production of which, converted into coal tar, amounts to about 100.000 tons. Coal tar is distilled at extensive works which deal with the total output of the coke plants. In this manner, Poland has at its disposal large quantities of benzene, toluene, naphtalene and other hydrocarbons, both raw and distilled. Thus, for instance, the annual production of raw benzene amounts to about 15.000 tons. The situation obtaining in the market for coal tar distillation products is good. Most articles are sold on the local market for further working up, though large quantities are still exported. Benzene is absorbed by the local dye factories and is also employed in the manufacture of explosives, &c. The progress in the range of artificial motor fuels opens up new possibilities for this product, and it is not improbable that the total local output of benzene will shortly be absorbed for this particular purpose.



GENERAL VIEW OF A POLISH SODA WORKS NEAR CRACOW
(PHOT. S. PLATER)

Ammonium sulphate, which is also obtained at coke and gas works, after the needs of Polish agriculture are covered, is exported to foreign countries, chiefly to Spain.

The manufacture of dyes in Poland is based on locally obtained coal tar intermediates, although it is true that certain derivatives are imported for this purpose; all nitrogen compounds and a whole range of amino-nitro compounds are home-produced, hut the local output of dyes, which covers about 60 per cent of the Polish needs is only partly based on the intermediates

*) *Details relating to the present state and the development of the different branches of the chemical industry in Poland will be found in the section—"Chemical Industry" (page 356).*

manufactured within the country. The locally made dyes have to compete with foreign products, and particularly with those of Germany, for, as is well known, German concerns fix low prices for those articles which are also produced in Poland, and very high prices for those which have to be imported. It is a distinctly dumping policy. Despite these circumstances, the Polish dye industry expands from year to year, so much so that not only is the output increased, but there is also a rapid accretion of the number of types manufactured. This progress is to be attributed to rational organisation of the industry, and to a judicious policy pursued with regard to prices. It may be of interest to mention that Poland exports large quantities of dyes to Russia, where Polish dyes were well known prior to the war. While it is true that trade relations with that country are still far from being satisfactory, the connections which had been established in pre-war days have made it possible to place advantageously large quantities of Polish dyes on the Russian market. The production of dyes in 1926 exceeded 1,000.000 kg. valued at about $ 1,200.000.

The production of explosives in Poland embodies not only those which are based on nitrogen compounds (dynamite), trotile explosives, but also those based on potassium and chlorides, chiefly for the local coal mining industry. For this reason the great majority of explosive works are located in the Polish coal basin, in the vicinity of Dąbrowa and Upper Silesia.

The Polish pharmaceutical industry, in addition to the manufacturing of galenic preparations and patent medicines, is also engaged in synthetic production. It is of interest to note fact that the following are already produced in the country: salicylic acid, acetyl-salicylic acid, and their salts and esters, arsenobenzol compounds of the salvarsan type, silver compounds of the collargol and protargol type, bismuth and gold salts, double salts of quinine and bismuth of iodide, as well asthiosulphate of gold which is used in the treatment of phtisis. This branch of production also had extensive pre-war commercial relations with Russia, for nearly the whole of the Russian Empire drew its supplies of galenicals and patent medicines from Poland. It is therefore easy to understand the efforts of the chemical-pharmaceutical firms to recover their former market.

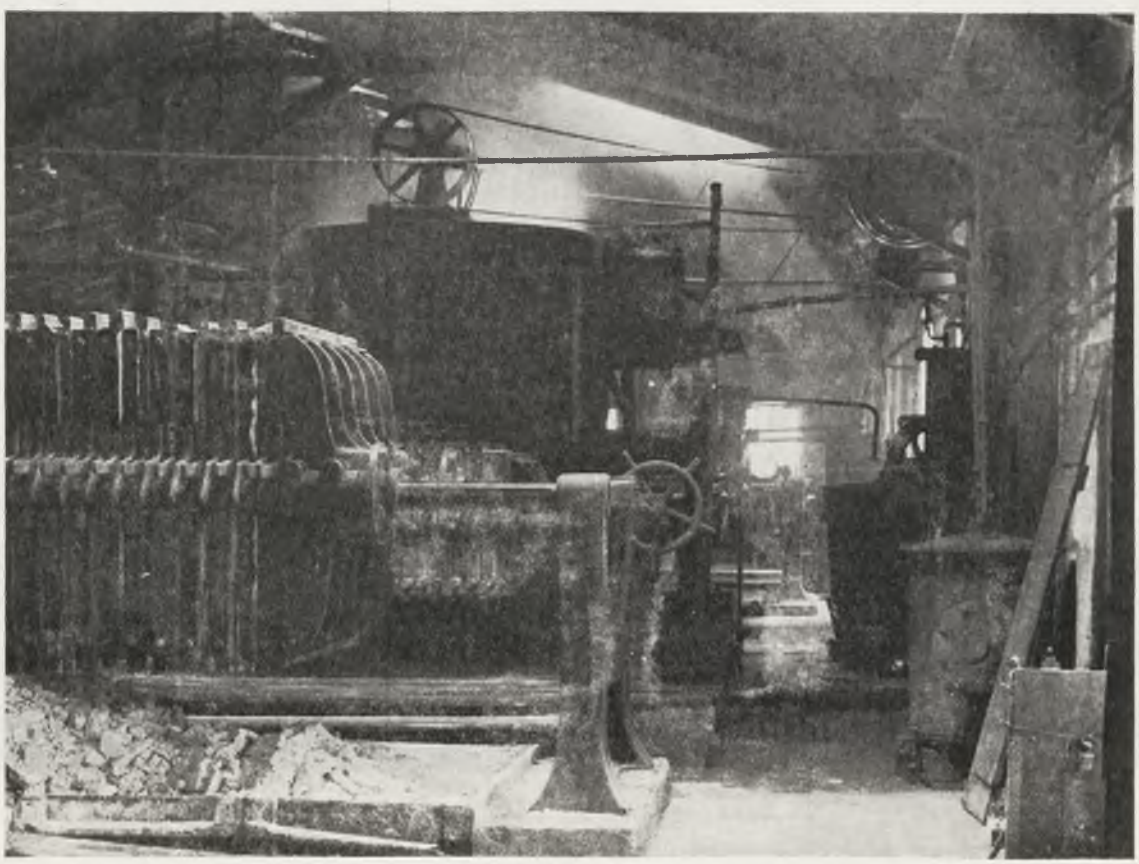
This is a brief description of the activity of the industry based on the indermediates of coal tar distillation. This branch of production is not sufficiently developed and awaits the assistance of foreign capital.

The production of sulphuric acid is based on the treatment of zinc blende. Sulphur dioxide, which is obtained after the roasting of the blende, is

INTERIOR OF AN ARTIFICIAL SPINNING MILL *(PHOT. S. PLATER)*

converted by further oxidation iuto sulphuric acid. The annual production of sulpuric acid obtained in this way is about 200.000 tons of 50° Bé. Independently of the working up of the local raw material, a number of works utilise imported pyrites, to which locally raised marcasite is added. There is one factory which produces sulphuric acid from the sulphur accumulated in iron ore used for purifying coal gas The acid, the production of which exceeds local requirements, is exported to foreign markets. The exports in 1925 were 50.000 tons, as against 25.000 in 1926. The decline is accounted for by the increase in the local consumption, which is brought about by the increased European basins of potassium salt deposits. The mining of potassium salts in Poland is progressing satisfactorily; thus, for instance, while in 1910 the output amounted to 17.000 tons, it surpassed 200.000 tons in 1926, the average contents of K_2O in the Polish potassium salts being between 23 and 25 per cent. In the middle of 1927, a concentrating plant was opened at Kałusz, thanks to which the salts are delivered to farmers and to industrial chemical works in a concentrated form.

The production of nitrate compounds in Poland also shows a steady improvement. The output of calcium cyanamide in 1926 was 120.000tons, and the amount of electric current per kilogram of fixednitrogen —



FILTER PRESSES AT A ZGIERZ DYE WORKS *(PHOT. S. PLATER)*

production of superphosphates, for which large supplies of sulphuric acid are required.

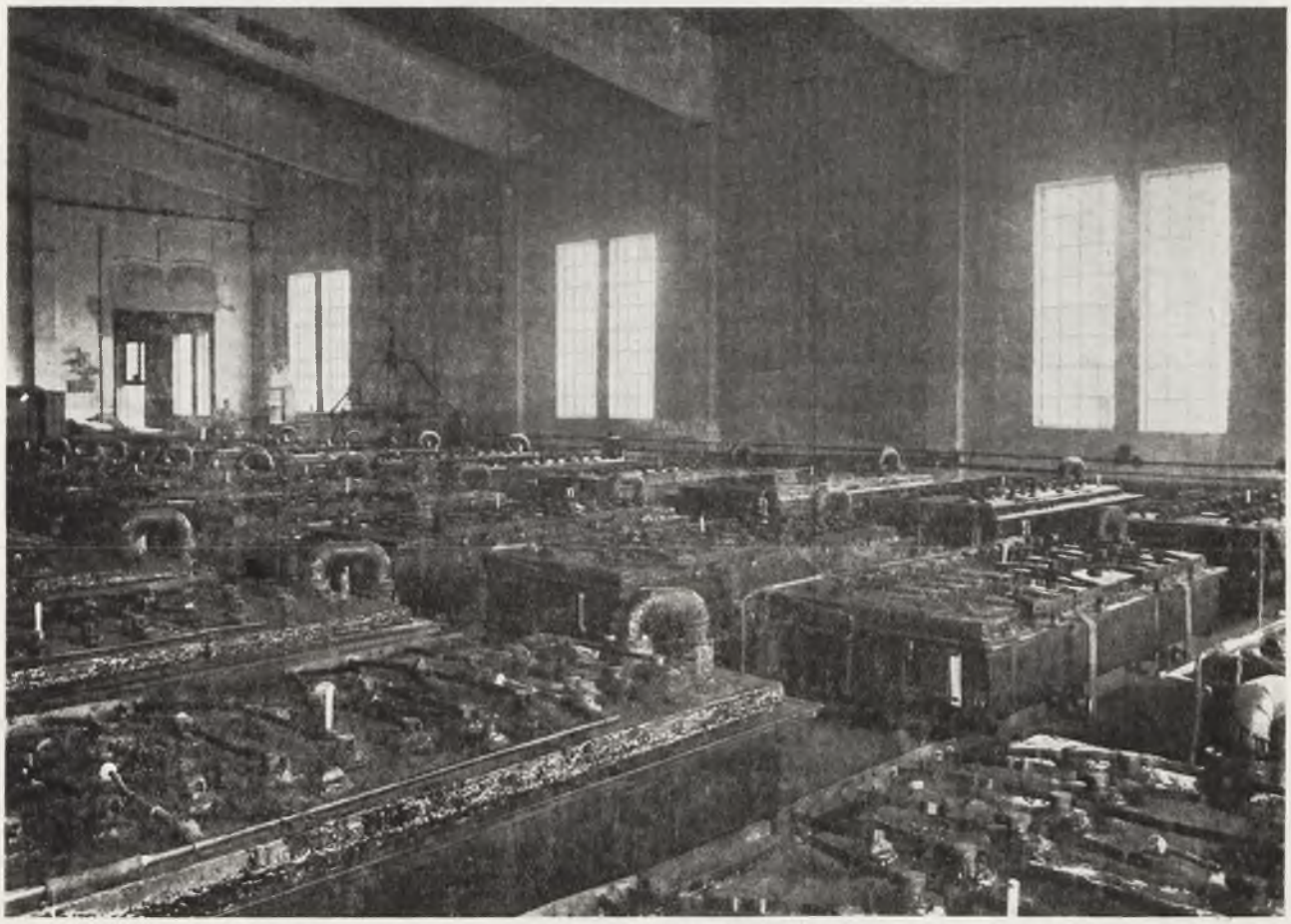
Poland, as an essentially agricultural country, utilises large quantities of artificial fertilizers, the bulk of which are superphosphates. The annual production of superphosphates 16 per cent, may be placed at 250.000 tons, of which certain quantities are exported, chiefly to the Baltic states. The Polish superphosphate enterprises have a common sales office, and a similar organisation for the purchasing of raw materials; these arrangements are highly satisfactory, as they permit of the pursuance of a rational policy in regard to both production and sales.

As is well known, Poland has one of the three

14 kwh.; on comparing these figures with those for 1923, when the output of calcium cyanamide amounted to 40.000 tons, and the quantity of current 17·3 kwh. per kilogram of fixed nitrogen, it will be seen that the rate of progress is very encouraging. The State factory at Chorzów, does not confine its operations to this process, but also works up calcium cyanamide for the production of ammonia, which is marketed both in the form of concentrated ammonia and ammonium nitrate. Nitric acid, up to 40 Bé is also produced. The output of ammonium nitrate was 12.000 tons in 1927, and that of nitric acid — 11.000 tons.

Polish farmers employ calcium cyanamide on a large scale as artificial manures. In the spring of 1927, the whole output was sold, while the requirements

increase from month to month. This accounts for the necessity of the erection in Poland of at least one more factory of nitrogen compounds. It would naturally be advisable that the new plant should not employ the calcium cyanamide process, but that it should take nitrogen from the air and fix it with hydrogen for the obtaining of ammonia, which again would be oxidised for the obtaining ofnitric acid. The erection of such a plant was started at the beginning of this year; the water power of the river San, in the proximity of which the factory is located, will also be utilised.

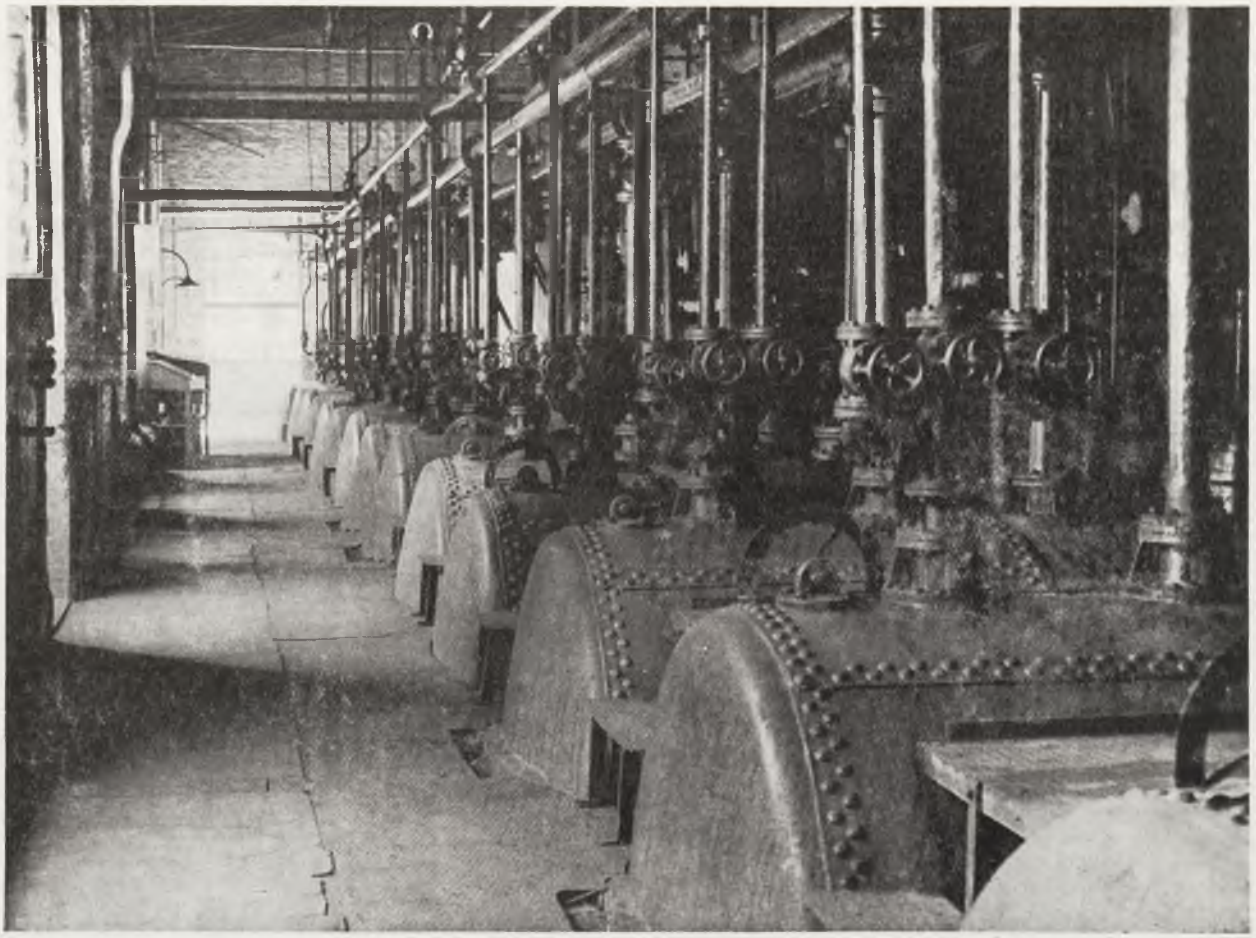


MOŚCICKI ELECTROLYTIC EQUIPMENT AT AN ARTIFICIAL FERTILIZER WORKS
(PHOT. S. PLATER)

Poland also has large deposits of rock salts, which occur at the foothills of the Carpathian mountains as well as in the Western part of the country. These salts are particularly abundant, while the richest deposits containing over 99 per cent NaCl were attained in 1925. The exploitation of these deposits has not as yet been commenced, owing to the difficulties arising from their being located under water, but the Polish engineers were able to overcome this difficulty by freezing the water and by sinking a pit to the salt-bearing layers. The output of rock salt in Poland is in the neighbourhood of 360.000 tons per annum.

It may be recalled that salt is one of the most important raw materials of the chemical industry, the production of soda, hydrochloric acid, glauber salt, chloride of lime, all being based on this material. The production of soda is about 120.000 tons per annum, of which some is exported. The salt derivative industry has excellent prospects for future development. With the exception of soda, which is produced by the well known Solvay concern, other branches of production based on this mineral have not as yet been developed to a considerable extent, for it is only local needs that are being satisfied at present, while a country possessed of such enormous reserves of rock salt as Poland, should export large quantities of articles derived from this mineral. A great deal is still to be done in this direction.

The Polish chemical industry produces polassium hydroxide and carbonate by the electrolytic treatment of potassium chloride. Despite keen competition on the part of German industry, this branch of production is being expanded satisfactorily, so much so that not only are the local requirements covered, but there is in addition a small surplus available for export. The production of potassium chlorate also covers local requirements, this article being mainly used for the manufacture of mining explosives.



A PORTION OF POLISH COAL TAR DISTILLATION PLANT *(PHOT. S. PLATER)*

The electrolysis of rock salt is chiefly used for the production of caustic soda.

The enterprises engaged in the manufacture of ferrocyanide compounds by the electrothermic process, continuously extend their work and send abroad about 75 per cent of their output. At present the output of these compounds may be placed at about 1.500 tons per annum. In 1926 it rose by 30 per cent as compared with the previous year. The method of production of ferrocyanides in Poland is based on original ideas of Polish scientists.

The electrochemical industry in Poland produces iron silicates containing 25, 45, 75 and 90 per cent Si. The production entirely covers the needs of the Polish foundries, so that no ferrosilicon is imported.

Poland has large wood reserves, 24 per cent of the total surface of the country being under forests. For this reason the dry wood distillation industry finds itself in an extremely favourable situation. It works both the foliferous varieties of timber (oak, beach, birch) as well as the coniferous varieties (pine). In should be mentioned that there is in Poland, at Hajnówka, (the Białowieża forest) one of the largest dry timber distillation plants in Europe, capable of dealing with 15.000 cubic metres per month. The acetate of lime and wood spirits so obtained are worked up further for the raising of acetic acid, acetone, raising methyl alcohol, formalin, and other products, all of which are Polish specialties. The dry distillation of timber of the foliferous varieties is organised into a vertical group, which controls not only the wood distilling plant, but works up also the products of the distillation.

The reverse is noticeable in the industry of dry distillation of the coniferous varieties, where there are a large number of small enterprises producing turpentine. It may be mentioned that this article is also produced in Poland by other methods. There are two large works which produce rosin, colophonium, and turpentine by extracting these products from pine wood.

One of the most important branches of the Polish chemical industry is the manufacture of artificial fibres. There are two plants which are engaged in the manufacture of artificial silk yarns by means of the colodion and the viscose processes. The production of artificial silk straw and horsehair amounts to about 120.000 kg. per month; a new factory now under construction will shortly begin operations, which will exclusively employ the viscose method. Independently of artificial silk yarn, this factory will produce viscose wool which is known on the world market under the name of "*snia fils*". The

setting into operation of this factory will contribute materially towards the increase of the output of artificial fibre, which is designed not only for the covering of local requirements, but also for the building up of an export trade. It may be stated in this connection that Poland has a monopoly as far as the production of very fine yarns is concerned, and for this reason is in a position to export to all the markets of the world.

The Polish industry of fats, though suffering badly from the lack of raw materials, which were, prior to the war, imported from Russia, is nevertheless doing well. The production of soap, glycerine, stearine, palmitine and edible fats of the margarine type covers the local demand entirely, and thanks to the technical progress which enables, for instance, the application of the latest modifications of the Kreibutz method of hydrolysing the glicerides, the quality of the products obtained has reached a high standard. The characteristic feature of this branch of industry is the amalgamation of the smaller enterprises into one financially strong concern.

In the bone industry, which joined the international bone-glue convention last year, a steady progress is noticeable, which is evident in the first place by the application of modern methods of production.

In addition, among other branches of the chemical industry, in the strict meaning of this term, there is in Poland a well developed rubber industry (rubber articles for technical, surgical purposes and fancy wares) of long standing; the production of scents, toilet articles, photographic plates, and of a whole range of inorganic salts &c., have also assumed large proportions.

It may be worth while mentioning that a close co-operation between science and technique is quite a feature of the Polish chemical industry. The Institute for Chemical Research, which was founded in Lwów by Professor I. Mościcki, the present President of the Polish Republic, was transferred to Warsaw in the course of this year. At the present time a number of problems closely connected with the chemical industry are being investigated there. They include the obtaining of sulphuric acid from gypsum, the distillation of coal in low temperature, the obtaining of aluminium from clay, the refining of crude petroleum by new methods, &c. The chemical and technological laboratories at the Polish Universities are also engaged in solving practical problems, among which should be mentioned the pyroganisation of crude petroleum, the production of new dyes, the fixing of nitrogen &c.

ONE OF THE SHOPS IN A POLISH RUBBER WORKS *(PHOT. S. PLATER)*

The problems of scientific organisation are not neglected by the Polish chemical industry. The scope of this article does not permit of dealing more fully with this problem. It is sufficient, however, to state that The Union of the Polish Chemical Industry which embodies at present 90 large chemical industrial enterprises, investigates the possibility of the application of scientific organisation, and the results obtained up to now indicate that the methods chosen will give the anticipated results.

The Polish chemical industry, based, as it is, on natural riches, the creative powers of its scientists and efficient labour, has already proved its strength and vitality, which forms the best guarantee for its development in the future.

HISTORICAL PRÉCIS OF THE DEVELOPMENT OF CHEMISTRY IN POLAND

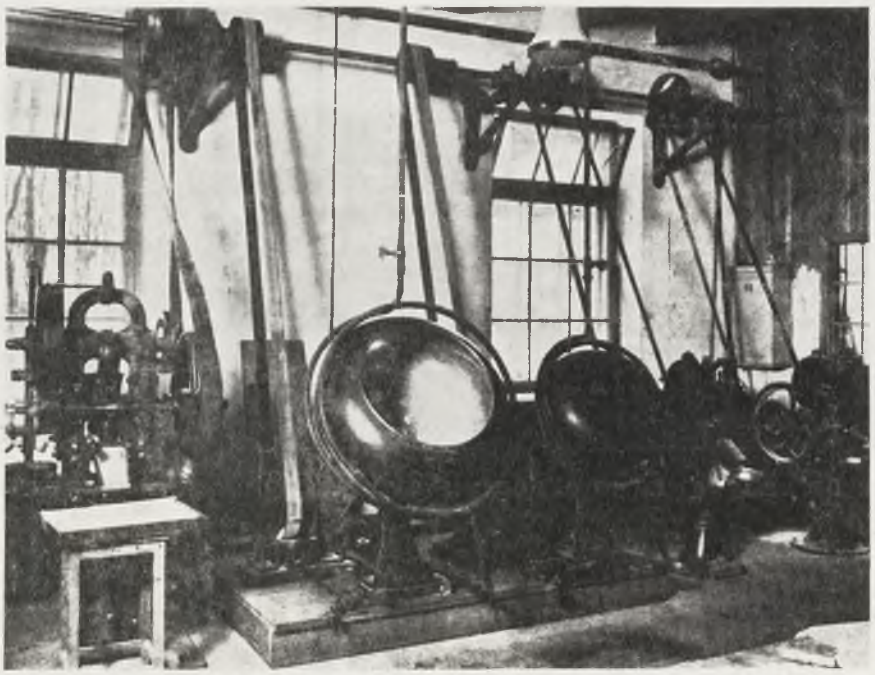
THE PENETRATION of elementary and practical knowlegde of chemistry into Poland commenced at the beginning of the 12th century. It emanated from Western Europe, partly from France, but mainly from Germany and ran parallel with the development of crafts and the art of money stamping, and in general with the development of mining and of production of iron, lead, copper and silver.

The views and practices of alchemists had already in the middle of the 15th century, found propagators among the Polish monks and by the beginning of the 16th century the privileged classes including medical men and many inhabitants of the city of Cracow were engaged in alchemy.

During that time a number of handwritten and printed alchemical treatises were published, the most celebrated being a work entitled "Cosmopolitani Novum Lumen Chymicum, 1604", by a Polish chemist Michael Sendigovius (1566 — 1646), who became celebrated throughout the world. This work ran into 30 editions and was translated into the German, French and English languages. During the 17th and the 18th centuries there can be mentioned only the names of the physician to the court of King Jan Sobieski, Jakób Barner, 1641 — 1686, who was the author of an excellent chemical handbook entitled "Chymia philosophica cum doctrina salium, 1689", which was written in the spirit of the views of Van Helmont, and those of a famous pyrotechnitian named Kazimierz Siemienowicz, who wrote an excellent treatise entitled "Artis Magnae Artilleriae, pars I, 1650".

In the second half of the 18th century Stanisław Konarski (1700 — 1773) initiated education on modern lines in Polish secondary schools in which due consideration was given to the mother tongue. The Commission of National Education, founded in 1775 (the first Ministry of Education, in the world) introduced the system of compulsory secondary education in the mother tongue, and in this way created the necessity for school books in the Polish language. At that time Polish books dealing with chemistry made their first appearance, the first of which was the "Remarks of the Warsaw Physical and Chemical Association, 1769"; this association had already at that time agitated for the foundation of a "Laboratorium Oeconomico Chymicum", the object of which included the improvement and the development of arts and crafts. In the year 1782 the first chair of chemistry was founded at the Cracow University, and in 1784 a similar one at the Wilno University. The downfall of the Polish Republic in the year 1795 checked further development of science and consequently also that of chemistry.

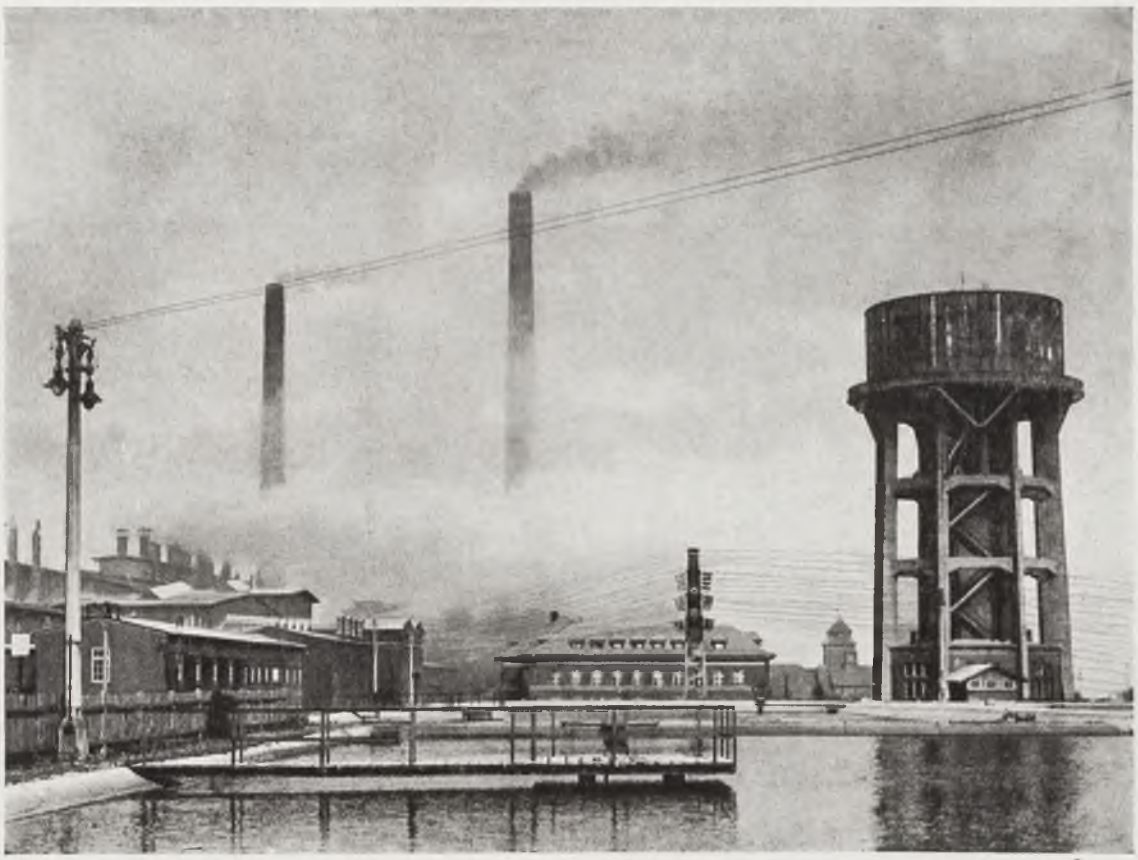
During the period from 1800 to 1830 actual foundations were laid for the scientific development of chemistry in Poland. The greatest services in this respect were rendered by a pupil of Joseph Black, Jędrzej Śniadecki (1768 — 1838), who started to lecture on chemistry at the Wilno University in 1797; being a gifted speaker and most successful experimenter, he made of chemistry a "fashionable" science, while by means of his work "The



PILL MANUFACTURING DEPARTMENT IN A WARSAW DRUG FACTORY *(PHOT. J. MALARSKI)*

beginning of chemistry", (two volumes, 1800), which saw three editions within a very short time, he not only contributed towards the spreading of a thorough knowledge of this branch of science among the educated classes of his time, but also laid the basis for modern Polish chemical terminology.

the Russian Government closed all the existing Universities: in Warsaw, Wilno and Krzemieniec, and moreover abolished the Association for the advancement of Science, so that the country was deprived of all means for scientific work. And as at the same time about 5.000 of the best cilizens had had to emigrate, the number of educated



WATER TOWER AND COOLING TANKS AT POLISH NITROGEN COMPOUNDS WORKS
(PHOT. S. PLATER)

The traditions of Śniadecki were kept up with dignity by his pupil Ignacy Fouberg (1801 — 1891) who since 1882 had been a professor of chemistry at the Wilno University and as such had published a number of valuable works on various subjects.

About the same time worked in Warsaw Count Alexander Chodkiewicz (1776 — 1838) the author of an extensive Polish work on chemistry ("Chemistry", 7 volumes, 1816 — 1820) who founded from his own means a chemical laboratory in which he carried out investigations on chlorine ("Treatise on Chlorine, 1819"), on the obtaining of potassium and sodium in a metallic state, &c., &c. At the Warsaw University, founded in the year 1818, the chair of chemistry was at this period occupied by Adam Kitajewski (1789 — 1837) who in 1825 established for his undergraduates a systematic laboratory training which included chemical analysis.

During the period from 1831 to 1862, that is after the quashing of the insurrection of 1831, people who remained in the country was greatly reduced, with the result that the scientific activity of the Poles was fated for many years to come to be only carried on in foreign countries.

Nevertheless, during the ensuing 30 years a number of works dealing with original scientific investigations were published by Polish chemists who really enriched this branch of science by new discoveries. Thus Ignacy Domejko (1801 — 1889), a pupil of Śniadecki and one of the pioneers of the cultural restoration of the Chilian Republic and Rector of the Lima University, discovered and analysed exactly a whole range of mineral compounds of the Cordilliera and Andes Mountains. His contemporary, Philip Walter (1810 — 1847), the pupil of Mitscherlich and Dumas, who was later to be appointed professor of chemistry at the Kraków University, discovered in Paris a large number of important organic compounds, namely — toluene, cumene, diphenyl, menthene, cedrene, cyclohexane (hexanaphtene).

Somewhat later, Jacob Natanson (1832 — 1884), a pupil of Charles Schmidt, carried out in 1854 at the Derpat University, classical investigations with reference to synthetic uric acid, and threw some light on the construction of this compound, and was the first to discover and to analise fuchsin in 1856.

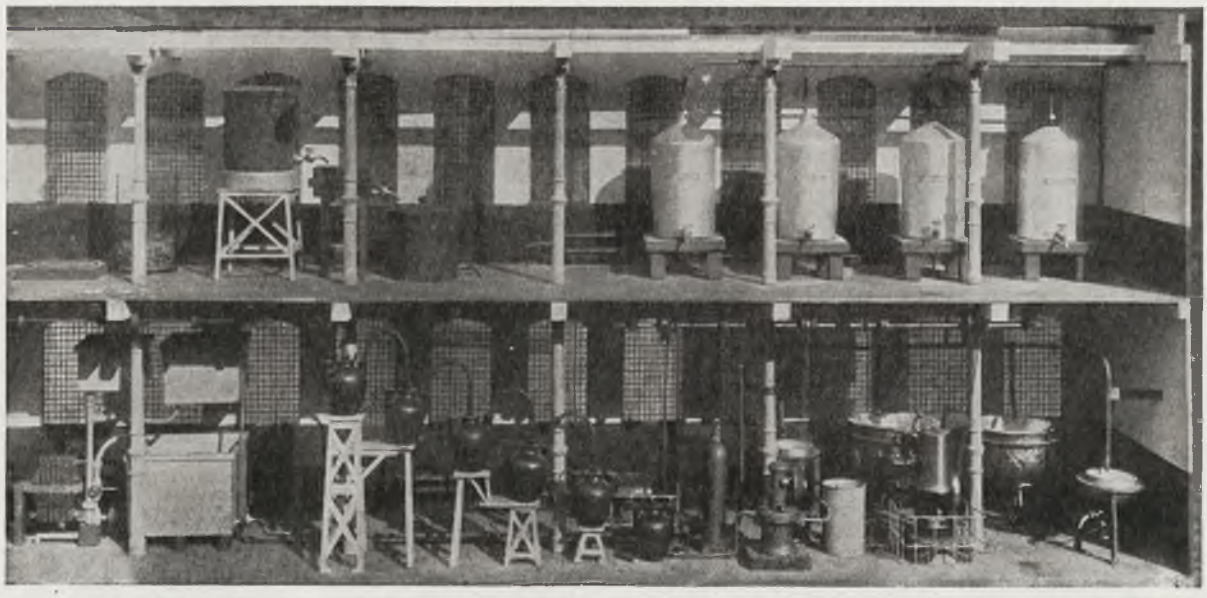
Despite the stoppage at the time of scientific work in Poland, which was due to political unrest, the number of original papers furthering the science of chemistry grew systematically between the years 1830 and 1860. "The Catalogue of Scientific Papers" mentions 94.

During the period from 1862 to 1900, with the opening of the Warsaw Central School in 1862, and with the Polonisation of the Cracow University loss. Commencing with 1871, he published numerous reports on his investigations of phenol and naphtalene dyes.

Other contemporary Polish chemists usually commenced their studies abroad and worked thereon in foreign countries.

Thus Edward Wróblewski (1847 — 1892), commencing in 1869, published in Göttingen, and later on in Petersburg, a range of most valuable papers on the derivatives of toluol; his conclusions constitute a basis and a verification of the views expressed by Kekule on the construction of aromatic compounds.

His brother, Zygmunt Wróblewski (1845 — 1888) the pupil and collaborator of August Kundt, com-



A SCALE MODEL OF A PORTION OF A WARSAW PHARMACEUTICAL LABORATORY
(PHOT. J. MALARSKI)

in 1861, the prospects for the development of scientific work in Poland became much better. Particularly the Central School, in Warsaw (1862 — 1869) awakened among large masses of undergraduates an enthusiasm for natural sciences, especially for the study of chemistry, which had a practical application in the chemical agricultural industry, then progressing by leaps and bounds. Great services in this respect were rendered by Jakób Natanson, one of the best known, and at the same time the most eloquent of this school. His activity resulted in the creation of a chemical laboratory which was organised on quite modern lines. Under the stimulus of the Central School, an increasingly large number of Polish undergraduates devoted their attention to the study of chemistry, mostly at foreign universities, chiefly in Germany and Switzerland, and in some cases in Russia.

Of the pupils of the Central School, the name of Juljan Grabowski (1848 — 1881), collaborator of Adolf Boeyer, deserves to be mentioned for the furthering of chemical science. Through his death the science of chemistry suffered a great

menced at Strasburg, in the year 1874, classical investigations of the diffusion of gases. After his appointment as professor of physics at the Kraków University, together with Karol Olszewski (1846 — 1915), he succeeded in 1883 in liquefying oxygen, nitrogen, and carbon dioxide. This was undoubtedly one of the first and most important achievements of Polish chemists, which made the small Cracow Laboratory famous throughout the world. After the tragic death of Wróblewski in 1888, Professor Olszewski continued to make experiments with the liquefaction of argon and hydrogen, which were successfully achieved; he was also successful in the determination of the physical characteristics for a whole range of gases in a liquid stage. Moreover, he enriched laboratory technique by the construction of his unrivalled appliances for the above work.

A few years before the transformation of gases into a liquid state by Wróblewski and Olszewski, Józef Jerzy Boguski, their contemporary, born in 1853, published in Petersburg, in 1876, his pioneer investigations on the velocity of chemical reactions,

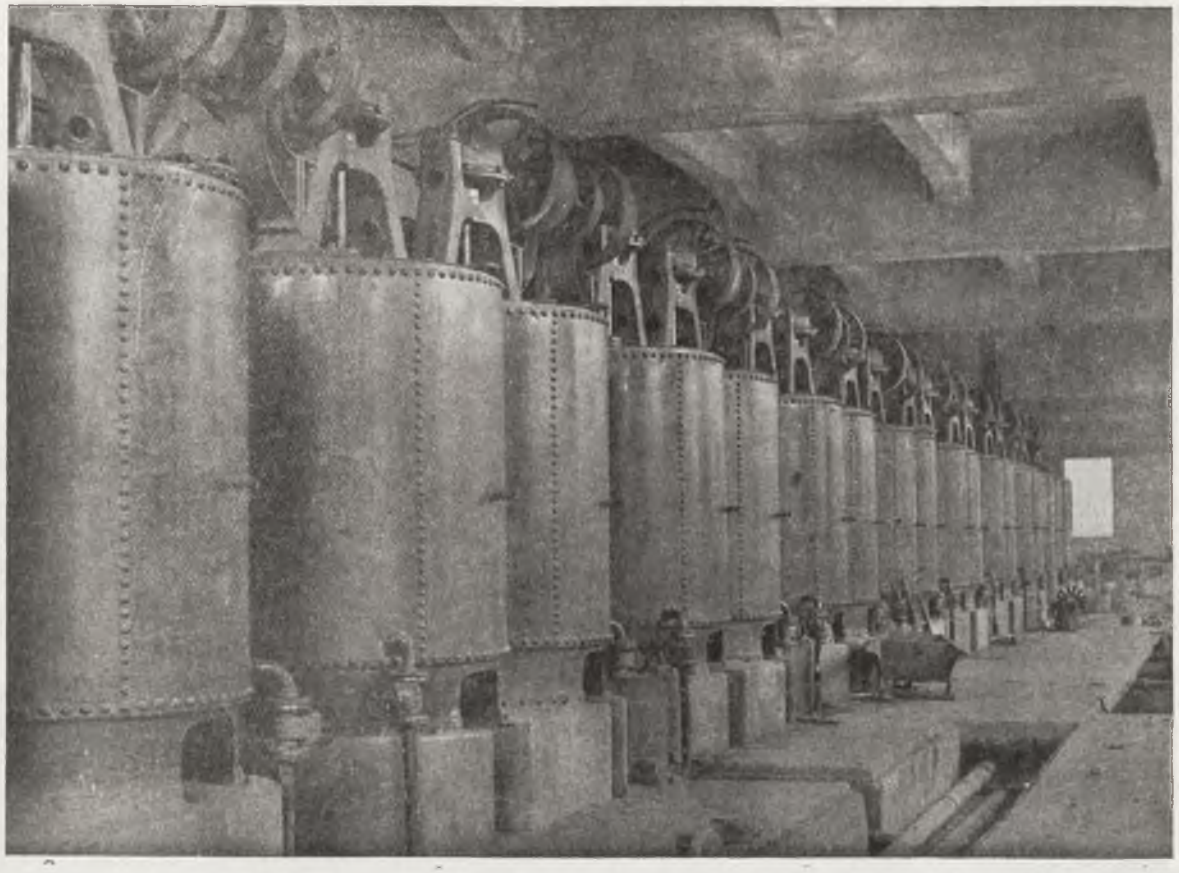
whereby he laid the foundation stone of kinetic chemical reactions of heterogeneous substances.

Marceli Nencki (1847 — 1901), pupil of Adolf Boeyer, commenced his studies at Berlin; his achievements in the province of synthetic organic compounds in physiological chemistry and medical bacteriology are so well known throughout the world that it is hardly necessary to dwell at length on the services he rendered to the science of modern chemistry (see M. Nencki "Opera omnia" 2 volumes, 1904). Appointed professor of physiological chemistry at the Berlin University in 1871, he opened a laboratory which was actually a new chemical school, and an essentially Polish school, for it may be worth while to mention, that several score of Polish chemists who now occupy prominent places in science and industry were trained there. Subsequently, from 1891, Nencki continued to develop his scientific activities in Petersburg, at the Institute of Experimental Medicine.

The traditions of Nencki were continued by Stanisław Kostanecki (1860 — 1910), who, from 1890, was professor of organic chemistry at the Berne University. He was a prominent investigator of synthetic organic dyes, and in particular of the yellow vegetable colours derivating from xanton and flavon. His modest laboratory in Berne gradually became a great scientific institution which contributed materially towards the development of science throughout the world. The school of Kostanecki trained about a hundred Polish chemists, who subsequently devoted their activity to the manufacture of dyes and to the dyeing of fabrics.

Juljusz Brühl (1850 — 1911) also worked abroad, in Heidelberg. For some time he was professor at the Lwów Politechnic, but owing to ill-health he was compelled to abandon this activity, and continued his research work at a private laboratory of his own. Brühl published a whole range of papers on spectrochemistry of organic compounds and elaborated a number of the latest volumes of the extensive handbook "Roscoe - Shorlenmer", entitled "Lehrbuch der Chemie" 1898 — 1901.

Finally, also abroad, and under the leadership of Kekule, much scientific work was done by Bronisław Radziszewski (1838 — 1914), who was well known for his research in the field of aromatic compounds, mainly of the bioxalic group as well as the chemical phenomena connected with phosphorescence. Appointed to the chair of chemistry at the Lwów University in 1872, he created the first Polish school of chemistry in which he educated legions of capable chemists who later on materially contributed towards the development of Polish industry and notably of the petroleum industry in Borysław. In the school of Radziszewski were trained the following professors of chemistry: Ernest Bandrowski, Juljan Schram, Sta-



CONSTRUCTION OF A MIXING PLANT AT A POLISH ARTIFICIAL SILK WORKS
(PHOT. S. PLATER)

nisław Opolski, Kazimierz Kling, Stanisław Niemczycki, and Roman Negnisz.

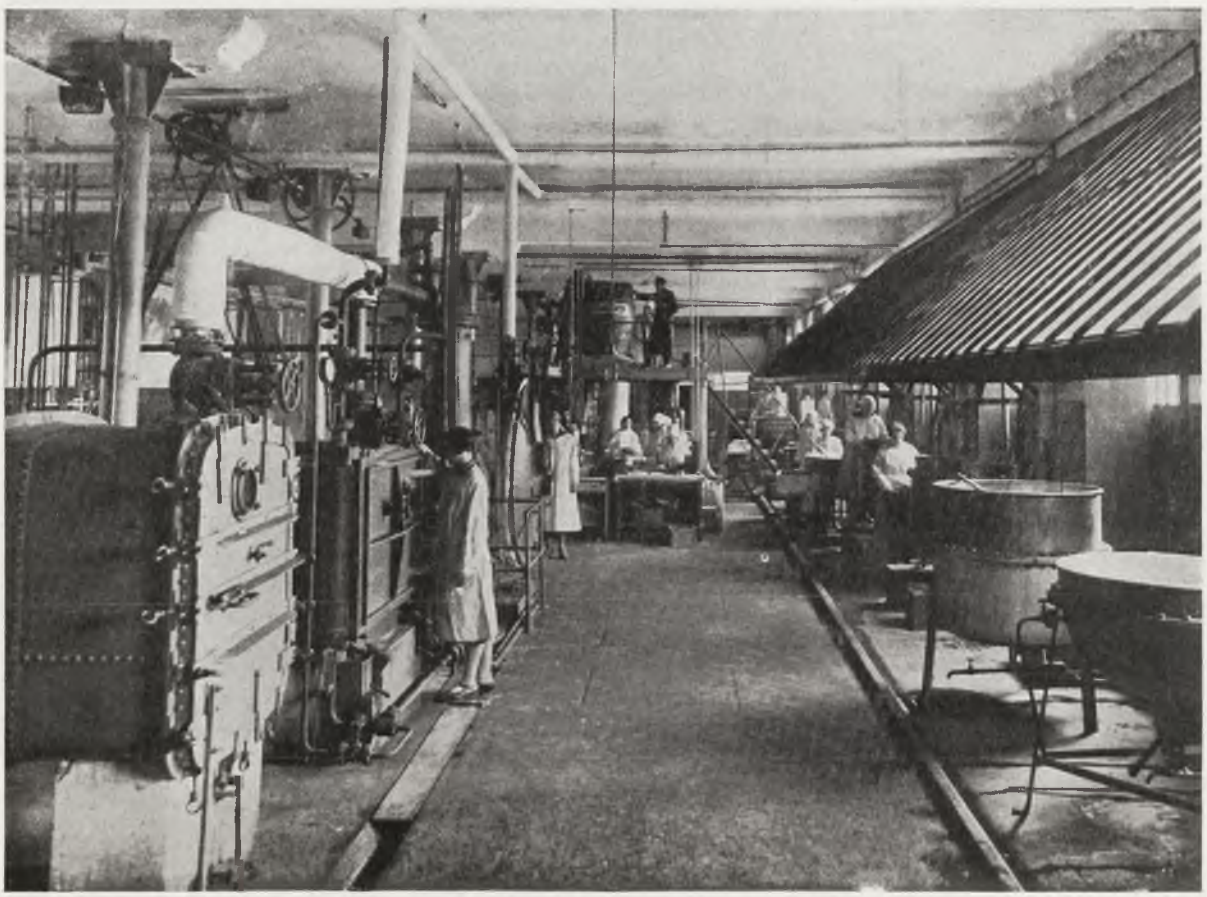
Another centre of chemical research work in Poland was created at the Lwów Politechnic in 1892 by Stefan Niementowski (1871 — 1925), a most persevering investigator of aromatic compounds.

In the Polish universities which were called into being in 1861 and 1872, in former Austrian Poland, only a very small number of Polish chemists could find a refuge; the majority of those who turned their attention to scientific work were compelled to go abroad, where they made important discoveries. In this connection the name of Stanisław Thugutt, the pupil of Prof. Semberg of the Dorpat University, who continued the research in connection with chemical changes in aluminium silicates, should be mentioned

Attention should be drawn to the activity of Leon Marchlewski, a collaborator of Edouard Schünck, who published many papers on chlorophyl and other vegetable colours. To this category of Polish prominent chemists belongs Mme Maria Curie-Skłodowska, who in 1898 discovered the ray emanating elements of radium and polonium.

In 1907, Professor Ludwik Bruner (1871—1913), pupil of Professor Tammann, of Dorpat, created at the Kraków University the first laboratory of physical chemistry which, despite limited accomodation and lack of funds, attracted many students, mostof whom have become professors of chemistry at Polish high-schools.

In 1901 was founded the "*Chemik Polski*", the first Polish chemical review, in which about 400 reports on original investigations were published up to the year 1914.



PHARMACEUTICAL DEPARTMENT AT ONE OF THE WARSAW DRUG FACTORIES
(PHOT. J. MALARSKI)

THE LWÓW EASTERN FAIRS

THE FIRST FEW post-war years represented a period of great development and success of fairs and exhibitions in general. Their rôle as intermediaries proved particularly useful in the re-establishment of those international economic relations, which were severed during the war, and considerably helped the different countries to become acquainted at close range with the territorial and economic changes as well as with the new trade organisations which had arisen in all of them during and after the war.

During this period, in the years 1920 and 1921, Poland, too, called into being on its territory two extensive and permanent fairs at Poznań and Lwów. The first, especially in its initial stage, bore a character of internal propaganda, as the different

provinces of the united Republic were not sufficiently acquainted with each other, while on the other hand, the second was called upon to act as intermediary between Polish producers and foreign purchasing countries; its chief aim, as is suggested by its name — "The Eastern Fair", was the development of economic relations with the Eastern markets.

In 1920 and 1921, after the termination of the war between Poland and Soviet Russia, at the time when the first Lwów Fair was organised, Europe as a whole did not seem to realise sufficiently the acuteness and the permanent character of the crisis into which the chief Eastern country — Russia — had been plunged after the Bolshevik revolution. At that time the widespread opinion was that this adjacent country, which prior to the war abounded in all kind of riches, would soon recover its economic position. The same blunder was made in Poland.

A great deal of interest was at that time displayed in Poland in the neighbouring Russian market, for the reason that prior to the war it absorbed nearly all the products of Polish industry, and particularly of that part of Poland which was then in Russian occupation. A large number of factories had catered almost exclusively for the Russian market, and having been deprived of it they were inactive for some considerable time after the war. To-day the situation is different, for most of the industrial establishments have succeeded in adapting themselves to new conditions, and now either work for the local or for foreign markets, or else have been shut down and liquidated. In the years 1920 and 1921, however, the question of the Russian market was a matter of great urgency for Poland, and it was this factor which was one of the main reasons for the establishment of the Eastern Fair at Lwów.

There was still another reason for which this town was the place which was most prominent in the endeavours to resume commercial relations with the East, and that was the geographical position of Poland in relation to Russia, thanks to which Poland is able not only to export its own products to that country, but it can reasonably expect to act as intermediary between it and Western Europe. The resumption of trade with the Eastern countries was, in 1920-1921, regarded as an absolute necessity in many countries.

It is unfortunately an established fact that the Eastern Fairs did not fulfill their anticipated rôle in the resumption of commercial relations with the East. It was not, however, the organisation of the Fair that was at fault, the failure being solely attributable to the protracted economic crisis in Russia, and the impoverishment of the population of that country. The Eastern Fair failed, as did without exception all enterprises in other countries, which counted on working with Russia.

It is seen therefore that, so far the Eastern Fairs have not followed the line of development which was intended at the time of their foundation, i. e. trade propaganda with the Eastern countries. The fairs, adapted to altered circumstances, have fulfilled a rôle which was badly needed in Poland — that of a general review and display of Polish industrial products for the benefit of foreign countries. Moreover, their initial role was necessarily modified in still another respect: organised as they were on the lines of the Leipzig Fairs, the Fairs at Lwów were to facilitate transactions in the articles brought there, but owing to the unsettled trade conditions throughout Europe after the war, this aim had to be partly abandoned, and the Fairs assumed the character of exhibitions.

The above mentioned evolution was not only justified but even desirable. After its restoration, Poland was so little known in foreign countries that it was compelled firstly to take steps to become known abroad both as a producer and as a consumer. This was, as might be said, a preparatory stage for the opening of large business with foreign countries, and for the organisation of efficient go-between service by means of Fairs. In this way large international exhibitions have, as above mentioned, been organised in the autumn at Lwów and in the spring at Poznań. The bulk of Polish industry is represented there, both those firms desirous of increasing their sales, and those desirous of participating in the general display of the Polish industry, without expecting any immediate profit. Each year an increased number of foreigners come to Lwów and Poznań, and thus get familiarised with Polish production, and if it is true that to-day Poland is no more *terra incognita* for foreign commercial circles, this is, to a great extent, attributable to the Polish fairs, and especially to those held at Lwów, which, as already mentioned, have ever since their inception been destined to further Polish foreign trade.

The following figures will enable the formation of an opinion as to the development of this Fair.

From year to year the area under exhibits is steadily increasing, as illustrated by the following table (in square metres):

1921	25.916
1922	28.233
1923	29.924
1924	30.120
1925	30.296
1926	31.647

The number of exhibitors rose last year, although in the opening stages, and particularly in the record year of 1922, the number of participants was larger than at present. This is illustrated by the following statement, showing separately local and foreign exhibitors:

	Local exhibitors	*Foreign exhibitors*	*Total*
1921	1.246	311	1.557
1922	1.608	244	1.852
1923	1.188	324	1.524
1924	1.130	352	1.482
1925	1.053	357	1.410
1926	1.262	246	1.508

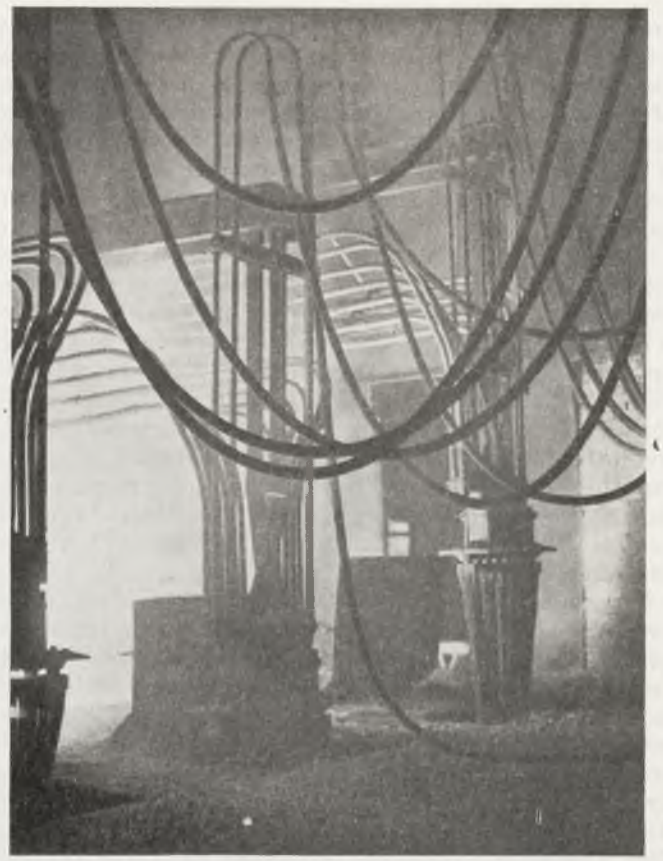
The following statement gives the number of foreign exhibitors according to countries in the years from 1922 to 1926: *(see next page)*

	1922	1923	1924	1925	1926
Austria	134	75	50	40	52
Germany	6	82	88	39	41
France	50	90	87	86	40
Czechoslovakia	8	6	11	20	23
United States	1	8	10	8	15
England	1	15	7	13	15
Belgium	6	1	3	5	12
Sweden	1	4	11	5	10
Italy	1		20	9	6
Switzerland	—	9	23	7	3
Hungary	5	5	9	14	3
Denmark	—	—	1	6	2
Holland	—	2	3	16	2
Latvia	—	—	—	2	2
India and Indochina	—	—	—	—	2
Yougoslavia	1	1	1	3	1
Turkey	—	—	2	—	1
Greece	—	—	—	4	1
Spain	—	—	—	—	1
Algeria	—	19	23	—	1
Rumania	1	1	1	37	—
Russia	—	1	—	24	—
Norway	—	—	1	3	—
Finland	—	—	1	1	—
Esthonia	—	—	—	1	—
Bulgaria	—	—	—	1	—

It should also be stated that, as regards the accomodation and fittings, the Lwów Eastern Fairs have reached a high standard, while their situation on the outskirts of the city in the famous Stryj park is most picturesque.

With all this, the Lwów Eastern Fairs have reached now a turning point. They have discharged their initial task of an exhibition, as which, under present conditions, they have not much more to achieve. At the same time the economic conditions in Europe and also in Poland have very considerably improved since the war, so that the Eastern Fair may now fulfill its vôle as intermediary. Moreover, in so far as Russia is concerned, certain positive possibilities appear to be within sight. All this accounts for the fact that the Lwów Eastern Fairs are on the threshhold of a change in their work, and that after the filling of the tranquil rôle of a propaganda exhibition, they will now turn to the discharge of the task for which they were originally intended.

The Lwów Eastern Fairs from now on will be called upon to collaborate in the organisation of those branches which are engaged in the commerce of such articles as flax, hops, hides, furs, bristles, casings, down, feathers, beeswax, &c. All these are articles, the production of which is disseminated throughout the country, and the producers of which are mostly small farmers.



A PORTION OF CARBIDE WORKS, UPPER SILESIA
(*PHOT. S. PLATER*)

Owing to this, the outputs of these products are difficult to determine. Nevertheless they play an important rôle in the Polish export trade, as well as in that of the adjacent Russian territories. Both in Poland and Russia the trade in these lines is insufficiently organised and is carried on by a whole chain of middlemen, and it is exactly these characteristic and specific circumstances that may allow of useful work being performed by the Fairs.

The forthcoming seventh Eastern Fair which will be held at Lwów from September 4 th to 15 th, will represent an attempt at the reorganisation of the Fairs in the above mentioned sense. Their further evolution in the same direction will ultimately result in the establishment at Lwów of a special institution, which will cover a different field of activity from the fairs hitherto known in other countries.

SUMMARY OF LAWS, ACTS AND EXECUTIVE DECREES

published in the *"Official Journal of Laws of the Republic of Poland" ("Dziennik Ustaw Rzeczypospolitej Polskiej")*

from July 15th to August 15th 1927

The exchange of collections of fractional portions and small cuttings of bonds of the 5 per cent Conversion Loan for larger bonds (*"Dz. Ust. R. P."* No. 64, item 568).

Customs duty on mineral superphosphates (*"Dz. Ust. R. P."* No. 64, item 570).

Authorisation for ratification of the convention relative to the treatment of foreign employees on the same footing as those of Polish origin in the matter of idemnification for injuries sustained at work (the project of this

convention was drafted at the VIIth Session of the International Labour Conference) (*"Dz. Ust. R. P."* No. 65, item 573).

Standardisation of the sizes of bricks (*"Dz. Ust. R.P."* No. 65, item 578).

The extension to the territory of the Free City of Danzig of the Treaty of Commerce and Navigation concluded between Poland and Bulgaria (*"Dz. Ust. R. P."* No. 65, item 582).

Agreement with Germany in respect of passport and customs formalities at Korzeniów (*"Dz. Ust. R. P."* No. 65, item 584 and 585).

The establishment of the State Institute of Agricultural Husbandry (*"Dz. Ust. R. P."* No. 66, item 567).

The organisation and the scope of activities of Treasury Chambers and the offices controlled by them (*"Dz. Ust. R. P."* No. 66, item 588).

Conditional freeing from export duty of rags, old ropes, string and waste paper (*"Dz. Ust. R. P."* No. 66, item 589).

The organisation of labour inspection (*"Dz. Ust. R. P."* No. 67, item 590).

The organisation of Chambers of Commerce (*"Dz. Ust. R. P."* No. 67, item 591)

Partial amendment of the decree dealing with the authority of customs offices to conduct processes in connection with offences against the Treasury of a penal character (*"Dz. Ust. R. P."* No. 67, item 597).

Supplement to the law regarding the powers of the Minister of Land Reform (*"Dz. Ust. R. P."* No. 68, item 598).

Partial amendment of the railway freight tariff (*"Dz. Ust. R. P."* No. 68, item 602).

The authorisation of the ratification of the following International Conventions: The transport of goods by rail, The international relations between railways, and The transport of persons and luggage by rail (*"Dz. Ust. R. P."* No. 69, items 605, 606 and 608).

The establishment of bonded salt warehouses (*"Dz. Ust. R. P"* No. 69, item 938).

PRODUCTION AND TRADE

STATE OF EMPLOYMENT. — The situation prevailing on the labour market showed a further considerable improvement; the total number of unemployed in Poland declined during the four weeks, from July 3rd to July 30th, from 190.546 to 173.445, or by 17.101, or 9·0 per cent. The unemployment figures for the monthly periods of this year were as follows:

January	251.702
February	256.392
March	243.375
April	226.018
May	207.570
June	190.546
July	173.445

It will be seen from the above statement that during the six months which have elapsed since the end of January, when unemployment reached the highest figure in the current year, the number of unemployed has declined by 82.947, or by 32·3 per cent. The rate of the decline in July was much quicker than in the preceding months, the average weekly decreases being 4.275 as against 3.405 in June. A further improvement of the labour situation in July was accounted for by the taking on of additional workers in connection with the harvest, and also by increased industrial production in the preparation of stocks for the forthcoming autumn and winter seasons. Moreover, thanks to good weather conditions, building activity was pursued with intensity both by private persons and by the State. As in previous months, the emigration of hands contributed in but a small degree to the decline of unemployment.

Thanks to better conditions obtaining on the labour market and owing to a steady, though slight, increase in the cost of living, there is good reason to believe that workmens' wages will have to be increased.

During the period under review demands for higher wages were conceded, although in certain cases conflicts between employers and employees were recorded. Thus, in the Bielsk textile centre, the arbitration committee, presided over by the district labour inspector, arranged for an increase from 10 to 11 per cent to be granted to textile workers. In the same district, building workers obtained an increase of 11 per cent. The operatives of the knitted goods industry also obtained an increase of 10 per cent.

Building workers in the Łódź district continued to strike and rejected the proposal made by the employers, who offered them wages paid to this class of workers in the Warsaw district.

The following statement shows the number of unemployed according to trades:

	June	*July*	*+ increase — decrease*
mining	25.990	24.803	— 1.187
foundries	4.855	4.562	— 293
metal	13.594	12.186	— 1.408
textile	19.193	19.179	— 14
building	9.421	7.300	— 2.121
clerical	20.486	19.577	— 909
various	97.007	85.838	—11.169
Total:	190.546	173.445	—17.101

In the coal industry a further betterment both as regards output and sales was recorded in July; despite the continuance of a weak tendency on foreign coal markets, the sales on the local market are on the increase and a larger demand for this commodity is to be anticipated with the approach of the autumn. In the petroleum industry, owing to the completion of several wells, production rose to a considerable extent, but this industry is adversely affected by the decline in prices for crude oil—due to overproduction in the United States of America and elsewhere. The decline in prices hit particularly badly the refining industry. The number of unemployed miners in general declined owing to improved situation in the coal industry, the decrease being 1.187. The number of unemployed was 17 per cent of those employed.

The iron founding industry worked in July under favourable conditions despite the state of depression prevailing on the international market, and competition by the Czechoslovakian and Austrian foundries, on the hitherto exclusively Polish export markets. The demand on the local market continued to be strong, although it showed a certain though slight falling off, compared with June, due to the decline of Government orders, but this was offset to a large extent by increased demand for iron by rolling mills and by nail and screw manufacturers. In view of the lack of supplies of scrap iron, foundries restarted blast furnaces which had been

HARVEST TIME IN EASTERN POLAND *(PHOT. J. BUŁHAK)*

blown out, in order to ensure deliveries to their steel works. In the zinc smelting industry the situation is unchanged, and the plants are being reconstructed for the purpose of modernising the methods. There was a slight decline in the number of unemployed foundry workers, the ratio of unemployed to those employed being about 8. The situation in the metal industry is good, which is also evidenced in the decline of unemployment, the number being represented by 17 per cent of those at work.

The agricultural machinery builders are already making preparations to meet the anticipated increased demand in the autumn season. The manufacturers of weaving and spinning machines are kept very busy, due to increased demand on the part of the local and foreign textile industry. — In the metal hollow ware trade, the situation continues to be excellent, the same remark applies to the wire and nail industries. Unemployed metal workers represented 17 per cent of those employed.

In the textile industry, and particularly in the Łódź centre the output decreased somewhat. Local sales were maintained at a comparatively low level. Improvement is expected to set in after the marketing of crops. A certain increase was recorded in the export of textile products. The textile industry in the Bielsk area is doing well, for in order to cover the demand, mills have been extended and are working double shifts. For the first time since the conclusion of the war there is a shortage of qualified operatives in the Bielsk district. In the Białystok wool industry the situation is much the same; the number of unemployed workers remained constant. Unemployment decreased by 14 persons; unemployed were 13 per cent of the employed.

Despite the stoppage of building operations in the country, due to the harvest and work on the land, the state of employment in the building industry showed a considerable improvement, the number of unemployed having declined by 2.121. Intensified building in the towns in order to finish the work before the setting in of winter also assisted in the improvement. The ceramic industry is busy.

Parallel with the decline of the unemployment of manual workers, unemployment in the group of clerical workers fell by 909.

The largest decrease, in the unemployment figures (by 11.169 persons), similarly as in the preceding months, was shown by the "various" group. This was attributable to the harvest. Favourable situation prevailed in all other branches which have not been referred to, due to the development of work in connection with building schemes of the Government and Municipalities.

Part-time workers at the end of July were 35.836 as against 32.205 at the end of June. Of this number 251 persons worked 1 day per week, 509 — 2 days, 4.047 — 3 days, 7.772 — 4 days, and 23.257 — 5 days per week. On the average the part—time workers were employed in July 4·5 days per week as against 4·4 in June.

GRAIN

— The fine sunny weather prevailing in July accelerated the ripening of grain and had a favourable influence on the harvest. In the South-Western part of the country at the opening of the harvest continuous rains prevailed, but subsequently the weather changed for the better, so that the harvest all over Poland was completed under normal conditions.

It is now possible to form an opinion as to the yield of this year's crops. According to the calculations of the Chief Statistical Office on the 5 point system, which were effected prior to the harvest, the estimated yield of the four main cereals is as follows (in thousands of tons):

wheat	1.380
rye	5.980
barley	1.710
oats	3.260

These figures are provisional, and may be subject to alterations when the data based on trial threshings are available. It may, however, be stated that they exceed the estimates calculated by the Chief Statistical Office at the end of June, and that they are higher in relation to the actual yields of last year, the increases being: wheat — 7·8 per cent, rye — 19·4 per cent, barley — 10·3 per cent and oats — 6·9 per cent.

The completion of the harvest under favourable conditions, as well as the anticipated good results, brought about a falling off in grain prices as is illustrated by the following statement:

(See table next page)

The largest decreases were observed in the prices of barley and rye which fell in the first half of August, by 29·4 per cent and 23·4 per cent respectively as compared with the first half of July. During the same period the prices for oats fell by 10·5 per cent, and those of wheat by 8·7 per cent.

Export of grain from Poland was maintained in July on about the same level as in the previous month, which is illustrated by the following table (in tons):

	1927		1926
	June	*July*	*July*
wheat	219	235	1.555
rye	532	304	38.349
barley	423	245	8.736
oats	289	317	7.043

Wheat, rye and oats were almost exclusively exported to Germany, 60 per cent of barley was directed to Denmark and smaller quantities were absorbed by Latvia and Germany.

Imports of grain in July were greatly reduced, owing to the new crops, the largest decrease being recorded in the case of wheat, as is illustrated by the following table (in tons):

	June	*July*
wheat	61.399	10.185
rye	26.060	16.985
barley	1.159	670
oats	11.533	3.871

Wheat was mostly imported from Russia (37·4 per cent), and from Germany (28·2 per cent); rye from Australia (45·2 per cent), Germany (11·4 per cent), Canada (10·6), the United States of America (8·2 per cent) and smaller percentages originated from Argentine, Hungary, Russia, Rumania, Latvia and Czechoslovakia; barley was imported from the following countries: Rumania (64·6 per cent), Germany (24·5 per cent), and Hungary (10·9 per cent); oats — from Russia (78·1 per cent), and Rumania (19·6 per cent).

The month of July closed the 1926/7 season, insofar as the movement of grain is concerned, with an adverse balance amounting to gold ℥ 68.640. The grain balance of this year, as compared with the previous year, is given below (in tons):

	1925/6		*1926/7*	
	import	*export*	*import*	*export*
wheat	1.721	132.394	227.545	17.038
rye	1.503	322.010	123.981	81.487
barley	792	169.287	3.031	93.370
oats	4.576	93.044	44.493	8.484

It will be seen from the above figures that there was a favourable balance in the movement of barley, the remaining items showing considerable excesses of import over export. The causes of this unfavourable balance have been dealt with at length in previous monthly reports. A more detailed report in regard to the grain situation during the year 1926/7, will be given in the next issue.

	July 1st—15th		July 16th—30th		August 1st—15th		Percentages of difference	
	℥	$	℥	$	℥	$	℥	$
WHEAT:								
Warsaw	55·75	6·25	57·07	6·40	53·20	5·96½	— 6·78	— 6·80
Poznań	51·56	5·78	52·62	5·90	48·97	5·49	— 6·94	— 6·95
Lwów	52·31	5·86½	50·04	5·61	43·40	4·86½	— 13·27	— 13·28
Average price	53·20	5·96	53·25	5·97	48·52	5·44	— 8·88	— 8·88
Berlin RMk.	—	—	—	—	—	—	—	—
Chicago	—	5·31	—	5·17	—	5·10½	—	1·26
RYE:								
Warsaw	52·—	5·83	46·60	5·22	39·11	4·38½	— 16·03	— 16·00
Poznań	49·02	5·49½	50·13	5·62	37·28	4·18	— 25·63	— 25·62
Lwów	45·89	5·14½	41·70	4·67½	36·12	4·05	— 13·38	— 13·37
Average price	48·97	5·49	46·14	5·17	37·50	4·20½	— 18·73	— 18·67
Berlin RMk.	25·96	6·18	25·03	5·96	21·81½	5·19½	— 12·85	— 12·84
Chicago	—	4·31	—	4·11	—	3·64	—	— 11·44
BARLEY:								
a) Brewing:								
Warsaw	48·61	5·4	—	—	—	—	—	—
Poznań	47·—	5·27	—	—	—	—	—	—
Average price	47·80	5·36	—	—	—	—	—	—
Berlin RMk.	25·64	6·10½	—	—	—	—	—	—
b) Feeding:								
Warsaw	—	—	43·26	4·85	35.05	3.93	— 18.98	— 18.97
Poznań	—	—	40·27	4·57½	34·63	3·88	— 14·01	— 14·06
Lwow	—	—	35·67	4·00	32·55	3·65	— 8·75	— 8·75
Average price	—	—	39·73	4·45½	33·76	3·78½	— 15·03	— 15·05
Berlin RMk.	—	—	19·91	4·74	20·05	4·77½	+ 0·70	+ 0·74
Chicago	—	—	—	3·76	—	3·46½	—	— 7·85
OATS:								
Warsaw	43·88	4·92	41·61	4·66½	39·90	4·47½	— 4·11	— 4·07
Poznań	41·03	4·60	41·03	4·60	38·80	4·35	— 5·44	— 5·44
Lwów	37·11	4·16	34·16	3·83	32·74	3·67	— 4·16	— 4.16
Average price	40·67	4·56	38·93	4·36	37·15	4·16	— 4·57	— 4·59
Berlin RMk.	25·64½	6·10½	26·18½	6·23½	26·16	6·23	— 0·10	— 0·09
Chicago	—	3·14	—	3·03	—	3·18	—	+ 1·27

TIMBER RAFTS ON THE VISTULA (*PHOT. S. PLATER*)

BUTTER

— In the latter half of July the prices of butter on the local market experienced a rise, which amounted to about 10 per cent in Warsaw; this tendency continued in the first half of August. The rise is explained by the harvest operations and the increased consumption of milk in the villages, the decline in the supplies of dairy products to the wholesale milk trade and to the towns, and also by the drought which prevailed during July and August, and which resulted in a shortage of feeding stuffs; all of which factors adversely influenced the production of milk.

The prices for first quality butter in the second half of July, and in the first half of August are given below:

	July 15th-31st		*August 1st-15th*		*Percentages of difference*	
	zł	$	zł	$	zł	$
Bydgoszcz	5·70	0·63	6·36	+0·68	+ 8·5	8·0
Lublin	5·25	0·58	5·80	+0·64	+10·5	10·3
Sosnowiec	5·85	0·65	6·30	+0·69	+ 7·8	6·9
Warsaw	5·70	0·63	6·20	+0·68	+ 8·5	8·7
Wilno	5·40	0·60	5·80	+0·64	+ 7·4	6·9

Exports of butter showed a further increase in July and amounted to 1.249 tons, valued at zł 6,245.000 as against 1.001 tons in the preceding month. The best customer was Germany, which took 52·8 per cent of the total quantity marketed abroad. England and Austria absorbed 32·5 and 9·8 per cent respectively of the total, smaller amounts being taken by Denmark, and Czechoslovakia.

EGGS

— During the latter half of July the egg market was somewhat subdued. Owing to the harvest, the supplies of eggs decreased, while at the same time due to higher figures ruling on the local market, and a slight downward tendency on the foreign consuming markets, the export situation became less favourable.

In the first half of August the market tendency was strong. This was mainly due to the hot weather which renders difficult the movement of eggs.

Compared with the latter half of July, wholesale prices rose considerably, and were as follows (in zł per case of 1.440 eggs):

	July 15th — 31st	*August 1st — 15th*
Kraków	187·5 to 196·5	205·— to 207·5
Lublin	190·— „ 205·—	190·— „ 200.—
Sosnowiec	200·— „ 205·—	200·— „ 215·—
Stanisławów	178·5 „ 187·5	205·—
Tarnów	187·5 „ 196·5	204·— „ 210·—
Warsaw	190·— „ 200·—	190·— „ 115·—

With the completion of the harvest the supply of eggs will increase as usual, but any considerable decline in the prices is not anticipated, owing to the decrease in production in the autumn. A comparatively high level of prices on the internal market renders difficult the export to foreign markets, where the level of prices is lower than in Poland. Export prices loco frontier, for two shallow cases of 720 eggs each, were $ 26 to $ 28 in the first half of August.

Export of eggs in July amounted to 5.950 tons valued at zł 14,112.000, which was less by 2.748 tons as compared with the previous month. Of the total exports 55·6 per cent were directed to Germany, 20·0 to Austria, 3·8 to England, and 4·0 to Czechoslovakia.

TIMBER

— In view of the exhaustion of timber supplies, which had been already sold in the winter season, the market was quiet in July. Owing to the shortage of round timber, there was a slight upward tendency for sawn material, with the exception of sawn pine which declined from zł 2 to 3 per cubic metre.

The export of pit props and sleepers was maintained at the same level as in previous months, whereas that of round wood and logs showed a further falling off. On the other hand, there was a considerable increase in the export of pulpwood, of deals and boards.

The prices obtained in June and July by the different State Forest Directorates, loco truck, loading station, were as follows (in zł per cubic metre):

			June	*July*
pine logs for saw mills	(per cubic m.)	Warsaw	59·—	59·—
	„ „ „	Radom	40·—	42·—
	„ „ „	Siedlce	38·—	38·—
	„ „ „	Wilno	35·—	38·—
	„ „ „	Białowieża	40·—	40·—
	„ „ „	Poznań [1]	31·96	31·40
	„ „ „	Bydgoszcz	41·24	40·71
	„ „ „	Toruń [1]	46·98	48·75
	„ „ „	„ [2]	40·51	43·40
pine logs for building purposes	(per cubic m.)	Siedlce	30·—	30·—
	„ „ „	Białowieża	32·—	32·—
	„ „ „	Wilno	24·—	30·—
pine pit props	(per cubic m.)	Warsaw	32·—	32·—
	„ „ „	Radom	25·—	25·—
	„ „ „	Siedlce	20·—	20·—
	„ „ „	Poznań [1]	26·80	24·11
	„ „ „	Bydgoszcz [1]	25·70	24·06
	„ „ „	Toruń [1]	24·50	—
	„ „ „	„ [2]	23·34	23·80
spruce logs for saw mills	(per cubic m.)	Siedlce	32·—	32·—
		Lwów	30·38	[3]
oak logs for joinery	(per cubic m.)	Białowieża	85·—	85·—
	„ „ „	Łuck	110·—	110·—
pulpwood	(per stacked cub. m.)	Siedlce	25·—	25·—
	„ „ „	Wilno	22·50	22·50
	„ „ „	Białowieża	23·—	23·—
pine fire wood	(per stacked cub. m.)	Warsaw	14·—	14·—
	„ „ „	Radom	12·—	12·—
	„ „ „	Siedlce	10·—	10·—
	„ „ „	Wilno	6·50	6·50
	„ „ „	Białowieża	12·—	12·50
	„ „ „	Poznań [2]	9·68	9·29
	„ „ „	Bydgoszcz	10·83	11·—
	„ „ „	Toruń [2]	10·37	9·05
spruce fire wood	(per stacked cub. m.)	Lwów	7·73	[3]
beech fire wood	(per stacked cub. m.)	Lwów	10·72	[3]

[1]) *Prices for timber measured l. o. b.*
[2]) *Prices for timber affected by the Panolis flammea.*
[3]) *Figures not yet available.*

Exports of timber in July last, as compared with the preceding month, were as follws (in tons):

	June	*July*
pulpwood	68.544	140.329
pit props	100.777	100.486
logs and stems	132.802	128.541
telegraph poles	5.144	8.876
deals, boards, battens	179.231	191.880
coopers' ware	26.227	26.514
sleepers	3.108	3.824

COAL

— In July there was noticeable a certain improvement in the Polish coal industry, due mainly to augmented local demand; exports also increased, but in a lesser degree than the local sales. In virtue of these favourable factors, the extraction of coal rose considerably, while at the same time the pit-head stocks declined.

The above mentioned increase in local requirements, which took place despite the summer season, seems to indicate a certain tendency to improvement in Polish industry as a whole. As up to the present wholesale dealers have not placed orders for the autumn season, it is anticipated that a further increase in sales will take place in August and particularly in September.

As regards the export of Polish coal, it should be stated that its development in July was handicaped by competition on the part of the English coal owners. In any case the exports of Polish coal increased steadily during the period after the settlement of the coal dispute in England and reached in July 925.000 tons, but owing to the considerable fall in coal prices during the past few months, the aggregate value experienced a further drop.

The state of the industry in the three main centres in July is illustrated by the following figures (in tons):

Coal mining districts	*Extraction*	*Home consumption*	*Exports*	*Stocks at pit heads*
Upper Silesia	2,278.000	1,293.000	784.000	1,055.000
Dąbrowa	631.000	405.000	141.000	388.000
Kraków	176.000	152.000	—	79.000
Total for July:	3,085.000	1,850.000	925.000	1,522.000
Total for June [1]):	2,773.000	1,657.000	879.000	1,568.000
+ in relation to June:	+ 312.000	+193.000	+ 46.000	—46.000

[1]) *Corrected figures.*

The total output of Polish coal in July amounted to 3,085.000 tons or 312.000 more (11·25 per cent) than in the preceding month. Sales during the same period amounted to 2,775.000 tons, an increasse of 239.000 tons (9·42 per cent), as compared with June. Stocks were 1,522.000 tons, the decline as compared with the preceding month being 46.000 tons (2·93 per cent). Local sales during the period under review were 1,850.000 tons or 193.000 tons (11·65 per cent) more than in June. Exports were 925.000 tons, an increase of 46.000 tons (5·23 per cent) over June.

Exports of coal in July to the different countries are illustrated in the following table (in thousands of tons):

Destination	*1925 1st sem. (monthly average)*	*1926 1st sem.* [2]) *(monthly average)*	*1927: June* [1])	*1927: July*
Austria	194	214	163	221
Hungary	36	42	50	57
Sweden	—	144	200	213
Denmark	2	72	107	119
Czechoslovakia	47	41	33	6
Latvia	1	18	23	20
Yougoslavia	8	14	38	42
Switzerland	2	10	17	14
Italy	1	49	85	97
Rumania	6	8	14	18
Lithuania	1	3	6	16
Memel	1	3	5	2
Holland	—	1	—	—
Finland	—	9	14	19
France	—	23	17	10
Norway	—	7	14	9
England	—	37	—	—
Germany	451	1	1	—
Belgium	—	—	19	4
Russia	—	—	—	—
Other countries	—	1	10	—
Total:	750	697	816	867
Danzig	26	37	32	41
Bunker coal	—	38	31	17
Total:	776	772	879	925
Export, Germany not included	325	771	878	925
Shipped through:				
Danzig	29	225	335	313
Gdynia	—	30	67	85
Tczew	—	5[3])	15	20

It will be seen from the above data that as regards the July exports, as well as their rise in relation to the preceding month, the first place is occupied by Austria, which increased its imports by 58.000 tons (35·58 per cent). The next places in this respect are occupied by Sweden with 13.000 tons, (6·50 per cent), Denmark with 12. 000 tons (11·21 per cent), Italy with 12.000 tons (14·12 per cent). In addition, comparatively large increases took place in the volume of exports to Lithuania (from 6.000 to 16.000 tons) as well as to Danzig (by 9.000 tons), Hungary (by 7.000 tons), Finland (by 5.000 tons) and also, though in a lesser degree, to Yougoslavia and Rumania. On the other hand exports of coal from Poland to Czechoslovakia fell from 33.000 tons in June to 6.000 tons in July (81.82 per cent), due to the restriction placed by the Czechoslovakian government on import of coal despite the fact that, according to the commercial treaty between the two countries, Poland is entitled to a monthly contingent of 16.000 tons. The exports to Belgium declined by 15.000 tons (78·95 per cent) and in a lesser degree those to France—by 7.000 tons, Norway—by 5.000 tons and to Latvia, Switzerland, Memel and Germany. Moreover, a sensible decline was recorded in July in the sales of bunker coal by 14.000 tons (82·35 per cent).

The average daily dispatch of coal to foreign countries amounted in July (26 working days) to 35.577 tons, or 2.640 tons (6·91 per cent) less than in June (23 working days).

The shipment of coal through Polish ports in July was 418.000 tons, or about 1.000 tons less than in June. The volume shipped through Gdynia rose by 18.000 tons (26.87 per cent) as compared with June, and through Tczew—by 5.000 tons (33·33 per cent). The quantity sent via Danzig declined by 22.000 tons (6·57 per cent). Coal consignments directed through the three above mentioned ports represented 45·19 per cent of the total coal exports in July, as against 47.44 in June.

Parallel with the improvement of the coal industry in July, the number of idle days declined, which is shown by the fall in the relation of their number to the total number of working days, which declined from about 8 per cent in June to an average of 4 per cent in July, although towards the end of the month, owing to the shortage of coal trucks the ratio again rose to 8 per cent.

The number of workmen employed in July was 109.518, or 639 more than in June. Thanks to the increase of output and the decline of the number of idle days, the average daily productivity rose again, being 1.190 kg. per day and per workman as against 1.175 kg. in June, the increase being 15 kg. (1.25 per cent).

It is interesting to note that the productivity for July was higher by 4·11 per cent than in the corresponding month of 1913. The wages in the coal mining industry were unchanged during

[1]) *Corrected figures.*

[2]) *The monthly average figures for separate countries have been calculated by dividing the respective figures for the first semester by 6; but in fact, these figures were reached for the exports of coal to Holland—during 2 months, to Finland—during 5 months, to Norway during 4 months. The exports to England date since June, in whtch month they amounted 221.000 tons.*

[3]) *Average quantity for 6 months; this figure has been calculated as explained in note No. 2; exports via Tczew lasted only 4 months.*

GENERAL VIEW OF THE STATE PETROLEUM REFINERY *(PHOT. S. PLATER)*

the month; the negotiations in regard to the abolition of the agreement between the employers and the employees in the Dąbrowa and Kraków basins, of which notice had been given by the Central Union of Miners at Kraków, has not been completed up to the time of writing.

The average daily earnings of miners, together with various supplements including those in kind, were from ℵ 6·28 to ℵ 8·06 in June.

The home and export prices to countries within the Coal Convention remained unchanged. On the other hand quotations f. o. b. Danzig and Gdynia were as follows per 1 ton of Upper Silesian large: at the beginning of July £ 13·3 to 13·6, at the end of July £ 13·3, and for the Dąbrowa large at the beginning of July £ 12·6 to 12·9, and at the end of July £ 12·0 and 12·3.

PETROLEUM

— According to provisional data the output of crude oil in Poland in July was as follows (in tons):

in the	Drohobycz district	53.120
" "	Jasło "	6.200
" "	Stanisławów "	3.600

Of this quantity 46.600 tons, or 74 per cent, were produced at Borysław. The average daily output in the most important Polish petroleum district, Borysław, amounted to about 1.500 tons, and was practically the same as in the previous months although owing to the larger number of days in July, the output rose by 1.350 tons as compared with June (45.252 tons). It will be thus seen that the production of the chief Polish petroleum oil-field is stabilised, which is due to the completion of a number of wells and to an increase of productivity of certain wells, which more than compensates the natural decline of production of others.

Among the newly completed wells should be mentioned Joseph III, at Mrażnica, which on July 4th, at the depth of 1.575 metres gave about 50 tons per 24 hours, and which subsequently stabilised at 20 tons per day, with a slight admixture of water. As these results were obtained before reaching the chief oil bearing deposits, the "Borysław sand-stone", which is particularly rich in oil, as is confirmed by other wells, located in immediate vicinity, better results are anticipated as soon as the proper layer is attained. On July 19, the well "Sadler XII" of the "Standard Nobel" began to give 25 tons per 24 hours after reaching the "Borysław sand-stone" at the depth of 1.458 metres.

Moreover at a well in Pasieczna, Stanisławów district, belonging to the same firm, natural gases, containing gasoline to the amount of 30 grams per cubic metre, were obtained at the depth of 1.597 metres at the rate of 178 cubic metres per minute.

Workmens' wages remained unchanged in July.

On the crude oil market a certain slight upward tendency was noticeable, the price for Borysław standard crude being from $ 22·5 to 23 per ton. On the petroleum products market the tendency was rather weak, even for benzine, despite the season for this product.

In June the total output of crude oil in Poland was as follows (in tons):

in the Drohobycz district	51.707
„ „ Jasło „	5.959
„ „ Stanisławów „	3.400

Of this quantity 45.252 tons were produced at Borysław. The average daily production in the Borysław basin was 1.508 tons as against 1.486 tons in May and 1.429 in April.

The stocks of crude oil at the storage companies and at the wells at the end of June were 49.033 tons as compared with 44.051 tons at the end of May.

The volume of natural gases obtained in June was 35,494.000 cubic metres. Of this quantity 21,254.000 cubic metres, or 60 per cent, were absorbed by gasoline works.

The total output of gasoline amounted to 2.302 tons, of which 2.083 tons were absorbed by local refineries as an admixture to the heavier varieties of benzine; 59 tons were exported to Austria and Czechoslovakia.

The decline in the output is attributable to the depressed state of the market and a diminished consumption in the summer season.

The output of the two mines at Borysław and Dźwiniacz amounted to 60 tons of which 44 tons were exported to Germany. The stocks at the end of June amounted to 202 tons. The situation on the ozokerite market, both local and foreign, continued to be rather weak.

The operation of the refineries in June is illustrated by the following figures (in tons):

throughput of oil	60.979
output of petroleum products	55.802
exports	19.256
stocks on July 1st	20.503
number of workmen employed	170.750

The State Petroleum Refinery at Drohobycz, the largest in Europe, utilised 9.071 tons in June. There were 27 refineries in operation which, at the end of June, employed 5.176 workmen.

The exports of petroleum products were directed to the following countries (in tons):

Austria	2.783
Czechoslovakia	7.607
Germany	1.160
Switzerland	1.182
Other countries	1.899
	14.631
Danzig	5.872
Total:	20.503

In June there was a certain, though slight, decline in exports (in May 21.332 tons). The decline was mainly in respect of petroleum, the export of which in May amounted to 3.147 tons; but this is accounted for by seasonal causes. The volume of benzine was about the same as in the preceding month (5.603 tons as against 5.902 tons in May), while that of gas oil (4.306 tons) and of lubricants (4.481 tons) showed a certain increase. Exports of paraffine and paraffine wax were 1.278 tons, of which 645 tons were directed to Danzig.

The stocks of petroleum products rose considerably and were 170.750 tons in June as against 152.624 in May.

The largest portion of these stocks represent semi-finished articles and residues (64.456 tons) and lubricating oils (33.580 tons). Due to seasonal causes the stocks of petroleum for lighting purposes rose from 21.648 tons in May to 32.772 tons in June. Stocks of benzine were in June 13.547 as against 13.158 in the preceding month.

POTASSIUM SALTS

— There are two potassium salt mines in Poland, at Kałusz and Stebnik, which, it may be recalled, are State-owned and are leased by the Potassium Salts Exploitation Company, two thirds of the capital of which is held by the Treasury. The first of the two mines produces silvinite, containing up to 35 per cent K_2O, and kainite, containing up to 12 per cent K_2O, the second one only kainite containing up to 18 per cent K_2O.

During the first half of this year the two mines, employing 839 workmen, were operated at full capacity. The total production of potassium salts in Poland during this period amounted to 137.807 tons of which 87.557 tons, or 63·5 per cent were raised at Kałusz and 50.250 tons or 36·5 per cent at Stebnik. The output of silvinite and kainite were 65.817 tons (47·7 per cent) and 71. 990 tons (52·3 per cent) respectively. Compared with the first half of 1926, the output of potassium salts rose by 38.208 tons, or by 38·3 per cent. The output of the Kałusz mine rose by 20.926 tons or by 31 per cent and of the Stebnik mines by 17.282 tons or by 52 per cent. The increase recorded was mainly in respect of kainite, the output of which rose by 36.707 tons or by 104 per cent, as compared with the corresponding period of last year. The increase in the production of silvinite was only 1.501 tons, or 2·3 per cent as compared with the same period.

The sales effected during the first six months of this year were 116.033 tons including 61.349 tons (52·8 per cent) of kainite and 54.684 tons (47·2 per cent) of silvinite. Compared with the corresponding period of last year the sales were larger by 18.749 tons or by 19 per cent; it is also interesting to note that there was a larger demand for kainite, the sales of which rose by 30.226 tons or by 97·1 per cent, while the sales of silvinite decreased by 9·748 tons or by 17·8 per cent. The cause of the enormous increase in the sales of kainite at the expense of silvinite lies mainly in the difference in the prices of the two articles. The first variety, which is obtainable at very low prices, is largely utilised by those small-holders, who cannot afford to buy the second.

The total consumption of potassium salts in Poland during the period under record amounted to 159.242 tons, the increase being 62.469 tons as compared with the same period of last year, or 64·6 per cent, which is indicative of the improvement of the financial position of the Polish farmers.

Imports of potassium salts during the period January — June 1927 amounted to 51.196 tons or about 1/3 of the total consumption.

It is anticipated that the volume of imports of potassium salts from Germany will decrease in the future owing to the construction of a large concentrating plant at Kałusz, which is organised and equipped on up-to-date lines, and can work about 600 tons of salt per day. The concentrated salt will be identical with that produced in Germany, the type which the farmers of former German Poland are accustomed to use.

The sale prices for the potassium salts, which for a long time were maintained at the level ℥ 24·2 for kainite and from ℥ 56 to 75 for silvinite, according to the contents of K_2O (per ton loco mine) were increased by 14 and 10 per cent respectively as from May 1st last.

The above mentioned data indicate that the production of potassium salts in Poland is making a steady headway and there is no exaggeration in saying that the country will be able to supply its whole requirements itself within a short time.

POTASSIUM SALTS EXPLOITATION COMPANY, LTD., LWÓW.— Salt mining in the vicinity of Kałusz dates back to the XVth century. When Austria appropriated Galicia, Kałusz was the property of Prince Czartoryski, from whom, in 1782, it was bought by the Austrian Treasury, together with Bania, an already existing saline, and 32 hamlets.

In the middle of the XIXth century, potassium salt beds were remarked in the Kałusz basin, though at first the Austrian government paid no

GENERAL VIEW OF THE POTASSIUM SALTS CONCENTRATING PLANT AT KAŁUSZ *(PHOT. S. PLATER)*

attention to this discovery. Only when potassium salt mines developed in Germany, and their great value to agriculture was determined, was it deemed advisable to make a mining and chemical investigation of the Kałusz beds.

In 1867 the government leased the Kałusz mine to a company, headed by Count Alfred Potocki, which commenced to produce kainite. The company established at Semmering, near Vienna, a chemical factory for the transformation of Kałusz kainite, and began to sell potassium chlorate and several forms of artificial fertilizers. Owing to the difficulties made by the Austrian government, perhaps under the influence of Germany, which feared competition with its Strassfurt potassium salts, the company was forced to liquidate; and for a time the exploitation of potassium salts in Galicia was at a standstill, to the detriment of Polish agriculture and mining.

In 1878 the Galician Sejm again brought the question of kainite exploitation before the Austrian Government, and finally, in 1887, mining began again in Kałusz.

In 1910 the exploitation of potassium salts in Galicia took on a different complexion. Messrs. "Kali", a private company, put through the Vienna Parliament the classification of potassium salts as a "protected mineral", staked out mining claims over a large area from Drohobycz to Kossów, and demanded a government concession for the exploitation of potassium salts on this territory.

In 1914 the new Joint Stock Company for the Exploitation of Potassium Salts was founded, with which the further fate of the Kałusz mine is henceforward to be bound.

Before the war, owing to a century's neglect on the part of the Austrian Government, the Kałusz mine could not even meet the demand for potassium salts for Galicia, which, in 1912, amounted to 3.645 waggons, more than half of which were brought from Germany, and only 1.645 supplied by Kałusz.

Directly after the mine was taken over by the Potassium Salts Exploitation Company, the war prevented any further development. At half yearly intervals Kałusz was the scene of battles or invasions such as those of Russian troops, Kierenski and Ukrainian armies, and Bolshevik raiders.

Nevertheless, already in 1918 the full force of the benefits derived from the taking over of the mine by the Company became apparent. In 8 months of that year, up to the time of the Russo-Polish war, the Kałusz mine produced 2.214 waggons of potassium salts, and was thereby of great service to Polish agriculture, at a time when not a single truck of potassium salts was coming from Germany.

From year to year the Company has developed production, till in 1926 it supplied home agriculture with over 200.000 tons of potassium fertilizers, and thus covered 75 per cent of the home demand.

In the wake of agricultural progress, the Company has lately built a concentrating plant in Kałusz, the first of its kind in Poland, where low grade raw potassium salts may be transformed into high-grade ones. This is of considerable moment to agriculture, since it reduces cost of transportation and work.

In addition to Kałusz, the Company exploits the potassium beds at Stebnik, which are developing beyond expectation and may, in the course of a few years, become the great centre of the Polish potassium industry.

The development of this industry is of such importance to a primarily agricultural country such as Poland, that it can have a great influence on its welfare and power. The present-day territory of Poland, utilised before the war 480.000 tons of artificial fertilizers annually, of which Poznania and Pomerania took 420.000 tons. Were the whole of Polish agriculture to reach to-day this level of artificial fertilizer consumption, it would have to import from Germany, in addition to what Kałusz and Stebnik can supply, at least 220.000 tons yearly, at the cost of over $ 2,600.000.

Thus, one of the most important problems facing the economic program of the country, is the further developmeut of Kałusz and Stebnik; and especially the sinking of new shafts in order that the production may be enlarged to an extent which will first cover the increasing need on the home market with home produced fertilizers, and then enable export to the nearest neighbours: who, subject to Alsatian and German monopoly, repeatedly enquire whether or when Poland will be able to deliver some part of its potassium, these two latter countries having the only other known potassium deposits in the entire world.

IRON

— The month of July saw a certain improvement in the iron founding industry; thanks to increased orders received in June, the foundries augmented their output, while at the same time the production of pig iron rose, which has been anticipated for some time past, owing to increased requirements both by the cast iron industry and the Martens retorts, for further working up.

This improvement might have arrived even sooner, had it not been for the difficulty in obtaining qualified workmen, for which reason some of the iron ore mines were prevented from increasing their output.

The extraction of iron ore in July rose slightly as compared with the preceding month, as is shown by the undermentioned table, giving also the imports of ores (in tons) as well as the number of workmen employed:

		Extraction	*Imports*	*Number of workmen employed*
June	1927	41.832[1])	60.233	6.593[1])
July	1927	46.059[2])	65.808	6.388[2])
"	1926	30.869	11.492	3.791

As may be seen by the above mentioned figures, the increase in the output of iron ores in July amounted to 10 per cent, as compared with June, but in June (23 working days) the average daily output was 1.820 tons, whereas in July (26 working days) it was only 1.770 tons, a drop of 2·8 per cent. The cause of this decline lay in the shortage of skilled labour. The number of workmen in July fell by 3 per cent, the output per man rose however from 6·35 tons in June to 7·20 tons in July (13 per cent), but when working out the average daily output it will be found that the productivity per head was practically the same in both months. During July 3 new mines were set in operation of which two have already given certain quantities of ore. There were 25 iron mines in operation during the month.

As already mentioned the situation in the iron foundries was good thanks to satisfactory inflow of orders in June, comprising 60.000 tons of products, the sales of which are regulated by the Syndicate (excluding pig iron and pipes); government orders alone represented 25.000 tons. It is to be anticipated that the volume of orders received in July will be smaller, firstly because the purchases for the present building season have already been made, and secondly because Government orders placed in June covered its needs for several months to come, and in fact in July the Syndicate received orders for the delivery of 49.600 tons, or 17 per cent less, of which Government orders were for 12.500 tons, as against 25.000 tons in June; wholesale orders were 21.600 tons as against 27.000 tons, whereas industry increased its demands from 8.000 tons in June to 15.500 tons in July.

Thus the volume of Government orders fell by 50 per cent and those of the trade by 20 per cent; orders of the metal industry rose by 93 per cent.

The output of iron foundries in July as compared with the preceding month

[1]) *Corrected figures.*
[2]) *Provisional figures.*

and the corresponding period of last year is given below (in tons):

		Pig iron	Steel ingots	Iron castings	Number of workmen employed
June	1927	46.792[1])	102.855[1])	70.533[1])	44.154[1])
July	1927	51.406[2])	111.459[2])	80.684[2])	45.217[2])
"	1926	24.008	69.855	50.416	33.605

It will be seen by these figures that the output in the different departments of foundry products rose considerably, that for blast furnaces being 9 per cent, for steel works — 9 per cent, and for rolling mills — 14 per cent. An increase is also noticeable when the daily production is worked out; in this connection should be borne in mind the number of working days in each of the departments, namely — 30 days in June and 31 in July for blast furnaces and steel works, and 23 days in June (on account of the holidays) and 26 days in July — for rolling mills.

Thus the average daily output per blast furnace was 1.560 tons in June, as against 1.660 tons in July, an increase of 6·3 per cent; for steel works — 3.420 tons in June, as against 3.580 tons in July, an increase of 4·5 per cent; and for rolling mills 3.070 in June, as against 3.100 in July — an increase of 1 per cent. The increase of 2·5 per cent in the number of workmen employed is indicative of the favourable situation prevailing in this industry.

There was no difficulty in the obtaining of raw materials. There were ample supplies of both local and foreign ores; as regards coke, no difficulty was experienced, for the coke producing enterprises were duly notified of the anticipated increase in the output of pig iron, so that they had ample time to make the necessary preparations. Some difficulty was encountered in getting scrap iron, but this question was eventually satisfactorily solved. Imports of scrap in July amounted to 50.913 tons as against 52.241 tons in June and 50.912 in May.

Imports and exports of foundry products in July, as compared with June, are given below (in tons):

	Exports: June 1927	Exports: July 1927	Exports: July 1926	Imports: June 1927	Imports: July 1927	Imports: July 1926
pig iron	2.213	873	1.877	794	1.007	457
rails, iron and steel articles	2.840	2.604	1.146	1.000	2.498	2.274
iron and steel sheets	2.579	3.879	1.988	639	872	472
pipes	2.712	4.224	2.302	85	189	348

[1]) *Corrected figures.*
[2]) *Provisional figures.*

It results from these figures that exports rose slightly, from 10.334 in June to 11.580 tons in July, or by 12 per cent. Of the different items attention is drawn to a considerable decline in the export of pig iron and to a large increase of imports of this material, which indicates that the local output should be increased. There is also a large increase in ihe imports of iron, which is by no means a favourable phenomenon. On the other hand, foreign trade in iron sheets and in piping makes a good showing, the figures of imports and exports in those lines indicate that the local production covers not only the requirements, but also leaves large quantities for export. An important item is pipes, which have totally eliminated the Czechoslovakian article as far as the petroleum industry in concerned.

ZINC AND LEAD

— The zinc and lead industry worked under practically the same conditions in July as in the preceding month. The local zinc ore mines increased their output, which in June had fallen to an unprecedented level. Simultaneously the imports of zinc ore, which had declined sharply, returned to their usual level. The undermentioned table shows the extractiou of ores in Poland, together with the imports (attention, however, should be drawn to the fact that the figures relating to local ores are in respect of crude mineral, whereas foreign ores are treated and ready for smelting) (in tons):

			Imports		
		Extraction	zinc ores	lead ores	Number of workmen employed
June	1927	68.158[1])	13.106	1.230	7.708
July	1927	82.064[2])	20.276	1.765	7.667
"	1926	105.486	6.033	873	9.965

The increase in extraction in July was 20 per cent, as compared with the preceding month, moreover 13·2 per cent of the increase was due to the fact that there were 3 more working days in July as compared with June (26 and 23 working days), the output being 2.960 tons and 3.160 tons respectively. The average daily extraction per workman was in June 0·38 ton and in July 0·41 ton; this increase of productivity is due to a large extent to the reorganisation of the mines, which is at present being undertaken.

The numer of lead ore producing mines was increased by one — the "Matilda", near Chrzanów, which after protracted work, has been drained and has resumed operations after 10 years stoppage. Despite the presence of water the exploitation is profitable, due to the high quality of the ores and the extent of the deposits.

During the month there were nine zinc and lead ore mines in operation. The work at zinc foundries, was pursued under normal conditions and the output was maintained on the same level as in previous months. There was no difficulty in getting supplies of the necessary raw material. The relevant figures are given below (in tons):

		Raw zinc	Zinc sheets	Raw lead	Number of workmen employed
June	1927	12.722[1])	1.360[1])	2.073[1])	12 844[1])
July	1927	12.794	1.423[2])	2.064[2])	12.930[2])
"	1926	10.402	832	2.480	11.755

It will be seen that the total production of zinc and zinc sheets rose somewhat, while that of lead fell slightly. But the differences are so slight that they should be regarded as normal fluctuations.

The situation on the world zinc market still leaves much to be desired: prices are low, although at the end of the month they rose to £ 29.10·0 per ton, for zinc, and to £ 24.16·0 per ton for lead. The depression on the international market affects the Polish export trade, which has shrunk as compared with June.

Export of zinc, zinc sheets and lead as compared with June were as follows (in tons):

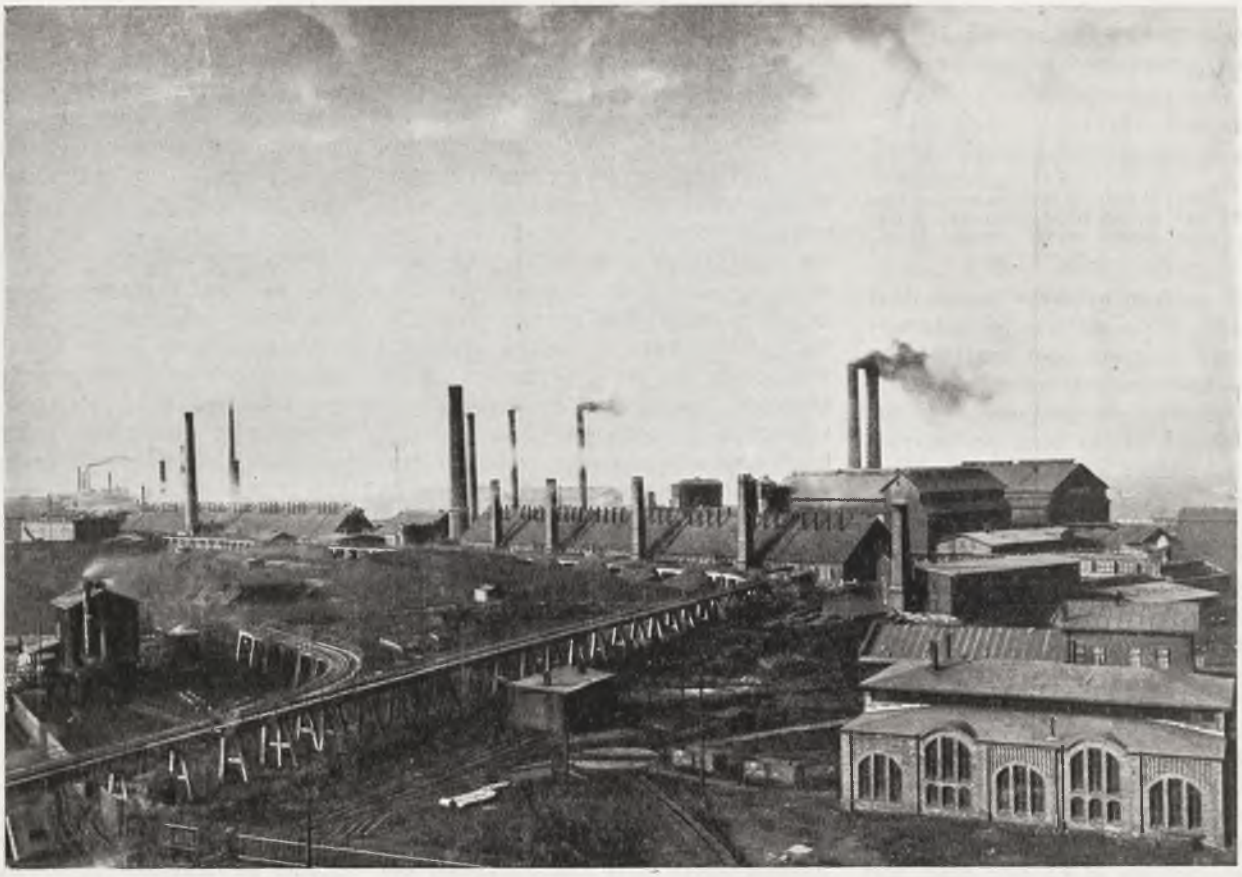
		Raw zinc, zinc dust incl.	Zinc sheets	Refined lead
June	1927	11.819	951	1.487
July	1927	9.128	1.166	1.197
"	1926	7.435	464	2.139

It will be noticed that exports of zinc and lead declined by 23 and 19·5 per cent respectively, whereas those of zinc sheets rose by 22 per cent. The last named fact indicates that Polish zinc sheets, despite the closing of the German frontier, are finding new markets.

The total value of exports in July amounted to ℥ 15 million as against ℥ 18·6 million in June.

[1]) *Corrected figure.*
[2]) *Provisional figure.*

[1]) *Corrected figures.*
[2]) *Provisional figures.*



GENERAL VIEW OF A POLISH ZINC FOUNDRY *(PHOT. S. PLATER)*

CHEMICAL INDUSTRY

PROGRAMME OF THE VIIITH INTERNATIONAL CONFERENCE OF PURE AND APPLIED CHEMISTRY, WARSAW. — (September 4th to 14th, 1927).

Sunday 4.9.27

9 p. m.
Reception by the Municipal Council of Warsaw at the town hall.

Monday 5.9.27

9·30 a. m.
Meeting of the Presidents of the Delegations and the Representatives of the Commissions.

11 a. m.—12·30 p. m.
Official opening of the Conference at the Warsaw Polytechnic.

3 p. m.
Meetings of the Commissions.

3·30 p. m.
Meeting of the Council.

8 p. m.
Visit to theatre.

Tuesday 6.9.27

9·30 a. m.
Meetings of the Commissions.

10 a. m.
Meeting of the Council.

3 p. m.
Scientific lecture.

9 p. m.
Reception at the Zamek (the Royal Castle) by the President of the Republic.

Wednesday 7.9.27

9·30 a. m.
Meetings of the Commissions.

11 a. m.
Plenary Meeting.

3 p. m.
Visit to the "Saturnia" works.

5 — 7 p. m.
Meeting of the Council.
Closing of the Conference.

8 p. m.
Official Banquet arranged by the Organising Committee.

Thursday 8.9.27

8 a. m.
Excursion to Łódź. Departure about 8 o'clock. Breakfast in the restaurant car; arrival in Łódź at about 11 o'clock, light meal.

12 a. m. — 4 p. m.
Visit to the textile school and the works of Messrs. "Scheibler & Grohman" Ltd.

5 p. m.
Tea.

8 p. m.
Departure from Łódź. Supper in the restaurant car.

11 p. m.
Arrival in Warsaw about 11 p. m.

Friday 9.9.27

8 a. m.
Excursion to Tomaszów Mazowiecki. Departure from Warsaw about 8 a. m., breakfast in the restaurant car, arrival at Tomaszów Mazowiecki at about 11 a. m.

11 a. m. — 2 p. m.
Visit to the Tomaszów Artificial Silk Factory.

2 — 4 p. m.
Dinner.

5 p. m.
Departure from Tomaszów Mazowiecki at about 5 p. m., supper in the restaurant car, arrival at Kraków at about 11 p. m.

Saturday 10.9.27

Visit to the town of Kraków and excursion to Wieliczka. Reception arranged by the Municipal Authorities of the City of Kraków.

Sunday 11.9.27

Stay in Kraków. Meeting of the Polish Chemical Society. Meeting and dinner at the Academy of Sciences.

Monday 12.9.27

8 a. m.
Departure for Sosnowiec at about 8 a. m., breakfast in the restaurant car.

11 a. m.—1·30 p. m.
Visit to the "Saturn" mine.
2 — 6 p. m.
Breakfast and visit to the Utheman foundry at Szopienice.
7 p. m.
Departure from Szopienice, supper in the restaurant car.
9 p. m.
Arrival in Kraków at about 9 p. m.
Tuesday 13.9.27
9 a. m.
Departure for Chorzów.
12 a. m.
Visit to the State Chemical Works. Dinner.
4·30 p. m.
Departure for Katowice.
6·30 p. m.
Farewell banquet at Katowice.
10 p. m.
Departure for Kraków. Supper in the restaurant car.
11·30 p. m.
Arrival at Kraków.
Wednesday 14.9.27
Excursions not foreseen by the programme.

THE INORGANIC CHEMICAL INDUSTRY IN POLAND. — The restoration of Poland in 1918 and the inclusion of Upper Silesia in 1922 radically changed the conditions under which the Polish chemical industry was operated.

Before the war Russian Poland, the largest part of the present Polish Republic, was prevented from the exploitation of the basic raw materials which were situated quite close to its boundary, namely — salt deposits at Wieliczka and Inowrocław, sulphuric acid produced from zinc blende in Upper Silesia, and finally coking coal also from the latter district. The potassium salt deposits in Kałusz, in former Austrian Poland, neglected by the Austrian Government, having been deprived of their natural sales markets, were exploited on a comparatively small scale.

Salt was imported in former Russian Poland both for human consumption and for industrial purposes from the provinces adjoining the Caspian sea, a distance exceeding 1.000 km. Moreover the Russian railway rates were calculated in such a manner that the cost of transportation of chemical products obtained from salt, was smaller than that of the salt necessary for their manufacture. Under these conditions it was of course unthinkable for Poland to build up trade in all those branches of industry which are based on salt; in addition, big distances from the main salt markets, and the particularly difficult conditions in former Austrian Poland, made it extremely difficult to create chemical industry round the salt deposits at Wieliczka

As regards the production of sulphuric acid, the conditions were totally different. The high Russian duty on this acid, amountig to RMk 4·80 per 100 kg., and the duty of RMk 1·20 imposed by the Austrians, made it impossible for the Upper Silesian factories to export this article to its natural markets, namely to the then Russian and Austrian Poland. Also the high railway rates in Germany, and the competition on the part of other German factories, made it impossible to transport this product economically beyond Berlin, with the result that the producers were compelled to sell it at low prices, frequently at less than RMk 2 for 100 kg. These difficulties in the sale of sulphuric acid induced the Upper Silesian undertakings to build superphosphate works. But here again, owing to the competition of other German works, the output had to be reserved for foreign consumption, and the high customs duties in Russia, amounting to RMk 10 per 1000 kg., hampered the export activity, as did also the political complications in the Balkans, where a portion was to be marketed.

The high import duty on sulphuric acid made it possible in former Russian Poland to develop the production of the acid from imported pyrites. This production amounted to about 80.000 tons per annum, as against over 200.000 tons in Upper Silesia. This industry was almost totally destroyed by the war operations and German requisitions. Of the nine plants, five ceased to exist, and the remaining four succeded in saving only a portion of their installations and the total post - war productive capacity declined to 10 per cent of the pre-war figure.

In the restored Republic of Poland, the situation for the development of inorganic chemical industry is favourable, thanks to the presence of abundant natural riches of the most important raw materials, namely rock salt, potassium salts, and coal. For this reason the production of rock salt, potassium salts, as well as nitrogeneous compounds, increased at a rapid rate.

The output exceeded several times the pre-war figures, although the production of sulphuric acid and phosphorus fertilizers which, after a sharp fall at the end of the war, increased considerably, now exceeds the pre-war output. The main raw material used in the production of sulphiric acid is zinc blende from Upper Silesia, which is worked at zinc foundries in the same region and at Trzebinia near Kraków. The silver and lead foundry at Strzybnica, Upper Silesia, obtains sulphuric acid as by-product of the roasting of galena. The Upper Silesian foundries are the chief producers of sulphuric acid and manufacture about 90 per cent of the total Polish output. There are no large deposits of pyrite in Poland, but the country possesses large reserves of marcasite which is used as an admixture to imported pyrites by a large number of plants situated in various parts of Poland, other than Upper Silesia; there is also one works utilising for this purpose iron ore having served for purifying coal tar.

The output of sulphuric acid from zinc blende, when converted into 60°Bé in Upper Silesia and Trzebinia was in the year 1922 — 197.425 tons, and in 1926 — 210.347 tons, which about equals the pre-war production of Upper Silesia. The total production of this acid in Poland amounts to about 250.000 tons per year. The year 1927 will probably make better showings due to increased production of superphosphates and the expansion of other branches of the chemical industry.

As is well known, Poland disposes of enormous deposits of rock salt in the area adjacent to the Carpathian Mountains, and in the Western provinces. The salt is obtained from the mines, as well as by brine evaporation. The salt deposits situated at Barycz near Wieliczka, as well as those at Solno, which are rather difficult to exploit by the usual methods, are worked by means of bore holes and water under pressure. The salt brine thus obtained is used for the manufacture of ammoniacal soda.

The output of rock salt, evaporated salt and salt contained in brine, during the years 1899 — 1926 was as follows (in tons):

1899 — 1913	(yearly average)		192.923
1914 — 1918	„	„	198.436
1921			332.729
1925			424.733
1926			457.771

In 1927, as compared with the corresponding months of 1926, the output rose by 16·5 per cent.

There are in Poland works extracting ammoniacal soda and sodium hydroxide from soda, while two works also manufacture sodium hydroxide by the electrolytic method. In addition a large number of works produce hydrochloric acid, Glauber's salt, sodium bisulphate from rock salt, sodium sulphide, sodium thiosulphate, sodium bisulphite and zinc chloride. The production of soda and hydroxide exceeds 100.000 tons per annum.

The working up of salt and potassium chloride by means of electrolysis allows the chlorine thus obtained to be used for the manufacture of bleaching powder or for the production of organic compounds. Potassium chlorate is also obtained by means of electrolysis of potassium chloride. The production of potassium chlorate covers entirely the local requirements.

There is one factory engaged in the production of magnetic electrodes for potassium chlorate. The electrothermic industry, in addition to carbide, produces also ferro silicon containing 24, 45, 75 and 90 per cent Si.

Of all other branches of the inorganic industry the production of water-glass, aluminium sulphate, ultramarine, and other mineral products should also be mentioned.

CONSUMPTION OF ARTIFICIAL FERTILIZERS. — In the 1927 spring season the Polish agriculture absorbed the following quantities of artificial fertilizers (in tons):

locally produced potassium salts	41.108
kainite	63.829
imported potassium salts	61.027
total potassium fertilizers:	165.964

Calcium cyanamide	56.854
Chili saltpetre	31.011
potassium saltpetre	116
total nitrogenneous fertilizers :	87.981
superphosphates	64.180
Thomas slag	47.279
total phospate fertilizers:	111.459

The total consumption of artificial fertilizers in this spring amounted to 365.404 tons or 85.818 tons more than last year, when it was 279.586. The increase is accounted for by the augmented use of nitrogen compounds and potassium salts, (in 1926 the consumption of the two classes of artificial fertilizers amounted to 58.024 tons and 104.630 respectively). The consumption of phosphate fertilizers remained unchanged.

It is anticipated that some 200.000 tons of phosphate fertilizers will be employed this forthcoming autumn. This season's imports of Thomas slag are about 27.600 tons. Superphosphate factories have already sold 74.000 tons of their next season's production and expect to sell in addition over 100.000 tons.

As is well known, the total autumn production of the State Nitrogen Compounds Factory at Chorzów, which should amount to 47.000 tons, has already been sold, so it is pretty certain that there will be a shortage of nitrogeneous fertilizers in this season.

The Potassium Salts Exploitation Company at Kałusz sold 13.065 tons of potassium salts and 9.489 tons of kainite in the months of May and June.

It is safe to assume that the consumption of fertilizers in the coming autumn will reach 290.000 tons, and that consequently, the total requirements for the current year will probably exceed 650.000 tons. It may be of interest to recall that the corresponding figure for 1926 was 525.544 tons. This marked increase in the consumption of artificial fertilizers is a distinctly favourable phenomenon.

THE ORGANIC SYNTHETIC INDUSTRY. — The increasing demand for synthetic dyes on the part of the Polish textile industry and the big difference [1]) between the pre-war Russian import duties on organic intermediates used for the manufacture of dyes [2]) and those on manufactured dyestuffs [3]) was a great encouragement to the establishment of local dyestuff factories.

At the end of the last century three dyestuff works were erected near Łódź, namely at Zgierz, Pabjanice and Wola Krzysztoporska. These three establishments formed the nucleus of the Polish coaltar derivative industry.

It would be a mistake to say that the manufacture of dyes, which had then been started in Poland, was based on the results obtained in Western European countries. M. Jan Sniechocki, Engineer, who completed his studies at the *Ecole Polytechnique* and the *Ecole Centrale* in Paris, carried on for some years extensive research work, parallel with, but independently of, the German scientists, which, being crowned with, success, enabled him to found in 1888, at Łódź, a small factory for the manufacture of dyes and a number of indispensable intermediates products which was subsequently, in 1894, transferred to Zgierz.

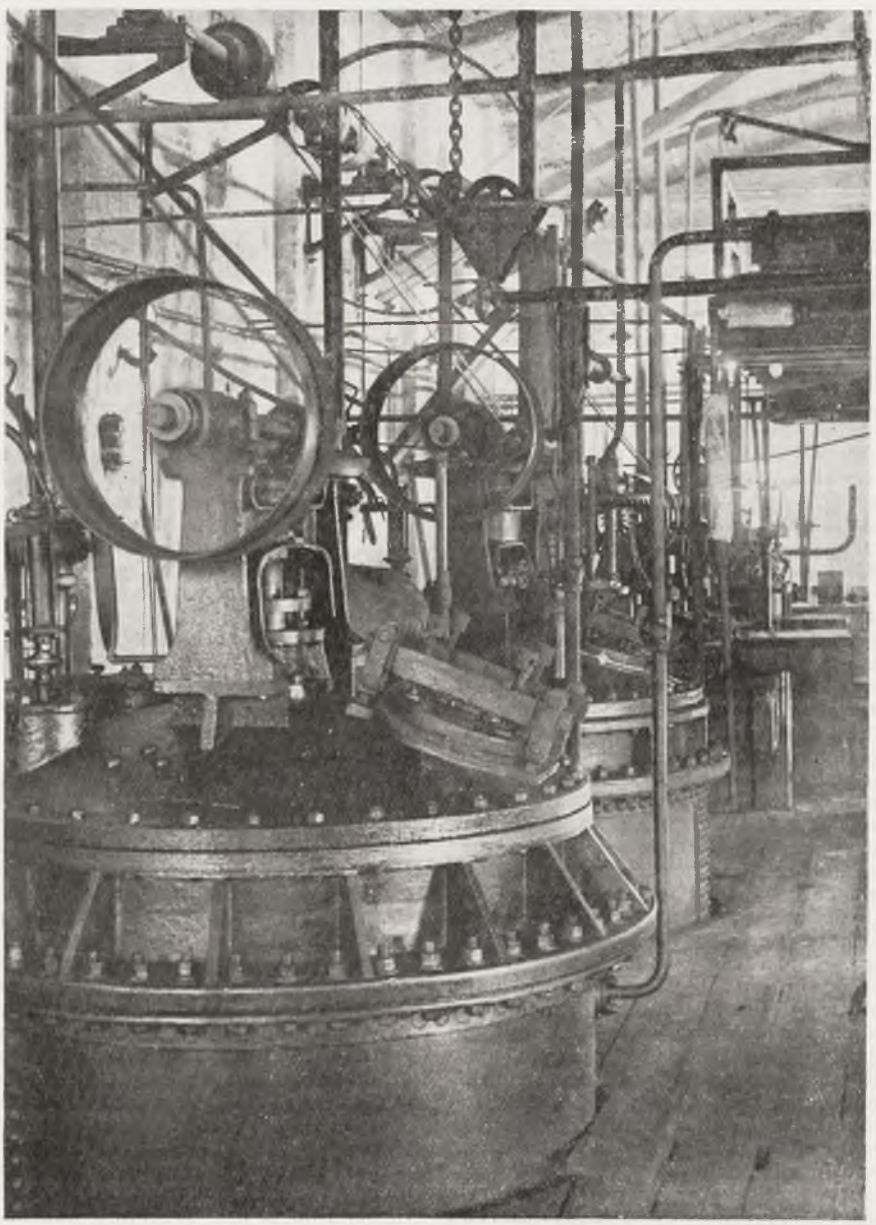
In 1889 another dye-stuff factory was founded at Pabjanice, which, after being joined, in 1899, by a Basel firm, is still in operation under the name of "Pabjanickie Tow. Akc. Przemysłu Chemicznego S. A." (The Pabjanice Chemical Works Ltd.).

In 1900, a third company with works at Wola Krzysztoporska was founded near Piotrków.

With the outbreak of the war the local factories, the operations of which were based on intermediate products imported from Germany, had to be discontinued quite independently of the devastations to which they were subject, in particular that at Zgierz.

The factories at Pabjanice and Wola Krzysztoporska resumed operations shortly after the war, while the Zgierz factory, which was taken over by the firm "Chemical Industry in Poland Ltd.," in the year 1920, with the financial assistance of the Government, started to make preparations for the manufacture of the basic intermediate products, the lack of which was badly felt by numerous branches of indnstry, and which the German producers-monopolists, refused to furnish to Polish consumers.

The organic industry which, by means of finishing processes, manufactures dye-stuffs, medecines, chemicals and druggs, disinfectants, scents, &c. &c, does not playcinal



A CORNER OF THE INTERMEDIATES DEPARTMENT OF A DYE WORKS NEAR ŁODZ *(PHOT. S. PLATER)*

[1]) *Over $ 0·5 per 1 kg.*
[2]) *0·25 Rouble = $ 0·5 per 1 kg.*
[3]) *1.30 Roubles = $ 0·65 per 1 kg. of dyes.*

any particularly important rôle, but it acquires special importance when the manufacture of the above mentioned articles, which are indispensable for the economic development of the country, is based on intermediate products manufactured from local raw materials. Poland should endeavour to build up a synthetic industry as it has the requisite natural resources.

In confirmation of this, some figures illustrating the production of the Union of Coke Manufactures, and the output of the products of the dry distillation of wood which furnish the basic raw materials to the organic industry, are given below (1.480 ovens — all of which are provided with devices for recuperation of by - products) — (in thousands of tons):

	1923	*1924*	*1925*	*1926*	*Maximum*
Consumption of coal	1.720·0	1.227·0	1.300·0	1.420·0	2.200·0
Product obtained:					
coke	1.373·2	949·8	964·0	1 113·7	1.700·0
coal tar	52·1	39·6	44·7	51·9	65·0
raw benzol	14·2	10·6	12 4	14·7	17·0
ammonium sulphate	17·6	12·6	14·5	17·0	22·0

During the same period the following by products were subject to further treatment (in thousands of tons):

	1923	*1924*	*1925*	*1926*
Coal tar	49·8	42·5	50·5	58·3
Rawbenzol	8·7	7·6	9·8	11·2
Various raw oils	8·6	9·5	6·1	7·5

The treatment of the various by-products mentioned above resulted in the production of the following (in thousands of tons):

	1923	*1924*	*1925*	*1926*
Tar	8·9	11·0	16·8	17·3
Pitch tar	23·9	18·8	19·1	23·9
Various tar oils (without benzol)	23·6	16·8	14·6	18·8
Naphtalene raw	2·9	2·3	1·6	1·7
Naphtalene pressed	0·2	0·1	0·3	0·4
Pyridine bases	0·1	0·1	0 1	0·1
Phenols and crezols	1·2	0·8	0·8	1·0
Refined benzols	8·3	7 1	9·1	10·3
Ammonium sulphate	0·2	0·2	0·2	0 1
Other products	0·3	0·3	0·5	0·7

Local sales and exports of the above mentioned products in the years 1925 — 1926 are given below (in thousands of tons):

	1925		*1926*	
	Home sales	*Export*	*Home sales*	*Export*
Tar	14·7	1·4	17·0	1·0
Pitch tar	15·5	1·5	21·7	2·5
Various tar oil (without benzol)	11·0	1·0	13·3	2·6
Naphtalene raw	0·2	1·9	0·3	0·9
Naphtalene pressed	0·3	0·1	0·3	0·04
Pyridine bases	0·03	0·07	0·04	0·04
Phenols and crezols	0·02	0·7	0·02	1·09
Refined benzols	3·5	5·6	4·07	6·7
Ammonium sulphate	0·2	—	0·1	—
Others products	0·3	0·2	0·6	0·01

Quite apart from export possibilities which, for the time being, are rather small, owing to the competition on the part of those countries which have a well organised organic industry, the lack of cheap credit in Poland, and the absence of united action on the part of the industrialists concerned, the local requirements only enable the partial exploitation of the national riches for the production of synthetic chemicals. The demand for dye-stuff, for instance, amounts to 2.500 tons of dyes of normal concentration, most of which are black, deep blue and brown.

The local industries, adapting their activity to the above mentioned requirements, produce mostly dark dyes, the output of which amounts to 1.500 tons per annum, which represents, in weight, about 60 per cent of the total Polish consumpion. The value of the local annual production is about 9 million Swiss Francs. This output might be increased to at least 90 per cent of the total demand, for the existing installations work at half their capacity, while the list of the new types of dyes increases steadily and their quality is also improving.

The organic synthetic industry has still a great deal to perform in the field of substitution of the natural products by synthetic ones, such as: liquid fuel, rubber, alcohol, fats. In addition the catalitic reaction appears to have proved the possibility of obtaining directly some of the more important intermediate products, which up to now have been obtained by means of the inorganic substances which may be considered as superfluous agents.

Compared to the enormous achievements in this sphere in other countries, the Polish synthetic industry, which suffered greatly during the war, is but little developed, but it has nevertheless firm bases to work upon and, given financial support, it may assume large proportions in the near future.

THE GAS INDUSTRY. — The war and its consequences nearly resulted ia n complete disaster for the Polish gas industry. The towns were ruined and could not maintain public utilities at their normal level. The necessity for savings, in view of other urgent requirements, did not permit of new capital investments, as were practised in the Western European countries. The gas works could not be extended as it was impossible to supply gas to the consumers, owing to periodical coal stoppages and shortage of supplies.

On the other hand the gas works were taken over by Polish engineers who, despite adverse economic conditions and numerous obstacles, endeavoured to adapt the industry to all possible emergencies. Thus, since the restoration of Poland, numerous gasworks have been fitted with benzol distilling plants, &c., which were designed for the manufacture of various articles for military, pharmaceutical, and photographic purposes; in short, an extensive chemical industry, such as was so much appreciated during the late war, has been established.

These old gasworks, after being reconstructed and extended by Polish engineers, who adapted their activities to modern requirements, now carry on operations satisfactorily.

The time has passed when the production of gas for lighting purposes was the sole *raison d'être* of a gaswork and when the sale of by-products was difficult to effect. Under present conditions the obtaining of suitable gas coal is not an easy matter, while the disposal of coke is another source of considerable trouble owing to the competition from the coke plants in Upper Silesia which, having some difficulties in selling their soft coke to foundries, dump it in large quantities on other industries, in many cases competing successfully with gas coke. As a matter of fact the gasworks frequently find it extremely difficult to sell their coke even at low prices. With the increase of consumption of gas these difficulties are sure to grow, but they may possibly be obviated by the increased supply of natural gas from petroleum wells.

For lighting and power, electricity is much more used than gas, but, as a source of heat, the latter has, owing to its cheapness, excellent prospects for the future. For the simplification and better utilisation of gas, steps are being taken to deliver it at considerable distances, a method which originated in Upper Silesia; similar schemes are also under consideration in other parts of the country.

Passing to the technical arrangements of the works, it may be stated that the basic idea is the same as inthe Western countries; namely, the object of a gas producing plant is to obtain from coal at a minimum cost the maximum of calories in the form of mixed gas, with a calorific value from 4.000 to 4.500. Pure coal gas is produced solely by small plants, while the large and middle sized establishments produce mixed gas, either by means of retorts or special ovens, or by mixing coal and water gas after manufacture. Great progres has been achieved since the restoration of Poland, as is evidenced by the construction of new gas plants.

A large number of retorts of various types have been constructed. The systems of heating are either central or by means of separate generators. In a comparatively short time many retorts, both horizontal and vertical with periodical and continuous operations, were constructed. Of the larger towns Lwów, Kraków, Poznań, Bydgoszcz, and of the middle sized Grudziądz, Lublin, are equipped with retorts with automatic stokers which, in addition to lowering the cost of operation, increase both the quantity of gas obtained, and its thermal value which has increased from 1.600 — 1.800 to 1.900 and 2.000 and even 2.288, according to the newly pubished reports of the Kraków gasworks for the year 1926.

At present, after very conscientious investigations of all systems, the Warsaw gasworks, the largest in Poland, is about to reconstruct its retorts.

The Poznań Gas works have erected an English plant for the obtaining of mixed gas, capable of producing from 20.000 to 24.000 cubic metres per day, and which is provided with an installation superior in many respects to the analogical establishments in Germany.

The question of use of waste heat is also being much discussed. Regenerating ovens utilise the waste heat. Boilers

heated by this means in connection with other ovens, are in use in the Poznań gas works and the Kalisz, Grudziądz, Królewska Huta and Lublin gas works in connection with the production of mixed gas by the use of vertical and horizontal retorts.

For the sake of economy and efficiency these plants are being supplemented by additional equipment. Thus the extraction of benzene brings in more profit than leaving it in the gas, and for this reason benzene plants have been erected at Poznań, Kraków Lwów, Warsaw, Bydgoszcz, Toruń, Grudziądz, Gniezno, Tczew, Ostrów, Kalisz, Leszno, Wolsztyn. In the year 1925 the total output of commercial benzene amounted to 545.515 kg. although it is true that this figure can be raised to 1,000.000 kg per annum, excluding the production of the Upper Silesian coke works.

Of the by-products the most important is coal-tar which, owing to its many sided use and possibilities of further working up, is of paramount importance. Each of the larger gasworks, such as those in Warsaw, Lwów, Poznań, Kraków, Królewska Huta, have their own coal-tar distilling plants, while in the course of the last two years similar installations have been erected at the smaller gasworks of Leszno, Wolsztyn, Gniezno, Gostyń, in order to save the expense of the transport of raw coal-tar to distant distilling plants.

The utilisation of nitrogen compounds at gasworks has also made progress; the treatment of waste water for the extraction of ammonia products is dependent upon the sales possibilities of these chemicals. It is only the Warsaw gasworks that produce liquid, concentrated and pharmaceutic ammonia, and sulphate of ammonia. The Lwów gasworks produce pharmaceutical and concentrated ammonia; the Kraków, Stanisławów, Inowrocław; Tczew, Bydgoszcz, Toruń works produce concentrated ammonia, while Poznań, Gniezno, Tarnowskie Góry, Królewska Huta and Gostyń produce ammonium sulphate.

In the year 1925 there were in 116 towns with 5,977.000 inhabitants 250.429 gas consumers who purchased 150,071.000 cubic metres, of which quantity from 96·4 to 1.839 cubic metres per consumer per annum were supplied by gasworks, and from 20·3 to 4.093·6 cubic metres per consumer per annum from natural gas sources.

The above mentioned volume of coal gas was produced by 2.707 furnaces and 70 horizontal and vertical retorts. Moreover 7 gasworks have generators for the manufacture of water gas and 1 gasworks a generator for the production of mixed gas.

The total capacity of the gasworks is about 212,000.000 cubic metres of gas, natural gas not included. The network of pipes is about 2.072·3 km. most being of cast iron.

In the year 1925 324.139 tons of coal were consumed, from which, in addition to gas, there were obtained 231.437 tons of coke, 12.524 tons of tar, 545 tons of benzol, 71.340 kg. of ammonia, and 491.000 kg. of ammonium sulphate.

The total value of the Polish gasworks comes to about ℥ 102,830.000 including ℥ 40,000.000, the value of the Warsaw gasworks.

A certain number of the gasworks are either completely or partly mechanically operated, for which purpose electric power is utilised. To measure the work-saving appliances it is sufficient to mention that 345 electric motors, developing 3.536·4 H. P. are in use, distributed as follows: Poznań — 1.845 H. P., Warsaw 1 — 177 H. P., Warsaw 2 — 572 H. P., Kraków — 249·8 H. P., Lwów — 195 H. P., Grudziądz — 1.845 H. P., Bydgoszcz — 181 H. P., Bielsko — 107 H. P., and Leszno and Toruń — 16 and 9·5 H. P. respectively

DISTILLATION OF GLYCERINE AT A SOAP FACTORY NEAR WARSAW
(PHOT. J. MALARSKI)

THE ARTIFICIAL SILK INDUSTRY. — The production of artificial silk in Poland was begun before the war. A factory for artificial silk produced by the collodion process, was founded at Tomaszów Mazowiecki near Łódź in 1910. It was set in operation in the same year, and the first consignments of artificial silk yarn appeared on the market in 1911. At the same time two other factories were erected: in Sochaczew, near Warsaw, and in Myszków, near Częstochowa; the last named was intended to work by means of copper ammonium process, but up to the outbreak of the war it was engaged in experimental work. At the head of the Tomaszów factory was a well known artificial silk expert, M. F. Wiślicki, whose patents are used in all factories working the collodion methods.

During the war all the Polish artificial silk factories were either ruined or brought to a standstill, and it was only the Tomaszów factory that was able to resume operations after the conclusion of the war. The Sochaczew factory was adapted to a different use, while that of Myszków was not operated for some considerable time. As time went on, the Tomaszów factory, while continuing to work by the collodion method, also commenced to employ the viscose process. The development of this factory is best illustrated by the following figures: the production in 1921 amounted to 60.000 kg., in 1925 it was 600.000 kg., and for 1926 the figure is expected to be 1 million kg. In 1925 the Myszków factory was rebuilt and set in operation. Employing the viscose process, it produces about 250.000 kg. of artificial silk yarn per annum.

The use of the collodion process has acquired a special significance in Poland, as it may be recalled that Poland has a surplus of alcohol which is the basic solvent used in the production of artificial silk by the Chardonnet method. Thanks to the abundance of alcohol the employ of the collodion method is making excellent progress; as regards the fine numbers of collodion yarn, Poland may be regarded as possessing a monopoly for the whole world.

At the same time the research work on the viscose process is not neglected.

Indepedently of artificial silk yarn, Poland produces silk straw and hair which are used in the manufacture of ladies' hats. Moreover, the Tomaszów factory has begun the erection of a new plant for the production of artificial wool, called *"Snia fils"*.

Polish artificial silk is well known outside of Poland, as it is exported to all the world markets.

THE FAT DERIVATIVES INDUSTRY. — Of the three different partitions of Poland, Russian Poland had the best developed fat derivatives industry, for in both German and Austrian Poland this branch of production was still in its infancy.

Thus the oil industry in former Russian Poland was represented by three extensive oil works, and a whole range of small artisan workshops which worked seasonally. The total pre-war

production was about 9.000 tons of oil per annum of which about 30 per cent was consumed locally as foodstuffs (rape, hemp, and poppy oils), while the remainder was absorbed by industry (linseed oil).

The manufacture of glycerine was conducted by two industrial works, the total annual output amounting to about 180 tons. The manufacture of oleine and stearine was carried on by two establishments producing about 500 tons per annum.

The splitting of fats was introduced before the Great War, by the larger soap manufacturing works. For the production of glycerine, glycerine waters, supplied by soap manufactures, were mostly used.

Of various branches of the industry, that of soap manufacture was best developed. In former Russian Poland there were 158 soap works producing about 15.000 tons of soap per annum. This quantity not only covered local requirements, but also made it possible to build up an export trade with the East. Toilet soaps in particular were marketed throughout Russia and the Far East.

The edible fats industry was represented by two factories: which obtained their supplies of raw material from Russia. This applies equally to oil bearing seeds (sun-flower, cotton, and linseed), as well as to animal fat (beef and mutton). In the last few years immediately preceding the war, this industry also used foreign raw materials, particularly vegetable oils. The import of these products, as is shown by the statistical data, steadily increased, which was due to the development of the industry.

The situation in former German Poland was somewhat different. Thanks to the excellent state of agriculture, oil bearing seeds were produced on a large scale and might have been worked on the spot, but this industry could not be developed due to the untoward policy pursued by the German Government, the main principle of which was to concentrate the fat derivative industry in certain localities out of German Poland for both strategical and economic reasons. As a result of this policy there were in that part of Poland only four small soap factories and five oil extraction plants.

The economic policy of the Austrian Government was equally against the development of this industry in Austrian Poland. The number and scope of the firms was small, the best developed being in the oil extraction branch.

After the unification of the three partitions of Poland the development of this industry was again checked by financial difficulties and by the inflation of the Polish Mark. The Government advances to the fat derivative industry only amounted to about 1 per cent of the total industrial credits.

It may be stated that the reconstruction and rational organisation of this industry began in 1921, and is still being continued, and the results already achieved presuppose good results in the near future. Several large soap making plants have been constructed and new and up-to-date departments have been added to the pre-war works. It has become a general practice to use exclusively neutral fats, which are split by well known methods, according to the purpose to which the fatty acids are to be put.

The plants which prior to the war produced oleine, glycerine, as well as those which manufactured bone products, have been reconstructed and extended. In one of the newly restored works glycerine is produced on a very large scale. The biggest progress in the field of fat refining and the manufacturing of artificial edible fats and margarine has, however, been observed since 1924. The imports of fats, ready for consumption, have decreased very considerably, while certain lines, such as glycerine and soap, are no longer imported in large quantities.

The area under flax in Poland is about 110.000 hectares, and under rape— about 45.000 hectares. The production of oil - bearing seeds may be placed on the average at 140.000 tons per annum. Deducting from this amount 50 per cent for sowing purposes and the needs of the producer, there is a surplus of 56.000 tons, which under normal conditions should be absorbed for oil production. Instead, only 15.000 to 20.000 tons are employed for oil extraction. The Polish oil seed industry is capable of dealing with some 55.000 tons per annum, and it will, therefore, be seen that it could work up the whole production of oil seeds, if it were sufficiently well organised and disposed of adequate capital, especially when it is borne in mind that only 3 works have modern equipment, and that the remainder work on more or less primitive lines. Imports of vegetable oil from oversea countries amounted to 14.175 tons in 1925, and to 18.822 tons in 1926.

There is still a great deal to be done in the Polish fat derivatives industry. The annual consumption of soap in Poland comes to about 55.000 tons, of which only 20.000 to 25.000 tons are produced by modern factories (the capacity of these works is about 40.000 tons per annum), the remainder being produced by some 600 small works.

The existing bone products, oleine and stearine factories cover only about 1/3 of the requirements for oleine, as the annual production amounts from 500 to 600 tons, as compared with the pre-war figure of 3.000 tons, while the needs fluctuate from 1.200 to 1.500 tons per annum. The prospects for the development of this industry are therefore excellent.

Since 1924, five fat refineries, with a capacity of 15.000 tons per annum have been established, but the actual output amounts at present to about 7.000 tons per annum. On the whole the fat refining industry is not sufficiently developed, and, according to experts, the consumption of edible fats will continue to grow, and it is not unlikely that it will, within a very short time, reach 15.000 tons per annum, especially when it is taken into consideration that there is a big difference between the prices of margarine and butter.

Foreign margarine producers appear to take an active interest in the Polish market, and there are rumours that three margarine works are to be erected in Poland with the help of foreign capital. The margarine industry has great possibility for development, which is indicated by the comparison of figures relating to consumption in Poland with those in foreign countries. Thus in Denmark the annual per capita consumption of edible fats is about 17 kg., in England — 9, in Holland — 7·5, in Germany — 7, Czechoslovakia — 1, and in Poland — 0·35.

In conclusion, it may be stated that the fat derivative industry in Poland is backward in more than one respect as compared with other Western European countries. It has great possibilities and will, with the assistance of foreign capital, develop parallel with the economic progress of Poland.

THE BONE INDUSTRY. — The bone Industry is one of the oldest branches of the Polish chemical industry. The first works organised on rational lines was established some 75 years ago at Tarchomin in the neighbourhood of Warsaw.

Bones belong to the category of valuable waste products of animal origin, as they contain two extremely important substances indispensable for the building up of both animal and vegetable life, namely nitrogen and phosphorus. Hence, a close connection between the bone industry and agriculture.

Owing to the specific character of this industry, nearly all civilised countries protect the supplies of raw material by means of export duties. The prohibition of the export of bones, was introduced in Poland in 1923, but later for various reasons of an economic nature, it was superseded by export duties amouting to about 40 per cent *ad valorem*.

The development of the bone industry depends on the collecting of the bones, which again depends not only on the quantity of meat consumed, but also on the degree of civilisation of the inhabitants, who very frequently do not realise tbe importance of this ostensibly worthless product. Bearing in mind the size of the meat consumption in Poland, the production of bones should be about 20.000 tons per annum, while the total throughput of all the Polish bone factories has not, in recent years, exceeded 12.000 tons in spite of the fact that it includes a comparatively large percentage of horse bones. The turning industry (the production of buttons, combs, and the like) absorbs only a negligible quantity.

Of the three existing methods of bone working, namely — 1) with a view of obtaining bone fat and bone flour containing glue, 2) bone charcoal, and 3) bone fat, bone glue, and bone flour, only the last mentioned system is recognised, as it permits of the utilisation of all the valuable constituents of the raw material.

Of the three above mentioned products the first — bone fat, is mainly used in

the manufacture of oleine, stearine and glycerine, which articles play an important rôle in the textile, munition and candle industries. The second product, bone glue, is chiefly used in the textile industry, although large quantities are absorbed by builders and cabinet makers. The producton of bone glue is large enough to cover the requirement of the local market, and there is even a surplus available for export to European and overseas markets; finally, the third product—bone meal, is the only locally produced high grade phosphoric fertiliser, which, according to the latest reports, is superior to Thomas slag, and plays an important part among the factors bearing on the self - sufficiency of the country in this respect.

The change of the economic conditions resulting from the war, had a most damaging effect on the Polish bone industry. Owing to the incorporation of Upper Silesia and former German Poland, the number of bone works increased very considerably, and the productive capacity of this industry therefore rose to a very high extent. On the other hand, the total quantity of raw material decreased enormously, owing to the drawing of a demarcation line between Poland and Russia, as former Russian Poland is compelled to divide its supplies of raw materials between the factories situated in Upper Silesia and the former German provinces; the incorporation of the Free City of Danzig into the Polish Customs Union did not improve matters,

These conditions are responsible for the fact that while prior to the war Russian Poland alone utilised annually about 15.000 tons of bones, it now works only some 12.000 tons, although the capacity of the works, which are organised on up-to-date lines, is more than double.

The value of the products of the Polish bone industry, according to the present market value, amounts to about gold ℵ 5 milion per annum. Over half of this figure represents bone glue, the export of which increases from month to month, thanks to the stabilisation of the national currency and the policy pursued by the government in connection with exports.

In order to enable one to form an opinion of the rôle of the bone industry, it is sufficient to say that an international convention comprising 15 European countries, has been instituted in order to solve the different problems which have cropped up within this branch of production. A representative of the Polish bone industry took an active part in the organisation of the conferences which were held in Paris and London, and was a signatory to the convention in Lucerne on September 21, 1926.

THE PHARMACEUTICAL INDUSTRY. — The development of drug dispensing was the original basis of the pharmaceutical industry, but under present conditions it only occupies a relatively unimportant portion, owing to the fact that the field of aclivity of the industry has been so enormously increased.

HEAD OFFICES AND WAREHOUSES OF ONE OF THE LARGEST POLISH FIRMS OF MANUFACTURING CHEMISTS AND DRUGGISTS

The pharmaceutical industry now furnishes pharmacies with all the articles which, owing to increased requirements in the sphere of therapeutics, they cannot prepare themselves.

As in other countries, the industry originated in apothecaries shops, as may be instanced by the following firms, which now fill some of the most important positions in the trade: Ludwik Spiess i Syn, Ltd., Magister Klawe, Ltd., Laokon, Ltd., Franciszek Karpiński, Ltd., J. Gessner, Barcikowski Ltd., &c.

In addition there are in Poland small factories and laboratories which at one time represented divisions of pharmacies; and are still attached to the latter.

Although some of these firms of manufacturing chemists were founded over a century ago, it cannot be said that the character of the chemical pharmaceutical industry began to develope before the 20th century. On the whole, the expansion of this industry in Poland was delayed by the fact that, prior to the war, it was not the desire of the various rulers to develope this branch of production. In this way drug dispensing became only a subsidiary activity of pharmacy. In most cases apothecaries begin operations on a very small scale, and subsequently extend their radius only to carry on ultimately special departments, which form independent units of the business. It has only been since the war that the development of the pharmaceutical industry on rational lines has been made possible. Pharmaceutical laboratories and even pharmaceutical establishments are engaged in the working up of chemicals, which in themselves are already finished articles, and use plants and herbs as well as animal organs: thus are manufactured various galenic preparations and patent medicines which entirely cover the needs of the local market, while on the contrary the chemicals to be used for therapeutic purposes are produced by the large chemical factories mostly in connection with the manufacture of dyes and other chemicals which are not employed in medicine.

The lack of pure chemicals is badly felt in Poland, as there are no chemical factories, such as are to be found in Germany, the United States of America, France, England and other countries, with the result that this departament of pharmaceutical chemisty is still but little developed in Poland.

The pharmaceutical industry, in addition to medicinal chemicals and preparations thereof produces alkaloids and essential oils as well as preparations for which organs of certain animals are utilised. Pure chemicals used in connection with chemical research work, and dyes for microscopic investigation, which are generally regarded as a part of the pharmaceutical industry are not, as yet, produced in Poland.

It wil be seen from the foregoing, that most medicinal chemicals, alkaloids, essential oils, as well as organo-therapeutic preparations, chemicals and dyes for scientific use, are furnished by foreign countries. Galenic preparations on the other hand are all made locally.

The total production of galenic products and patent medecines may be estimated at 350 tons per annum, while imports of these articles are in the neighbourhood of 150 tons.

In view of the fact that the demarcation lines between dispensing and industrial pharmacy are becoming more and more apparent, it is to be hoped that if the industry develope sufficiently rapidly, a large number of pharmaceutical industrial establishments will be founded. The progress of this branch of production is at present greatly hampered by the stringency of capital and the inconsiderable development of subsidiary industries, such as the building of chemical apparatus and plant.

Certain of the Polish pharmaceutical industrial establishments are able to compete successfully with foreign producers owing to rational organisation of labour and extensive use of modern machinery ad appliances.

Cooperation with foreign industrial establishments may contribute towards the development of this industry in Poland, for it is certain that Poland has at its disposal a large number of raw materials necessary for the production of pharmaceutical products. The creation of new pharmaceutical industrial enterprises with the help of foreign capital, and run on modern lines, would render superflous the importation of a large number of pharmaceutical chemicals into Poland.

The industry may be developed rationally, when the products, which belong to the category of high-grade articles, may be raised from raw materials and intermediates representing a lower phase of the products of the chemical industry. The production of high-grade pharmaceutical chemicals cannot be carried out successfully as long as the production of the subsidiary industries, producing intermediary compounds, is not firmly established.

For this reason it is imperative in Poland that the latter be first developed.

THE RUBBER INDUSTRY. — The rubber industry in Poland was in infancy prior to the war, as there was only one factory at Wolbrom which was founded in the year 1911. Owing to the war this factory was only reopened in the year 1924, although the basis for the post-war industry had been laid down in 1920, when several factories were founded.

There were two reasons for the belated establishment of this industry Firstly — the shortage of capital, and secondly — the policy pursued by the German rubber industry, which, owing to extremely low import duties imposed by Poland on rubber goods, which amounted to 0·70 per kg., flooded the Polish markets with its products, which were sold below cost price in order to check, if not to destroy, the Polish rubber industry, and this to capture an increasingly interesting market.

When it is borne in mind that, according to German statistical data, the total exports of rubber goods from that country in 1925 amounted to 7,595.300 kg., including 234.500 kg. or 3·2 per cent of the total production to Poland, then it is easy to understand how, almost without any sacrifice, the German industrialists could pursue a dumping policy.

Although, as already stated, the Polish rubber industry was founded in 1920, the most intensive dumping was done at the end of 1923, at the time when the largest Polish rubber goods factory, the "Wolbrom" was re-started. But thanks to the energy of Polish rubber experts and industrialists, the difficulties were gradually overcome, and the industry began to make satisfactory progress.

The consuming public began to appreciate rubber goods of local manufacture, and the Government found it advisable to assist this branch of production. These two factors contributed materially towards the re-establishment of the industry.

As a result of this several small rubber works were founded in 1924/5, which, together with the older enterprises, developed an intensive activity aiming at the conquest of the local market. The competition between the products of local manufacture and those of foreign origin was very keen, and thanks to the introduction of customs duties on foreign rubber goods, which combined with the high quality of the locally made products, foreign competition, was eliminated.

This proved a succes to a very large extent, and now, in addition to meeting the requiremenrs of the local market, a small surplus of production is being exported to the adjacent and chiefly Eastern countries.

The Polish manufacturers of rubber goods find it difficult to compete with foreign firms, as they have to make continual capital investments, such as, for instance, moulds, which foreign manufacturers need no longer make; in other words foreign industry is fully equipped, while the Polish factories await the finishing touches. There is still another reason which necessitates large outlays of capital, and that is that the Polish manufacturer is compelled to produce practically all lines of rubber goods, for, owing to the peculiarities of the market, he cannot specialise and confine his activity to certain departments as is the case abroad.

Among the articles which have already become well known for their quality are rubber pipes, both for pressure and suction, for water, steam, petroleum, acids, &c., rubber sheets, all lines of rubber articles, used in sugar making, textile, mining equipment, surgical rubber goods, childrens' toys, rubber heels, football bladders, footwear, motor lorry tyres, &c., &c.

It may be stated that the rubber industry in Poland has attained within a very short time a high standard of development, and that its production is capable of satisfying most particular consumers. Considering that this industry has at its head highly experienced and fully qualified experts, and that the demand for rubber goods will increase with the general development of the country, there is every reason to believe that it will expand at the same rate as has been noticeable in the course of the last few years.

THE ORGANISATION OF THE POLISH CHEMICAL INDUSTRY. — In 1921 the Polish chemical undertakings have created an organisation, named the "Union of the Chemical Industry of Poland", the object of which is to defend and generally to represent the interests of this industry. The membership of this union is restricted to chemical factories employing over 50 workmen. At the time of its foundation, in 1921, it had 31 members while at present there are over 90. The increase of this figure is indicative on the one hand of the growth of the industry in Poland, and on the other— of the enlargement of the field of activity of the Union.

The Union represents the industry both before the Government and the community. Thus the representatives of this Union are members of a whole range of Government commissions and advisory bodies, for instance: the Advisory Commission to the Economic Committee; the Commercial and Industrial Council; the Customs Tariff Committee; the State Railway Council; the State Spirit Council; the Central Import Commission; the Treaty Commission; the Council of War Industry, &c.

The Union also considers matters connected with the special lines of production of its members. For this purpose there are a number of expert committees which act as advisory bodies, among which should be mentioned the following: coal tar manufactures, pharmaceutical, rubber, scent, superphosphate, explosives, fat derivatives, varnishes. The number of expert committees is increased if and when the necessity arises.

Finally, five special committees have been formed for the investigation of special problems, of which the first is the Scientific Organisation Committee which has concluded an inquiry into the waste in production which was based on the well known "Hoover Questionnaire". The conclusions of this inquiry have been published and interesting material concerning waste in the chemical industry was given wide circulation in the press. This report enriched the literature of the scientific organisation of labour, and represents a valuable work of which the Union can justly be proud.

It may be recalled that Poland is drafting a new customs tariff, which is to be adapted to the economic requirements of the country. The Customs Tariff Committee of the Association, after a thorough study of the subject, has prepared a memorandum containing its views as to the new schedules, and is now about to investigate the question of rates.

GENERAL VIEW OF ONE OF THE POLISH RUBRER WORKS
(PHOT. S PLATER)

The Railway Tariffs Committee is investigating the problem of the cost of transport.

The Standardisation Committee which is at the same time the chemical section of the Polish Standards Association, has prepared a standard specification for Portland Cement, linseed oil, denaturated alcohol; various other industrial products of the chemical industry are now being investigated with the same aim.

The fifth Committee, the activity of which has been less intensive in recent months, is the Labour Committee, which was set up for the purpose of investigating the wages of chemical workers.

In view of the fact that the Union embodies factories disseminated throughout the territory of Poland, it has become necessary to set up local branches, of which the first is at Poznań, the aim of which is to deal with all matters of a local character. These branches deal with labour questions, credit policy relations with local administrative authorities &c.

The Union of the Polish Chemical Industry publishes a journal — the "*Wiadomości Przemysłu Chemicznego*" (The News of the Chemical Industry) which appears at fortnightly intervals. It is an informative bulletin destined in the first place for the members of the Union.

As already mentioned the membership of the Union is composed of 90 industrial undertakings, the complete list of which is published annually together with the yearly report. There is also a special inquiry office which supplies reliable information concerning the Polish chemical industry.

The address of the Board and of the Management of the Union is: Warsaw, 14, Czackiego.

THE STATE NITROGEN COMPOUNDS FACTORY, CHORZÓW.—Up to the year 1922 there were no chemical works designed for the production of nitrogen compounds on a large scale, and it was only with the incorporation of Upper Silesia, that the Polish Government took over the extensive works at Chorzów

The taking over of this factory, its setting in order and operation, as well as its subsequent guidance to the flourishing state in which it now is, will for ever constitute a brilliant chapter in the history of the Polish chemical industry, especially when it is taken into account that there were tremendous difficulties to be overcome, for the German retiring administration left the factory without engineers, overseers and even many of the workmen. Invaluable work was performed by the first general manager of the factory, Professor Ignacy Mościcki, the present President of the Republic of Poland, who, thanks to his energy and vast knowledge, succeeded in saving for the country this valuable national asset.

The rapid development of these works under the Polish administration is illustrated by the following figures of the production of calcium cyanamide: (in tons):

1921 *(German Administration)*	*1924*	*1925*	*1926*
74.300	51.000	84.700	117.000

Special attention has been devoted to the construction of new workshops in which ammonia is obtained by the decomposition of cyanamide, which former is in turn transformed into nitric acid and ammonium nitrate. The last mentioned product, also known under the name of ammonium saltpetre, is used as a nitrogeneous fertilizer, which being just as good as Chilian saltpetre, is produced on an increasingly large scale. For this reason the output rose from 1.000 tons in 1925 to 12.400 tons in 1926. The extension of this factory had a favourable influence on the Polish foreign trade balance, for it contributed towards the decrease of the imports of Chilian saltpetre.

The good results obtained did not deter the scientific staff from making further laboratory and factory experiments, with the view to discovering the most economic methods of production. Thanks to this work Polish engineers succeeded in improving the processes of manufacture; thus, for instance, the productive capacity of 1 carbide unit was increased from 56·5 tons in 1923 to 70·6 tons in 1926. Side by side with the difficulties encountered in the workshops, there was a great deal of trouble with the sales of calcium cyanamide, a new and little known product. Much energy had to be spent before the farmers, who as a rule are rather conservative, were persuaded of the advantages resulting from the utilisation of this fertilizer. That this work was very fruitful is illustrated by the following sales figures for the past three years (in tons):

1924	*1925*	*1926*
32.740	75.493	97.389

Seeing the increased demand for this fertilizer, the Chorzów Factory has spared no efffort in order to increase the output and in 1926 it succeeded in raising it to 125 per cent of the maximum obtained by the former German administration.

The demand for nitrogeneous fertilizers, and particularly for calcium cyanamide on the part of the agricultural community has risen at such a rapid pace in the spring season of 1925/26, when 4 000 to 5.000 tons were lacking to cover the entire demand, that in the corresponding season of 1926/7, despite increased output and the restriction to a minimum of foreign sales, the production was over 20.000 tons less than the requirements. The increase in the demand

for fertilizers has grown from year to year, and as new areas of the country began to use nitrogeneous fertilizers, there arose the necessity for further expansion of the works. This was duly understood by the Government, which decided to increase the production of these compounds by the erection of an additional factory.

THE CHEMICAL INDUSTRY IN POLAND, LTD., ZGIERZ. — This company, established in 1920, took over the work of the "Boruta" dye manufacturing company, which was founded in 1894, as well as the acid works of the "Sulfo" company, founded a few years before the war by Messrs. J. Sniechowski, Hordliczka and Słaboszewicz, the chief share holders of the "Boruta" company.

Prior to the war the Zgierz factories made satisfactory progress, and placed about 2/3 of their production on the Łódź market, and the rest in Russia. During the war, the factories were utterly destroyed, the German troops having maliciously burned large quantities of finished dye stuffs, and requisitioned all raw materials and certain portions of the plant, particulary those with platinum parts, which prevented the factory being set in operation for several years.

Thanks to the assistance of the Polish Government the restoration of the works progressed rapidly, while the extensions made were designed for the production of articles manufactured from locally raised raw materials. Efforts were made to manufacture organic intermediates articles in order to free the country from foreign supplies, the necessity for which was emphasised at the outbreak of the great war.

At the present time the company is engaged in the production of acids: sulphuric "oleum" 65% per cent, nitric 48 Be and hydrochloric; salts: bisulphate, Glauber, copper sulphate, &c.; nitro-benzene and other derivatives of benzene and naphtalene; aniline, certain amines and diamines (benzidine), and a whole range of other compounds, including H and Gamma acids.

Adapting itself to the requirements of the consuming industry the scale of the dyes produced, such as: nitric, sulphuric, acid, basic and azo-dyes, nigrozine, lacquers, &c. is steadily increasing, whil at the same time special attention is devoted to their colouring qualities. Despite the stoppage of exports to Russia and restricted foreign trade, the company's production of dyes covers about 30 per cent of Poland's requirements. When it is taken into account that in addition to a floor space of 20.000 square metres, the company disposes of some 52 hectares of ground for further extensions, that it has a highly efficient technical staff and fully qualified workmen, and that the manufacturing plans of the company are in accord with the government's industrial policy, it will be seen that with the consolidation of the economic conditions in Poland this company has excellent prospects for future development.

"LIGNOZA" LTD., KRYWAŁD. — Comprises a group of powder factories at Krywałd, Stary Bierun. and Pniowiec.

The factories manufacture all kinds of explosives and igniters required for mining, industry, agriculture, forestry, &c. and supply almost all the mines situated in Upper Silesia, as well as many of those in the Dąbrowa and Kraków mining districts.

The whole of the share capital of the concern is in the hands of the local mining industry. The head office is at Katowice. The explosives works at Krywałd, founded in 1876, are the largest in the country. There are three factories: of black powder, potassium chlorate explosives, and also a potassium chlorate factory.

The Lignoza company owns much land and forests in Krywałd, also numerous dwelling and farm buildings.

The factory at Stary Bieruń, founded in 1871, produces nitro-glycerine, dynamite, gelatinous and semi-gelatinous explosives. There are,besides, in Stary Bieruń lunt and percussion cap and detonator factories, put into commission in 1925, and an electric igniter factory, completed and put into operation tn 1927.

THE TOMASZÓW ARTIFICIAL SILK FACTORY, LTD., TOMASZÓW. — This factory, the first in Poland, was founded in 1911. To begin with, it operated under the collodion system and was designed to meet the needs of the local market. After the war it began to produce artificial silk yarn by the viscose process and subsequently this method was adopted generally and is used for the production of the bulk of the present output.

The monthly production of the Tomaszów factory amounts to 120.000 kg., and consists of artificial yarns, hair and straw. The products not only cover the requirements of the Polish market, but are also exported to all European countries and to America.

Independently of the above mentioned works at Tomaszów this company started in 1925 the erection of another extensive works which will exclusively employ the viscose system. This factory will be set in operation by the end of this year and will produce artificial silk yarns.

It should be mentioned that the production of artificial silk in Poland rests almost exclusively on locally produced raw materials, for only an insignificant quantity of the basic material is imported.,

"SATURNIA" LTD., WARSAW.—This company was founded in 1921, with a capital of 30,000.000 Polish Marks, which was increased in the course of the same year to 60,000.000 Polish Marks. The object of the firm was the production of all types of fat derivatives. In the beginning the manufacture of soap was undertaken. At the time of the restoration of the Polish Republic, and subsequently, after the control of the fat trade by the Government had ceased numerous small factories were founded throughout the country, which supplied the the market with low grade soap.

The firm obtained a licence for the production of soap of the well known "Deer" brand made by the "Schicht" Company and was thus able to provide Polish consumers with a high grade article, and as the demand expanded steadily, the factory had to increase its ouput.

In 1923 a new department was opened up for the manufacture of glycerine. At the same time modern methods of fat splitting were introduced, which enabled the making of further improvements in the processes of soap-manufacture. The firm manufactures three grades of glycerine: "Saturn" chemically pure 28 and 30 Bé, "Titan" technical, and for the manufacture of explosives. All the three grades of glycerine are obtained from glycerine water, after fat splitting, by the lime saponification process which is recogn sed as being the best.

In 1925 in accordance with legal prescriptions the capital of the company was revalued and fixed at ℥ 1,000,000, divided into 10.000 shares of ℥ 100 each.

In 1926 the company started the manufacture of "Radion" soap flakes which were well received, both by the trade and the consuming public. The output of this article, which has become a product of the first necessity, is increasing from month to month,

All the work connected with this line, including packing, is performed mechanically, by special machinery.

In the course of the same year this establishment amalgamated with a simimilar firm, the "Trzebinia" where, on the strength of a contract, concluded previously, it has manufactured cocoa-nut butter marketed under the name of "Ceres" and "Kunerol",.

As a result of the above mentioned fusion the capital of "Saturnia" was increased to ℥ 1,200.000 by the issue of 2.000 additional shares of ℥ 100 each.

After the taking over of the Trzebinia factory, this was extended on modern up-to-date lines, with the view of manufacturing artificial butter.

In addition to the above, Messrs. "Saturnia" manufacture high grade toilet soaps and cosmetic preparations. In this, as in other depar ments, the firm's policy is to standardise its products and, by rationalising the work in all its factories, it is in a position to cut down cost of production and the sales price of its products.

"STREM" CHEMICAL WORKS LTD., WARSAW. — This company was formed in 1907, by the union of two bone product factories: the "Strzemieszyce Chemical Works" at Strzemieszyce, founded in 1896, and "Ludwik Spiess & Syn" at Tarchomin, near Warsaw.

The new Company, founded on a strong financial basis, speedily gained the home market, and extended its activity to foreign markets, especially in Russia; it concentrated the whole bone transformation of the country into chemical products, i. e. bone-grease, bone-meal, bone-glue. The uniting of all the factories resulted in cheaper production, and the elimination of those factories which worked less efficiently, or under natural handicap, and resulted in raising the economic and technical ability of such works which, owing to questions of low freight tariff nature, on account of their proximity to coal mines &c., worked under conditions best suited to development.

The factory in Strzemieszyce came to the fore, for it has the best natural conditions, situated in the Dąbrowa Coal Basin, close to the railway depot, with its own siding. After its partial destruction from fire in 1912, the factory was rebuilt on the latest lines, and its efficiency has risen to a point where its productivity is equal to the quantity of home raw material.

Likewise, there were perfected, from a technical standpoint, the factories in Chojny (taken over in 1910), and in Tarchomin; these factories, in 1920 and 1922, became connected directly with the State Railways by newly constructed normal gauge sidings.

The natural result of the expansion of the Company was the aim of producing those articles which are a stage a head in the work of transformation; thus, the production of bone grease resulted in a tendency to increase the production of fat products, such as oleine, stearine, and led to the construction at the Strzemieszyce factory of a glycerine distillation plant, which made possible the manufacture of pharmaceutical glycerine. In the same way the production of bone-meal led to artificial fertilizers, that is superphosphates.

In recent years the Company has developed and perfected the fabrication of skin-glue at this factory.

In 1919 the Company became possessed of a majority of shares of the "Żelatyna" glue and gelatine factory at Winnica, near Warsaw, and after the incorporation of Polish Upper Silesia, it obtained a considerable part of the shares of Messrs "Ceres" Ltd. at Brzezie, manufacturers of bone and skin glue, and superphosphates.

The "Strem" Company took an important part in the re-starting of the bone product factory at Riga, at present the only surviving remnant of the once famous bone incineration company "Okaze" in Petrograd.

The raw materials for the products of the Company are animal refuse, composing bones and refuse of animal raw hides. Before 1914, the sources of this raw material were the former Congress Poland and Russia. After the political reorganisation of Europe, the supply sources changed radically: in place of Russia, came the ancient Polish territories, so that at present Poland is the sole source of supply. It must be noted that the purchase of bones for all the Polish factories is in the hands of a separate organisation, "Kość" Ltd.

The share capital of the "Strem" Company, which was 1,800.000 Roubles before the war, is at present ℥ 3,750.000, in 300.000 shares at ℥ 12 50.

The President of the Company is Prof. Dr. George Michalski, former Minister of Finance; the Director is Dr. Joseph Landau.

"LUDWIK SPIESS I SYN" Ltd., WARSAW.— This firm the largest and most important of manufacturing chemists and druggists in Poland, was established over a hundred years ago. In its initial stages it was exclusively a trading enterprise, and only subsequently became concerned with manufacture. At the present time, while still possessing both an industrial and commercial character, it is developing more and more its industrial side.

The founder of the firm was the great grandfather of Mr. Ludwik Spiess, the present Chairman and General Manager of the Company.

Up to 1844 the founder conducted a retail chemist's shop in Warsaw in Kozia Street, under the name of "Spiess & Rakoczy", and subsequently on the Plac Teatralny, in the house of SS. Cannons, under the name of "Ludwik Spiess". Here it may be of interest to note, that this selfsame shop is still one of the branches of the firm.

In 1850 a small bone product factory was started at Żyrardów, near Warsaw, which was subsequently transferred to Tarchomin, near Warsaw, where, in extended premises, in addition to bone products a model vinegar plant, the manufacture of ferro-cyanide of potassium, mineral oils, varnishes and certain chemicals, were gradually undertaken.

After forty years of work Ludwik Spiess retired from the undertaking, which passed into the hands of his son, who continued the business under the style of "Ludwik Spiess i Syn".

In 1866, thanks to the development of the firm, another shop was opened in Marszałkowska Street, Warsaw, which still exists as a retail and druggist shop.

In 1907, after the reorganisation and extension of the factory at Tarchomin, due to increased sales, a wholesale and retail branch was opened at Łódź. Shortly afterwards extensive warehouses for storing goods in original packing were erected at 82, Grzybowska street in Warsaw.

In 1899 the firm amalgamated with a local company in a similar line of business the "Zjednoczenie Aptekarzy" (United Druggists), and a new company styled "Warszawskie Towarzystwo Akcyjne Handlu Towarami Aptecznemi, dawniej Zjednoczenie Aptekarzy / Ludwik Spiess i Syn" was established, with the result that the field of operation again increased, which

necessitated the further extension of offices and warehouses.

At the beginning of the present century the head office, wholesale warehouses and sales offices were transferred to a newly acquired, specially fitted, spacious building at 24, Senatorska, Warsaw. Simultaneously the premises of the former head office on the Plac Teatralny were reconstructed, and a retail shop, known as Branch 1, established.

In 1904, the firm "Józef Mrozowski" of Miodowa, Warsaw, was acquired, and another retail shop, known as Branch 3, was founded.

In 1909 a fourth retail shop was opened at 99, Marszałkowska, Warsaw.

Ever since the firm began to rapidly develope, a large business was done in Russia, and a wholesale trade in artificial fertilizers, sulphuric acid and potassium chloride was undertaken.

On January 1st 1912, a pharmaceutic laboratory, independently of the factory at Tarchomin was opened at 6, Nowosenatorska, Warsaw, for the purpose of manufacturing galenic preparations and patent medecines

In 1913, after the completion of the building at 16, Daniłowiczowska, offices, the wholesale expedition and the warehouses, as well as the above mentioned pharmaceutical laboratory were transferred there; this latter department progressed at such a rapid pace, that it soon had to be transferred again from the main building, to a newly erected works in Tarchomin, where it contributed materially towards the development of the firm as a manufacturing enterprise.

Commencing with 1920, when the firm established close relations with a similar French firm "Les Etablissements Poulenc Frères" in Paris, the old works at Tarchomin had to be largely reconstructed and extended, and since 1922 6 new pavilions have been added to the factory.

The increasing activity of the Tarchomin works is closely connected with the development of industrial activity of this firm, so that in 1925, its title was again changed and now reads „Przemysłowo-Handlowe Zakłady Chemiczne Ludwik Spiess i Syn S. A." (Ludwik Spiess & Son, Ltd. Manufacturing Chemists and Druggists).

In 1927 the firm owned the following buildings: a four story house at 16, Daniłowiczowska, with a surface of about 2.000 square metres. There are in this building up-to-date offices, wholesale despatch, storage rooms and subsidiary laboratories, both for the purpose of production and control (chemical, bacteriological and biological, as well as a scientific laboratory with an extensive library). The warehouses, garages, &c. are situated in 82, Grzybowska, Warsaw. The four retail shops in Warsaw, as well as the wholesale and retail establishment in Łódź, are still being successfully operated. Apart from a wholesale depot in the central building at Daniłowiczowska Street, Warsaw, the firm possesses wholesale depots in the following towns: Bydgoszcz, Częstochowa, Królewska Huta, Lwów, Poznań and Wilno.

At present the Tarchomin works cover an area of 4 hectares, and some 20 hectares are set aside as a reserve for further extension of the works.

The factory is connected with the normal gauge railway by means of a siding from the Płudy station as well as with a narrow gauge railway from the Piekiełko station. Continuous service is maintained between the Central building and the factories by means of motor-cars. It consists of 14 workshops, most of which are of recent construction. In addition there are, in the immediate vicinity, two dwelling houses for the staff of the factory. In one of the pavilions there is an analytical laboratory, which works independently of similar laboratories forming part of the central building. Within 3 km. of the Tarchomin works the firm runs under its own name a slaughter house at Henryków, from whence are drawn the necessary raw material for the production of organo-therapeutic preparations.

The operation of the works at Tarchomin, together with the subsidiary divisions operated in the Central building, is confined, on the one hand, to the manufacture of pharmaceutical preparations, i. e. chemical and patent medecines, such as in the first place: phosphit, novarsenobenzol, calcitrine, organotherapeutic preparations, galenic preparations, sterilised solutions in ampoules for injections, and on the other, of the production of hygienic, cosmetic and toilet preparations.

In the commercial division, apart from own products, the firm carries on the sale of all kinds of chemicals and pharmaceutical products, among which an important role is played by the products of Messrs. Poulenc Frères of Paris, for whom the firm has the sole agency for Poland, and also artificial fertilizers and sulphuric acid.

The undertaking employs about 800 persons; the staff is composed of 300 clerical workers, including operating staff, pharmaceutical chemists and medical men; the balance being composed of workmen.

The progress in the improvement of its products and the control of their preparations, and the elaboration of methods of manufacture of new preparations, the firm owes not only to the above mentioned laboratory, but also to a large extent to the University hospitals and the medical colleges, with which the firm is continually in touch.

The capital of the firm is gold ℥ 5,600.000, divided into 5.600 shares of ℥ 100 each.

"MOTOR", Ltd., THE WARSAW CHEMICAL AND PHARMACEUTICAL WORKS. — This firm was established over 100 years ago, in 1824, as a mineral water factory, by a group of Warsaw pharmacists, under the style of the "Mineral Water Institute".

After certain changes in 1890, and after its amalgamation with Messrs. the "Chemical Pharmaceutical Laboratory J. Rutkowski", it assumed its present name in 1900; at which time it also started to manufacture patent medicines.

Encouraged by the success of its operations, the company opened in the year 1924, a well organised and up-to-date chemical department in its own factory.

The present production of the "Motor" firm falls under the following headings: artificial mineral waters, pharmaceutical (galenic prepa-

INTERIOR OF A NITRATE-PRODUCING PLANT (*PHOT. S. PLATER*)

rations, patent medicines, basic salts, department disinfectants, &c.), chemical department (silver, aluminium, iodine salts, &c.).

This latter department, the first of its kind in Poland, has recently started the manufactnre of salicylic and acetylsalicylic acid, &c. and expects shortly to begin the manufacture of other salicylic preparations.

The staff exceeds 300 persons.

THE "GRODZISK" CHEMICAL WORKS, LTD., GRODZISK.—This company has chemical works at: Grodzisk Mazowiecki, Hajnowka in the Białowieża forest, also at Srodula and Gzichów near Sosnowiec and Wygoda in South Eastern Poland.

The Grodzisk and Gzichów factories work up the products of the dry distillation of foliferous trees, namely: acetate of calcium and wood spirit into acetic acid, acetate of sodium and acetate of lead, acetone, cellon solvents, Keton oils, methyl alcohol, denaturants for ethylic alcohol, formalin etc.

The raw materials for the manufacture of the above products are obtained from the wood distillation plants at Hajnówka in the Białowieża forest and at Wygoda in Eastern Poland. The Hajnówka plant treats mixed wood, birch, oak, elm, alder, &c.

The annual throughput is about 100.000 cubic metres, although the factory, which is the largest of its kind in Europe, is capable of dealing with twice that amount.

The Wygoda plant works up beech wood, which is economical, and which gives charcoal of good quality. The annual throughput is about 25.000 cubic metres. A large portion of the charcoal obtained at Wygoda and Hajnówka is exported.

The products of the Grodzisk and Gzichów works, and also pitch tar produced by the dry distillation of wood are absorbed by the local market. In addition to charcoal, methyl alcohol is directed to foreign markets.

The inorganic department of the Srodula works produces hydrochloric acid, Glauber salt, sadium bisulphate, sodium bisulphite, sodium thiosulphate, zinc chloride.

THE CHEMICAL PHARMACEUTICAL INDUSTRIAL COMPANY FORMERLY MAGISTER KLAWE, LTD., WARSAW. — This name was assumed in 1920, by the chemical laboratory attached to the pharmacy of Mag. Klawe, founded in 1862, when it was transformed into a limited liability company.

The head office and factory is at 22-24 Karolkowa, Warsaw. The factory covers 12.524 square metres, and is composed of nine workshops of 500 square metres each — 4.500 square metres. The floor surface of dwelling houses, garages, &c. is 1.200 square metres.

This undertaking employs about 250 persons, and is provided with up-to-date equipment and machinery; it occupies one of the first places among Polish industrial chemical and pharmaceutical undertakings.

Thanks to its being in constant touch with scientists, medical men and pharmaceutical and chemical experts, this company has succeeded la maintaining a high standard of its products.

The firm operates the following departments, each of which is headed by experienced speciasists: general pharmaceutical, tablets, gelatine capsules, Hemogen, sterilised injections, organotherapeutic bacteriological preparations and vaccines. There is also a specially equipped de artment for research work.

The vegetable raw materials are drawn partjally from the firm's own plantations, covering about 200 hectares.

"WOLBROM", LTD., WOLBROM.—This is the largest and oldest rubber works in Poland. It was founded in 1911, through the initialive of the well-known industrialist Peter Westen, as a competitor of the former Russian rubber factories, such as Treugolnik, Prowodnik, &c The factory was active for three years, until the beginning of the war, which stopped any further development and caused it to be shut in 1914 as a result of the fight which took place in Wolbrom.

The factory was restored only in 1924, and the management is in the hands of well known experts, and since it has the most up-to-date machinery — the last word in engineering — it has taken, as regards sales and production, the first place in Poland, covering the greater part of the home demand and exporting a constantly increasing amount of rubber articles.

The "Wolbrom" factory manufactu es every kind of rubber article for technical purposes, for mines, factories, mills, refineries, sugar works, railways, artillery, aviation, hospitals, &c. It works three shifts (24 hours) — and, owing to increasing orders, has begun the construction of several new buildings, where new machinery is to be installed, whereby the present production will be augmented by at least 50 per cent.

MOVEMENT OF PRICES IN JULY.— Prices in July were somewhat irregular. The index of wholesale prices increased slightly; this was apparently brought about by a seasonal increase of prices in certain groups of commodities, although, at the same time, there was a distinct downward tendency in a number of other groups of products. It should be stated that the above mentioned downward tendency cannot be regarded as a general depression of the market, as it was chiefly in respect of grain, in connection with the apperance on the market of this year's crops.

Retail prices and the cost of living were somewhat lower; the movement of prices in the first seven months of this year is illustrated by the following figures (January 1914 = 100):

	Wholesale prices index:		*Retail prices index:*		*Cost of living index:*	
	nominal	*gold*	*nominal*	*gold*	*nominal*	*gold*
Jan.	195·2	112·8	255·8	147·8	201·8	116·6
Febr.	197·1	114·1	255·2	147·8	201·3	116·5
March	199·5	115·8	253·5	147·1	200·3	116·0
April	205·7	119·4	254·5	147·7	203·0	117·8
May	207·7	120·5	258·4	150·0	204·6	118·8
June[1])	206·4	119·8	257·0	149·1	205·1	119·0
July[2])	207·4	120·4	253·7	147·2	198·6	115·3

After a drop in June, the index of wholesale prices rose in July by 0·5 per cent, whereas that of retail prices, declined further by 1·3 per cent; similarly, the cost of living index showed a decline of 3·1 per cent.

The movement of gold indexes was not subject to any changes during the period under review, and ran parallel with the movement of nominal indexes. The increase in the index of wholesale prices by 0·5 per cent in July was due to the rise of prices of agricultural products by 0·9 per cent and of manufactured goods by 0·2 per cent.

In the group of agricultural products the movement of prices was different in the various sub-groups. Thus, local foodstuffs of vegetable origin showed a downward trend, while at the same time the prices for foodstuffs of animal origin, rose by 4·1 per cent. This increase was caused by the rise of prices for cattle and meat, the market of which saw an improvement in July, as well as the simultaneous increase of prices for butter and eggs, due to the falling off of supplies for these articles during the harvest.

The rise in the prices for manufactured articles is attributable to the rise of those for timber (by 5 per cent) and for textiles (by 2·8 per cent). The rise in the prices of textiles is attributable

[1]) *Corrented figures.*
[2]) *provisional figures.*

to the increased cost of the raw materials—cotton and wool.

Prices for timber have been on the increase for some months, due to augmented demand both on the part of local and foreign markets.

The remaining groups of products remained either unchanged or showed a downward trend; thus the prices for coal remained the same, those for metals, due to the fall in zinc and lead quotations, declined by 0·6 per cent. A decline of 3·5 per cent was reported in all the remaining groups of manufactured articles, due to the falling off in the price of petroleum and its products; finally groceries increased by 0·4 per cent, due to the rise in the price of rice.

The falling off in retail prices (by 1·3 per cent) is accounted for by a fairly considerable decline in prices of agricultural products (by 2·9 per cent) and a simultaneous slight increase in prices of manufactured goods (by 0·1 per cent). The decline in the retail prices of foodstuffs resulted in the decrease of the cost of living by 3·1 per cent.

It should be stated that the indexes of retail prices and of cost of living declined in July to a level lower than those recorded in January last.

FOREIGN TRADE

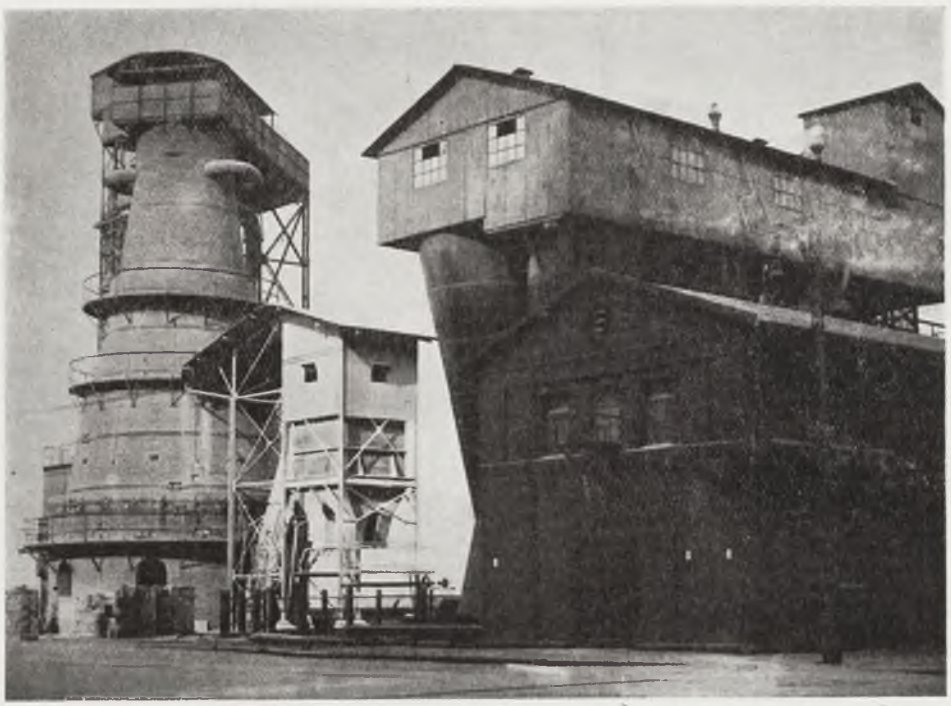
— As forecasted in these columns in the past months, the foreign trade balance changed for the better during the course of July. Imports in that month declined as compared with those in June by gold ℵ 23,845.000 and amounted to gold ℵ 136,195.000, whereas exports remained on the previous level and amounted to gold ℵ 113,911.000, with the result that the adverse foreign trade balance declined to gold ℵ 22,284.000.

The largest decrease in imports was in respect of foodstuffs, which fell by gold ℵ 26,124.000, the imports of grain having decreased as follows: wheat — gold ℵ 16,362.000, rye — gold ℵ 2,521.000, oats — gold ℵ 1,624.000, and maize — gold ℵ 3,209.000. This is due to this year's favourable crops which, according to the provisional data, will be much better than those of 1926.

The import of textiles also shrank; showing a considerable decrease of gold ℵ 5,726.000 as compared with the previous month; wool, cotton and cotton yarns and fabrics being responsible for decreases of gold ℵ 4,661.000, 893.000 and 1,119.000 respectively; at the same time the imports of jute and woolen yarns rose slightly. These fluctuations, although not inconsiderable, have, to all appearance a transitory character, as the situation in the textile industry did not change for the worse, and in view of the good crops it has excellent prospects on the local market, for some months to come.

A large increase was shown by the imports of machinery which, excepting electrotechnical material and motor-cars, showed a rise of gold ℵ 3,264.000. Moreover the imports of zinc ores and Thomas slag rose by gold ℵ 1,369.000, and gold ℵ 1,041.000 respectively.

As already mentioned the value of exports was unchanged, although considerable changes were shown by certain groups. Foodstuffs, the most important group in point of value, showed a decrease, amounting to gold ℵ 6,713.000 as compared with June, due to the decline being as follows: sugar—gold ℵ 1,821.000, meat — gold ℵ 2,117.000, and eggs — gold ℵ 3,413.000. These drops are usual during the harvest, when exports of foodstuffs decrease, due to the growth of the local consumption of meat and eggs. For this reason it is most surprising that there should have been an increase in the export of butter, of which there is a large consumption during the time of harvest. The export of live stock, chiefly pigs, dropped by gold ℵ 1,868.000, and of zinc, too, showed a decline of gold ℵ 2,174.000. On the other hand, exports of timber augmented by gold ℵ 3,724.000, assisted by a rise in pulp-



A LIME KILN AT A POLISH ARTIFICIAL MANURE FACTORY
(PHOT. S. PLATER)

wood exports by gold ℥ 2,422.000, and those of sawn timber by gold ℥ 1,117.000. The foreign sales of coal, coke and briquettes increased by gold ℥ 3,493.000; the exports of cotton fabrics rose by gold ℥ 640.000 and those of wool fabrics by gold ℥ 815.000. The total increase in this group was ℥ 1,965.000. It is interesting to note that the above

IMPORTS

GOODS	July 1927	Jan.-July 1927	Jan.-July 1926	July 1927	Jan.-July 1927	Jan.-July 1926
	Volume — in tons			Value — in thousands of gold ℥		
TOTAL:	**423.237**	**2,979.018**	**1,152.841**	**136.195**	**956.147**	**417.676**
Foodstuffs	**73 720**	**721 723**	**121.855**	**27.642**	**257.942**	**79.571**
including:						
wheat	10.185	218.226	576	3.258	67.455	166
rye	16.985	116.913	1.297	4.771	29.585	190
barley, oats and maize	18.782	154 492	12.665	3.308	27.854	2.019
rice	8.412	41.209	16.441	3.365	16.562	6.392
wheat and rye flour	1.701	9.057	269	775	4.122	110
tea	153	1.203	1.069	736	6.090	5.018
cocoa	520	2.820	1.649	963	5.205	2.540
coffee	596	3.854	3.708	1.557	10.354	9.999
fish and herrings	3.535	45.204	29.017	1.306	16.399	10.293
edible fats of animal origin	604	7.976	2.663	920	12.433	4.577
edible fats of vegetable origin	895	6.331	3.566	1.086	7.790	4.551
tobacco	1 209	9.950	8.930	1.299	12.580	16.450
Live animals (head)	**3.579**	**200.011**	**19.985**	**172**	**1.143**	**79**
Animal products	**3.455**	**23.252**	**9.701**	**18.465**	**66.118**	**23.695**
including:						
dried skins	2.238	13.316	2.962	3.741	21.056	3.430
tanned hides	440	3.207	2.864	3.863	27.887	14.163
Timber and wood ware	**1.661**	**14.507**	**12.171**	**647**	**4.900**	**2.005**
Plants and seeds	**2.128**	**23.277**	**12.283**	**1.035**	**12.020**	**6.929**
oil seeds	1.592	17.585	6.896	635	6.500	2.696
Building materials and ceramic prod.; glass	**77.997**	**586.350**	**408.455**	**2.804**	**17.416**	**7.695**
ceramic products	9.517	60.985	23.600	1.189	7.343	2.353
Fuel and petroleum products	**20.932**	**110.913**	**59.223**	**659**	**4.589**	**2.086**
Chemicals	**56.612**	**420.078**	**167.588**	**12.207**	**87.914**	**48.662**
including:						
vegetable fats	1.776	13.484	8.912	1.666	13.443	8.836
animal fats	1.364	9.419	6.888	1.215	8.875	6.518
dyes and colours	805	4.198	2.649	1.290	8.182	3.316
Ores, metals and metal products	**158.123**	**911.817**	**278.132**	**15.834**	**81.675**	**31.871**
including:						
iron ores	65.808	383.973	114.189	1.171	6.766	2 636
zinc „	20.276	115.330	41.323	3.259	17.776	5.714
scrap iron	50.913	316.573	58.865	2.992	19.072	2.341
copper and copper products	1.136	5.008	1.698	1.901	8.433	2.895
Machinery, electrical wares, means of communication	**8.023**	**37.995**	**22.262**	**20 541**	**107.578**	**50.356**
including:						
textile machinery	722	3.783	1.034	2.134	12.705	3.147
agricultural machinery	1.133	5 623	2 483	2.349	10.214	4.123
electrical appliances	1.408	7.796	5.173	3.465	23.072	11.954
motor cars	620	3.812	1.044	2.709	15.385	4.372
Paper, books, and pictures	**8.720**	**43 999**	**16.382**	**5.202**	**27.740**	**9.860**
including:						
waste and rags	3.771	20.158	8.156	1.991	10.977	2.625
paper and paper wares	2.682	14.750	5.445	1.942	10.354	4.037
Textiles and textile products	**10.974**	**78.506**	**43.036**	**33.312**	**241 850**	**133.551**
including:						
jute	2.061	12.718	4.530	1.521	10.119	5.704
cotton	6.300	45.062	29.409	12.620	87.974	71.761
cotton yarns	244	1.931	636	2.086	14.997	5.697
„ fabrics	120	908	587	1.613	12.308	7.516
wool (combed incl.)	1.337	12.814	5.320	8.102	70.281	26.151
„ yarns	267	1.311	295	3.547	17.253	3.625
silk fabrics	11	111	54	1.153	11.414	4.906
Clothing and fancy wares	**82**	**506**	**550**	**1.675**	**14.382**	**6.134**
Various	**510**	**2.797**	**1.203**	**4.024**	**24.689**	**11.089**

EXPORTS

GOODS	July 1927	Jan.-July 1927	Jan.-July 1926	July 1927	Jan.-July 1927	Jan.-July 1926
	Volume — in tons			Value — in thousands of gold ℥		
TOTAL:	**1,738 092**	**11521.658**	**10329.906**	**113.911**	**822.428**	**694.300**
Foodstuffs	**33.136**	**511.518**	**835.276**	**20.121**	**201.470**	**219.214**
including:						
wheat	235	2.171	38.163	82	710	9.928
rye	304	4.189	145.232	99	1.166	24.736
barley	245	33.563	78.205	66	8.019	13.544
oats	317	4.414	58.746	95	995	9.979
sugar	1.316	120.051	154.262	517	47.175	45.855
meat	1.950	20.280	24.662	2.694	27.510	22.951
butter and cheese	1.424	4.956	3.572	3.882	12.561	7.280
eggs	5.950	44.705	37.987	8.190	60.387	48.406
forage	15.574	182.939	177.786	2.455	25.525	14.069
Live animals (head)	**210.753**	**870.629**	**991.923**	**10.168**	**56.143**	**42.788**
including:						
pigs	71.606	404.797	422.211	9.151	49.821	31.083
Animal products	**1.147**	**8.192**	**13.262**	**1.422**	**13.183**	**13.738**
Timber and wood ware	**622.696**	**3,778.505**	**2,786.943**	**34.839**	**206.509**	**117.588**
including:						
pulpwood	140.329	625.228	561.438	4.474	18.633	13.334
pit props	100.486	644.306	462.728	2.614	16.292	9.491
round wood and logs	128.541	1,025.214	548.757	6.620	52.005	19.344
planks, deals, battens	192.880	1,132.897	805.236	16.436	92.653	49.994
railway sleepers	35.390	164.067	275.572	1.995	8.998	12.337
Plants and seeds	**3 378**	**45.216**	**41.760**	**770**	**17.683**	**11.271**
Building materials and ceramic prod.; glass	**64.425**	**387.383**	**116.192**	**1.046**	**6.597**	**2.229**
Coal, coke, briquettes	**948.394**	**6,263.368**	**6,010.910**	**17.535**	**118.090**	**103.491**
Petroleum products	**18.430**	**172.176**	**244.446**	**3.753**	**32.932**	**39.458**
including:						
petroleum	3.889	25.840	51.228	555	4.030	5.529
motor and lubricating oils	6.800	69.471	106.862	1.089	8.972	11.303
benzine	4.177	41.000	32.695	1.173	10.926	9.065
paraffine wax	1.258	9 890	15.164	734	6.269	10.085
Chemicals	**8.055**	**70.868**	**74.371**	**1.451**	**13.298**	**13.108**
Ores, metals and metal products	**34.103**	**249.067**	**168.056**	**13.120**	**87.464**	**73.166**
including:						
iron and steel; rails	2.604	29.760	4.945	460	5.425	983
„ „ steel sheets	3.879	28.846	9.449	1.349	9.367	2.559
pipes	4.224	21.502	12.911	1.642	7.678	4.586
lead	1.197	10.794	9.597	790	7.438	6.905
zinc and zinc dust	9.128	70.210	64.308	6.759	53.507	48.219
„ sheets	1.166	7.158	3.805	1.045	6.618	3.192
Machinery, electrical wares, means of communication	**591**	**4.100**	**3.972**	**562**	**3.790**	**4.722**
Paper, books and pictures	**1.459**	**10.271**	**13.817**	**486**	**3.955**	**3.753**
Textiles and textile products	**2.241**	**20.747**	**19.541**	**8.241**	**48.183**	**45.769**
including:						
flax and hemp	693	11.861	11.343	333	5.561	5.962
cotton yarns	136	978	1.623	887	3.905	5.965
„ fabrics	427	3.139	1.876	2.605	17.139	11.099
wool yarns	138	845	840	1.711	10.013	8.823
„ fabrics	87	362	368	1.262	4.738	4.140
Clothing and fancy wares	**27**	**170**	**169**	**310**	**1.923**	**2.598**
Various	**10**	**83**	**257**	**85**	**1.208**	**1.416**

mentioned decline in the export of zinc and to a lessser degree that of lead was entirely compensated by the increase in the export of iron and iron products.

The increase in imports during the past 7 months, was gold ℵ 538,471.000 as compared with the corresponding period in 1926. If, however, the difference between the imports of grain, rice and flour this year and last year, is deducted from this sum, it will be found that imports rose by 401,700.000 or 96·2 per cent.

The increase of foodstuffs imports, after the elimination of grain and flour shows an increase much larger than the average. The increase of the group next most important, that of textiles, also shows an increase above the average, which is due, however, to the lower prices ruling for cotton at the beginning of this year.

There was also a considerable increase in the import of animal products, the quantity of raw hides received from abroad being six times as large as before, as was also the case with scrap iron. The imports of zinc and iron ores showed also large increase, although in a lesser degree.

The increase in the volume of imports of raw materials was accompanied by an augmentation of means of production, namely — machinery and electrical materials, and also artificial fertilizers, technical fats, dyes, etc.

It may be seen from the above that the imports for productive purposes was not only continual, but was manysided, which is indicative of the favourable development of the economic conditions of the country as a whole, and not that of individual industries alone.

As may be imagined, the general increase in the turnover was naturally accompanied by a considerable increase in the import of various articles for consumption purposes. It is exactly these items on the import side, which will be offset by export, or else reduced.

The volume of Polish exports for the first seven months of this year shows a considerable increase as compared with the corresponding periods of the past two years, being larger by gold ℵ 128,128.000 as compared with 1926 and by gold ℵ 105,208.000 as compared with 1925.

Foodstuffs exports — the most important group in point of value — showed a decline. This is understandable, when it is borne in mind that grain exports, with the exception of barley, have almost totally vanished, but when, however, the exports of grain, beans, flour are eliminated, it will be seen that the remaining foodstuff exports in 1927 showed an increase of gold ℵ 35·5 million. A large portion of this increase was caused by the rise of exports prices, but even then there remained important items, such as eggs, dairy products, and forage, which in some cases showed considerable quantitative increases.

The rise in timber exports had the largest influence on the general increase of exports. Undoubtedly the improvement in the prices on the timber market had a not inconsiderable influence, but the comparison of the data relating to quantities shows that the volume of round and sawn timber exports increased to a large extent. The reverse, however, was noticeable in the exports of telegraph poles and sleepers.

The value of coal and metal exports, insofar as the total sum of exports is concerned, is of less importance. As for coal, the data can hardly be compared, for the seven months period of 1926 includes the two months: June and July, when the situation brought about by the coal stoppage in England, was particularly favourable to the Polish coal mining industry. As regards the exports of metals, the largest increase was in respect of iron, but there again, it may be mentioned that the local consumption also increased considerably. The increase of exports of zinc is also worthy of note.

The textile group showed a considerable increase in the volume of exports of cotton fabrics and a simultaneous decline in the exports of cotton yarns, but on the whole, thanks to the lower prices, particularly at the beginning of the year, the change in the total of the whole group is not inconsiderable.

The group of live stock showed a decline in quantity, yet owing to the improvement in the class of the exported animals and in particular that of pigs, it showed a marked increase in value.

The remaining groups do not show any considerable changes, with the exception of petroleum products, the exports of which declined markedly.

The above data show beyond doubt, that Polish export trade is developing satisfactorily.

OPENINGS FOR TRADE AND BUSINESS WITH POLAND

Particulars of any of the under mentioned offerings may be secured on applying to the Editor, "The Polish Economist", and quoting the respective Ref. No.

The Editor accepts no responsibility for the consequences of the transactions concluded.

Ref. No. 89: Polish undertaking exporting all kinds of timber, is desirous of entering into relations with foreign firms.

Ref. No. 90: Polish manufacturers of cast iron and enamelled hollow ware, water pipes, radiators and pipes for central heating, seek foreign buyers interested in these lines.

Ref. No. 91: Polish undertaking producing garden chairs, tables &c., kilims, toys and wood wares, is desirous of getting into touch with foreign importers of these articles.

Ref. No. 92: Manufacturers of oil paints offer these products for export.

Ref. No. 93: Manufacturers of agricultural machinery wish to get into touch with importers working in this line.

Ref. No. 94: Polish producers of metal working machinery are desirous of getting into touch with foreign buyers.

CUSTOMS DUTIES AND FOREIGN TRADE REGULATIONS

ELABORATION OF THE NEW CUSTOMS TARIFF.—On July 5th and 15th the representatives of the Commissions entrusted with the collecting of documents, necessary for the elaboration of a new customs tariff, together with the representatives of the Ministries concerned and the co-opted experts assembled to deal with this question. As is well known, the present customs tariff is only provisional, being a modification of the former Russian tariff, and it has therefore been found necessary to undertake the publication of a new tariff, adapted to the new post-war conditions prevailing on the unified Polish territories; this work will, however, take at least 2 or 3 years to complete. In the course of the discussion a state-

EXTERNAL VIEW OF A POTASSIUM SALTS CONCENTRATING PLANT NEAR KAŁUSZ *(PHOT. S. PLATER)*

ment was made to the effect that the preparation of the first draft of the proposed customs schedules was already terminated, and that the proposals are now being finally adjusted with all the various customs authorities, which have a direct interest in this work. Of course this scheme is far from being final, and may be modified, particularly as regards the customs rates. In addition it has been found advisable to take due note of the recommendations of the International Economic Conference in the matter of the unification of the customs schedules.

Furthermore, there was discussed the method of compiling the necessary data relative to production, imports, exports, and the prices for different commodities, which will be necessary for the compilation of the rates in the new tariff. The question of the calculation of customs duties was also dealt with.

Moreover, it was proposed to divide the new customs tariff into groups, in order to facilitate the computation of data relative to foreign trade.

This project (not final) reads as follows:

Section I. — Products of vegetable origin and preparations thereof.

Sub-section *A)* — Products of vegetable origin

Gr. 1. Grain and pod plants
„ 2. Fruit and berries
„ 3. Vegetables root plants mushrooms
„ 4. Overseas foodstuffs and substitutes
„ 5. Spices
„ 6. Seeds, plants and parts thereof

Sub-section *B)* — Prepared products of vegetable origin

Gr. 7. Milling products and malt
„ 8. Sugar
„ 9. Fruit, vegetables, mushrooms, potato products
„ 10. Alcohol, beverages, vinegar
„ 11. Vegetable, hemp, linseed, sunflower and rape oils
„ 12. Bakery and confectionery products
„ 13. Tobacco and products thereof
„ 14. Yeast and other products specially designated
„ 15. Agricultural waste (fodder) and green fodder.

Section II. — Live animals, products of animal origin and preparations thereof

Gr. 16. Live animals
„ 17. Edible fish products (fish, lobsters, crayfish, &c)
„ 18. Foodstuffs of animal origin (eggs, cheese, fresh, salted and frozen meat, poultry, &c.) as well as edible animal fats (bacon, lard, &c.)
„ 19. Undressed hides and raw furs
„ 20. Hair, bristles, down and feathers
„ 21. Animal raw materials not specially designated
„ 22. Foodstuffs of animal origin (canned meat, butchers wares, &c.)

Section III. — Timber, manufactures of wood, cork and vegetable fibre

Gr. 23. Raw timber
„ 24. Undressed timber
„ 25. Wares of wood, cork and of materials of vegetable origin

Section IV. — Products of the mining industry and manufactures (except those separately designated)

Sub-section *A)* — Minerals, mineral fuel, asphalt coal tar, bitumin, crude oil, and products thereof

Gr. 26. Earths, stones, salt, asbestos, graphite and mica
„ 27. Ores, slag, and oil bearing loams
„ 28. Coal, coke, briquettes, pitch
„ 29. Asphalt, all kinds of tar, bitumins, crude oil and products thereof

Sub-section *B)* — Manufactures, except those separately designated.

a) Products of the mineral industry:

Gr. 30. Wares of stone
„ 31 Asbestos and mica
„ 32. Ceramic wares and pottery
„ 33. Glass ware

b) Products of metal origin:

Gr. 34. Pig iron, scrap, iron and steel, foundry products
„ 35. Semi-precious metals and alloys (copper, zinc, lead. tin, aluminium, &c.)
„ 36. Metal products with the exception of those for electrotechnical purposes and of precious metals
„ 37. Machinery and apparatus, with the exception of those designated in other groups
„ 38. Agricultural machinery and implements
„ 39. Vehicles
„ 40. Machinery, apparatus and electrical appliances
„ 41. Arms and ammunition
„ 42. Musical instruments
„ 43. Watches and parts thereof
„ 44. Scientific, optical and precision instruments

c) Products of the chemical industry:

Gr. 45. Rosin, rubber and rubber goods
„ 46. Fats and oils, with the exception of those designated in other groups, artificial edible fats, glycerine, soap
„ 47. Artificial fertilizers
„ 48. Elements, acids, alkalis and inorganic salts
„ 49. Organic compounds, synthetic and natural dyes
„ 50. Tanners plants, clays. colouring earths, colours, varnishes, painters oils
„ 51. Explosives and fuses, &c.
„ 52. Pharmaceutical products, dressings, scents, cosmetics, photographic and other chemical products not separately designated

d) Raw materials and products of the textile industry:

Gr. 53. Cotton and products thereof
„ 54. Wool and products thereof
„ 55. Flax, hemp, jute, ramie and other vegetable fibre (except cotton and products thereof)
„ 56. Silk, natural and artificial and products thereof

e) Products of the paper and the polygraphic industry:

Gr. 57. Raw and semi-finished articles of the paper industry
„ 58. Products of the paper industry
„ 59. Products of the polygraphic industry

f) Leather wares, bristles, feather and down:

Gr. 60. Skins and furs
„ 61. Leather wares
„ 62. Products of hair, bristles, feather and down

g) Wearing apparel, fancy goods and toys:

Gr. 63. Wearing apparel
„ 64. Fancy goods and toys

h) Precious and semi-precious stones, gold, silver, platinum, so-called platinum metal, and other precious metals aud products thereof:

Gr. 65. Precious and semi-precious stones
„ 66. Gold and silver, platinum, the so-called platinum metal and other precious metals and products thereof

i) Sundries:

Gr. 67. Sundries.

The principles of the above project are the following. A division of Polish production into the following groups: agricultural, breeding, forestry, products of the mines and manufactured goods. The grouping into separate sections of Polish production, will facilitate the computation of the statistical data relative to foreign trade in the chief branches of national husbandry. Raw materials locally produced form a special group, being treated as independent factors of the economic life of Poland, while those, the local production of which is limited, are incorporated in the corresponding industry. For instance, special groups are formed by those raw materials which are raised by local agricultural and mining industries, while colonial produce is incorporated in the corresponding manufacturing industry.

These are the few principles, from which certain deviations have been made for various practical reasons, and also in view of certain groups forming a single unit. Thus, for instance, flax is incorporated in the flax industry, owing to overseas raw materials, such as cotton, jute, &c., being incorporated in the corresponding industry. Articles enumerated within one group will bear successive numbers according to the stage of manufacture.

At present the customs committees and sub-committees are engaged in the adjustment of the schedules and the collecting of data relating to production, imports, exports and prices ruling at

home and abroad. These data will prove very valuable at the time of fixing of the customs rates.

AMENDMENT TO THE CUSTOMS DUTIES ON SHIPS. — The project of the amendment of item 175 of the customs tariff relative to ships, which has been under consideration for some considerable time, has been finally approved by the Ministers of Finance, and of Industry and Commerce. The customs duties on ships have been modified, while a separate decree lowers certain of the amended rates for a transitory period.

The text of the decree relating to the partial amendment of item 175 is given below:

§ 1. — Item 175 of the customs tariff of June 26, 1924 ("*Dz. Ust, R. P.*" No. 54, item 540) is now to be read as follows:

Item of the customs tariff	*Denomination*		*Duty per 1 reg. ton (in Z)*
175	Sea and river craft with equipment:		
	1) Sea going ships mechanically propelled, with the exception of those separately designated:		
	a) Ships having over 300 net reg. tons and fishing smacks of any size	net	150.—
	b) ships under 300 reg. tons	net	200.—
	2) Auxiliary sea-going ships:		
	a) tugs, life-boats, fire floats & c.	gross	200.—
	b) dredgers	gross	330.—
	3) Boats mechanically propelled:		
	a) fishing smacks	net	100.—
	b) all others	net	400.—
	4) Sea going ships not mechanically propelled, floating docks, pontoons		
	a) made of steel or iron:		
	I) 300 net reg. tons or over	net	30.—
	II) under 300 net reg. tons	net	75.—
	b) wooden or of mixed construction:		
	I) 300 net reg. tons	net	30.—
	II) under 300 net. reg. tons	net	75.—
	c) ferro-concrete:		
	I) 300 net reg. tons or over	net	30.—
	II) under 300 net reg. tons	net	75.—
	Remark to p. 4: When levying customs duties on docks and pontoons the gross tonnage is taken as net tonnage.		
	5) River vessels mechanically propelled with the exception of those separately designated	net	200.—
	6) River vessels not mechanically propelled		
	a) of iron and steel	net	50.—
	b) wooden and of mixed construction	net	100.—
	c) ferro-concrete	net	50.—
	7) River dredgers	gross	200.—
	8) Boats not mechanically propelled:		
	a) sporting boats with or without sails	net	250.—
	b) all others not separately designated	net	100.—
	Remark 1: As ships are considered vessels of a gross capacity of over 50 cubic metres (70·6 reg tons) ships of lesser capacity are considered as boats.		
	Remark 2: Cranes, elevators, &c. floating separately, and non-designated appliances which cannot be considered as ships pay a duty according to the gross tonnage with a 50 per cent surplus for the appliances, fittings, &c.		
	Remark 3: All vessels are dutiable together with the equipment nece sary for regular and safe navigation. The issuance of instructions relative to the measurement of vessels and equipment rests with the Minister of Finance.		
	Remark 4: Vessels and boats imported in a dismantled state as well as parts of vessels, are dutiable in accordance with the relevant items of the customs tariff. Vessels and boats imported by land as well as folding boats even when dismant ed are dutiable in accordance with the relevant rates of this item.		

§ 2. — The present regulations come into force on the third day after their publication and are operative on the whole customs duty territory.

§ 3. — On the same day item 175 of the customs tariff of June 26 1924 ("*Dz. Ust. R. P.*" No. 54, item 540) is cancelled.

The regulation concerning customs rebates on vessels reads as follows:

§ 1. The undermentioned articles pay a duty amounting to 10 per cent of the normal duty.

Item of the customs tariff	*Denomination*
176, p. 1 *a, b*	Sea-going ships, mechanically propelled, with the exception of those not separately designated.
p. 2*a, b*	Auxiliary sea-going ships.
p. 3	Boats mechanically propelled *a*) fishing smacks, *b*) all others on condition that they are not of the luxury type
p. 4	Sea vessels without own mechanical propulsion, docks, sea pontoons: *a*) I, II of iron or steel.
p. 5	River vessels mechanically propelled with the exception of those separately designated.
p. 6	Rowing boats not mechanically propelled: *a*) of iron or steel.
p. 7	River dredgers.
p. 8	Boats not mechanically propelled from *b*) all others not separatelly designated, if they are fishing boats.

§ 2. The undermentioned articles pay a reduced customs duty amounting to 50 per cent of the normal duty:

175 p. 8	Boats not mechanically propelled: from *a*) sporting boats with or without sails if provided with a fixed keel.

§ 3. These regulations come into force on the third day after their publication.

The above mentioned regulations are the result of interministerial discussions at which were represented the following ministries: Industry and Commerce, Finance, Agriculture, and Public Works, as well as the Naval Authorities. In this connection the interested economic circles were also consulted but their opinions differed. Thus ship-builders demanded protection in order to develop this industry in Poland on the territory of the Polish Customs Union, while the representatives of shipping companies advocated the abolition of all customs duties on ships in order that development of shipping in Poland might thus be facilitated.

The decision of the Ministers was really a compromise, in that the tariff provides for a reasonable protection in respect of ships and boats, while at the same time granting rebates of 90 per cent on ships, fishing boats and dredgers during the transitory period.

In this way, the basic rates amounting from about 10 to 15 per cent of the average value of new ships were reduced temporarily from 1 to 1·5 per cent ad valorem. Moreover, the decree provides for a more rational basis for the levying of customs duties namely: registered tons in the majority of cases— net, instead of the heretofore practised basis — the weight of the ship.

EXPORT DUTY ON BRAN. — The Ministers of Finance, Industry and Commerce, and Agriculture issued on August 11, 1927 ("*Dz. Ust. R. P.*" No. 74, item 652), the undermentioned regulations relative to the export duty on bran.

§ 1. The item 221 of the export customs tariff, which was instituted by the decree of July 28th 1925, ("*Dz. Ust. R. P.*" No. 76, item 536) will now read as follows:

Item of the customs tariff	*Denomination*	*Duty per 100 kg. (in Z)*
221	Bran of all descriptions	7·50

Remark: The goods enumerated in item 221 are free from duty on the basis of permits granted by the Ministry of Finance.

§ 2. The above mentioned regulations come into force on the 7th day from the date of publication.

With the coming intoforce of these regulations item 221, contained in the regulation of July 28th 1925 ("*Dz. Ust. R.P.*" No. 76, item 536) is cancelled.

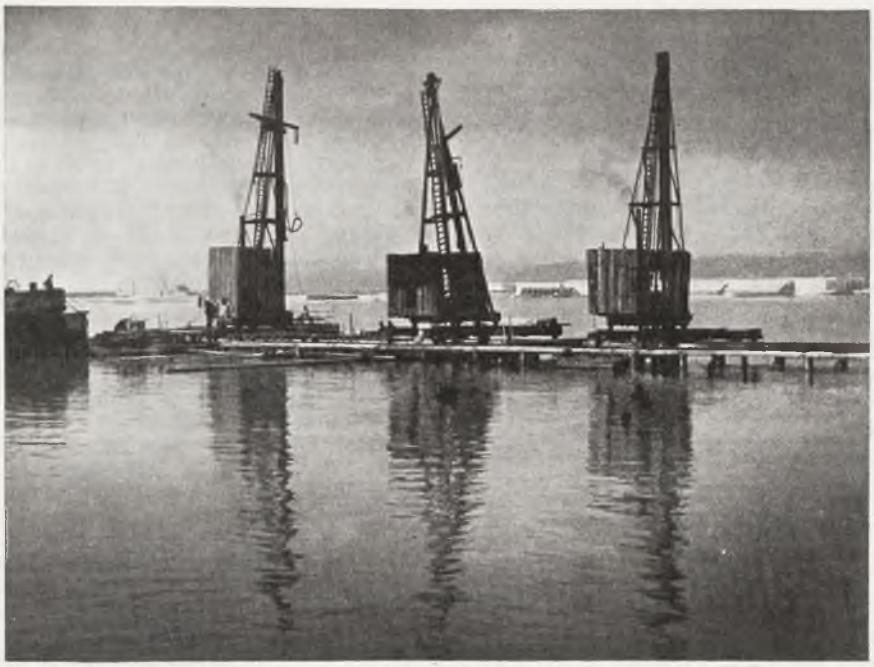
The export duty will amount about 20 per cent of the market value of rye bran. In certain cases grain of foreign origin will be milled in Poland, the resulting bran may then be exported duty free.

ENTRY INTO POLAND OF SMALL PARCELS CONTAINING GOODS REQUIRING IMPORT LICENCES. — Small parcels addressed to private individuals, invalids, unemployed, &c., presents, samples without value, &c., and in general small parcels of low commercial value, containing goods requiring import licences, do not need special import licences from the Ministry of Industry and Commerce, provided they are allowed by the Ministry of Finance to enter the Polish customs territory duty free. This facility does not apply to parcels which have been dispatched from countries which do not have a commercial treaty with Poland.

Parcels addressed to private individuals, containing worn clothing, used underclothing, &c., are not dutiable.

TRANSPORTS

RAILWAY TRAFFIC IN JULY. — There was a further increase of the traffic on the Polish State Railways during this month. The average daily movement of 15 ton goods waggons augmented to 16.337 as compared with 15.465 in June, or by 5·6 per cent.



CONSTRUCTION OF A NEW BASIN IN THE PORT OF GDYNIA
(PHOT. S. PLATER)

Undoubtedly this increase indicates that the Polish State Railways have entered on a period of increased activity. It is true that the transport of agricultural products showed a further decline in July, but on the other hand the volume of consignments of coal and manufactured goods rose, in view of increased purchases on the part of wholesalers who are making preparations for the the increased demand which usually takes place after the completion of the harvest. Increased exports of timber also have contributed towards the rise of traffic. The next few months should see an increased traffic due to the transport of agricultural products, notably of sugar-beet.

In comparison with June last the average daily number of 15 ton waggons in use rose by 1.248 or by 8·2 per cent.

The average daily supplies of 15 ton waggons in July were as follows:

	June	*July*
loaded on the Polish State Railways:		
destined for local stations	10.322	11.101
destined for abroad	3.246	3.357
total	13.568	14.458
received from abroad	750	691
transit via Poland	1.147	1.188
Total:	15.465	16.337

The increase by 872 in the average number of waggons in use per day is attributable to the increase in the average daily car loadings by 890 waggons the increases being 779 and 111 for local and foreign stations respectively.

At the same time the average daily number of cars received from abroad declined by 59 whereas the average daily number in transit trucks rose by 41.

The following statement illustrates the average daily car loadings to local stations (in 16 ton trucks):

	June	*July*
coal, coke and briquettes	2.927	3.216
crude oil and petroleum products	141	153
timber	1.070	1.085
agricultural products	691	545
raw materials, industrial products	2.160	2.443
miscellaneous	3.333[1])	3.657 [1])
Total:	10.322	11.101

The average daily loadings of raw materials and manufactured products showed a further considerable increase of 283 cars, which was due to general causes such as the anticipated improvement of trade in the coming autumn season, increased transport of artificial fertilizers, and building materials (by respectively 113 and 82 on the average per day). The average movement of agricultural products showed again a decline of 144 goods waggons per day, while a particularly large decline was observed in the grain and potato transport, the average daily car loadings of which fell from 173 to 118 and from 71 to 25 respectively; this is attributable to the necessity of covering the needs of certain parts of the country in which last year's supplies are exhausted. The transport of meat cattle rose to a certain extent, the remaining groups of merchandise also showed considerable increases.

[1]) *Together with the loadings in Danzig.*

The following statement gives the average number of car loadings dispatched to foreign countries (in 15 ton waggons):

	June	*July*
coal, coke and briquettes	1.878	1.854
crude oil and petroleum products	50	44
timber	1.025	1.180
agricultural products	55	44
miscellaneous	238	235
Total:	3.246	3.357

It is seen from the above table that the increase in the average daily dispatches to foreign countries rose by 111 trucks. The figure would have been higher, due to increased exports of timber — by 155 trucks a day, had it not been for a simultaneous slight decline in the average daily exports of coal by 24, petroleum products by 6, agricultural products by 11 and various by 3.

CONFERENCE OF THE POLISH-RUMANIAN RAILWAY UNION. — On July 21st, 22nd and 23rd the fourth conference of this union was held at Zakopane. The subject under discussion was the improvement and modification of the agreement relating to transport and the tariff rates in the Polish—Rumanian Union Tariff, and in particular the introduction of forward charging in the freight traffic between the two countries, as well as the adjustment of the project of supplement V to the Railway Tariff, section 2, volume 3 of the above mentioned union. Article 13 of the international convention, hitherto suspended, and the prohibition of the burdening of goods by advances was abolished, so that the commercial relations between the two countries will be facilitated. The above mentioned supplement V, among minor modifications, includes specially reduced rates on the Rumanian railways in respect of iron and iron goods consigned direct to Bulgaria via Rumanian ports, and via Novobotjevo, as well as reduced rates for tobacco consignments sent from Bulgaria to Poland via the Rumanian railways. Also, by means of the same supplement, specially reduced export rates were established on the Rumanian railways in the direction of Sniatyń, in respect of timber and petroleum products, whereby Poland will receive a larger share of the transit traffic, which up to the present has mostly been directed via Hungary, Czechoslovakia and Austria.

The discussions were carried on in a most friendly spirit, the Rumanian delegates having shown a great deal of understanding and consideration in respect of the Polish claims, which was emphasised by the decision establishing

a common policy in the matter of regulation of the German-Bulgarian freight traffic over the Polish and Rumanian lines. Poland and Rumania have decided that their respective railway systems, will accept consignments directed from or to Germany and Bulgaria and vice-versa in accordance with the principle laid down by the International Convention.

The next conference of the Polish-Rumanian Railway Union, which is to deal with further matters connected with transit over the Rumanian Railways, and particularly with transit consignments of Polish coal, as well as the elaboration of the Levant railway and sea rates via Constanza will, on the proposal of the Rumanian delegation, be held at Constanza at an early date, probably in September next.

PORT TRAFFIC IN JULY. — During this month the movement of ships in the two Polish ports of Danzig and Gdynia increased.

In Danzig the number of incoming vessels was 707, with 337.031 net reg. tons (in June 581, with 309.871 net reg. tons). The outgoing vessels were 699, with 342.223 net reg. tons (in June 602, with 321.565 net reg. tons).

The nationality of the incoming and outgoing ships in July was as follows:

	Arrivals:		*Departures:*	
	ships	*reg. tons*	*ships*	*reg. tons*
Poland & Danzig	218	35.132	214	33.496
Germany	157	67.664	161	73.511
Finland	10	10 049	8	9.552
Esthonia	3	793	2	790
Latvia	9	6.239	10	7.462
Sweden	123	67.648	113	61.401
Norway	35	19.735	38	26.028
Denmark	88	61.639	92	67.195
England	36	35.358	38	37.128
Holland	7	3.641	5	2.246
Belgium	4	2.360	4	2.370
France	8	10.688	6	7.395
Spain	1	1.896	1	1.896
Portugal	1	1.996	—	—
Italy	1	2.713	2	4.359
Greece	3	6.337	2	4.058
U.S.A. and Canada	1	3.095	1	3.095
Austria	2	48	2	240
Total:	707	337.031	699	342.223

In Gdynia the number of arrivals was 44, with 42.994 net reg. tons (37 ships, with 29.158 net reg. tons in June); there were 43 departures, with 39.813 net reg. tons (39 vessels, with 31.268 net. reg. tons in June), which took consignments of coal amounting to 80.395 tons as against 65.580 tons in the preceding month. The number of passengers arriving was 810 and that of departures 996. The July movement in the port, according to the nationality of the ships, is given below:

	Arrivals:	*Departures:*
Poland & Danzig	13	9
Sweden	11	12
Denmark	11	10
Germany	4	5
France	3	3
Latvia	3	2
Norway	3	2
Total:	48	43

AERIAL COMMUNICATION IN JULY.—In this month the aerial traffic, was considerably more intense than in June. In July 396 flights were made, in comparison with 378 in June. The mileage was 119.515 as against 114.110 in June; 966 passengers were carried (940 in June), 25.483 kg. of freight (23.630 in June), and 1.840 kg. of mail.

RADIO-LETTER SERVICE BETWEEN POLAND AND AMERICA. — The Warsaw transatlantic wireless station has introduced a new service of private radiotelegram letters at a reduced fee. Radio-telegram letters will be accepted by all Polish post offices for transmission to the wireless station Warsaw by post. The telegram letters will be transmitted from Warsaw to New York by wireless, from whence, when addressed to other localities, they will be dispatched by post. The same mode of procedure will be applied to telegram letters sent from America to Poland.

The terms of dispatch of the telegram letters are the following:

a) the address of the telegram should be preceded with the indication =RL=, which abbreviation is included in the total number of words;

b) of the other service indications only "*Poste restante*" is permissible;

c) address should be given in full, in accordance with the postal rule relative to the dispatch of letters; telegraphic addresses are allowed only in telegram letters adressed to New York, Boston, Washington and Warsaw;

d) the text should be written in Polish, French or English but not in code. Numbers expressed either in words or figures and commercial signs or expressions may be abbreviated but they may not exceed $^1/_3$ of the total number of words in the text. The contents of the radio-telegram letters should be understandable to the telegraph personnel, while at the same time the sender has to make a declaration on the telegram that the text is written in open language and has no other meaning than that resulting from it.

Radio-telegram letters are received directly by the post offices between the hours of 18 and 7.

The fees per word are as follows:

a) to all localities of the U. S. of America, with the exception of Washington, and to all localities in North, Central and South America and East Indies — 0·45 gold fr.

b) to Washington (District of Columbia) 0·50 gold fr.

The minimum fee in both cases is the equivalent for 30 words.

FINANCE AND BANKING

STATE REVENUE AND EXPENDITURE. — The State revenue and expenditure in July last, as compared with the estimates for the whole budget year 1927/8, were as follows (in millon ℵ):

(*See page 375*).

The revenue rose slightly in July, as compared with the preceding month, and was on the whole maintained on the average level for the current year, which is confirmed by the figures for the past 6 months (in million ℵ):

April 1927	202·5
May „	209·9
June „	198·8
July „	203·7

The result should be considered as satisfactory, as state receipts decline usually during the summer season, and do not begin to rise until October.

In order to illustrate the improvement in the budgetary situation, it is sufficient to say that in July 1926, the State revenue only amounted to ℵ 158 million. The main source of revenue during July was from public levies and monopolies; State undertakings only brought in ℵ 17·7 million, as compared with ℵ 24·1 in June. The July figure was composed of the following items: State Forests — ℵ 10 million, Posts and Telegraphs — ℵ 4·2 million, State Railways — ℵ 1 million, State mining and foundry undertakings, plus industrial and subsidiary Post Office services over ℵ 1 million.

State expenditure in July showed a decline as compared with the last few months, as is shown by the figures below (in million ℵ):

April 1927	166·1
May „	189·8
June „	180·0
July „	177·0

The decline in expenditure was due, in the first place, to the smallness o

the sums transferred abroad for the redemption of State Loans, and also to a decrease in the expediture of the Ministry of Agriculture. The majority of the ministries maintained their disbursements at about the same level as in previous months, although an increase was recorded by the Ministry of War and the Ministry of Labour, the latter being due to seasonal building activity

July, as was the case in previous months, showed a considerable budget surplus, amounting to ℵ 26·7 million, or approximately $ 3 million. During the first four months of the current budget year State revenue totalled ℵ 815 million against an expenditure of ℵ 713 million, leaving a surplus o ℵ 102 million. This surplus, together with that for the past budget year, places the State Treasury in a good financial position, which is not only sufficient for current needs but has also permitted of the granting of large credits for Agriculture during the period preceding the harvest.

	Revenue		Expenditure	
	actual	estimated for 1927/8	actual	estimated for 1927/8
A) Civil service	126·4	1.234·8	176·0	1.967·1
The President of the Republic ...	—	0·2	0·3	2·6
The Parliament	—	—	0·8	8·8
State Control	—	0·1	0·5	4·5
Council of Ministers	—	—	0·1	1·8
Ministry of Foreign Affairs	0·8	7·9	3·1	39·6
„ „ War	1·2	10·3	60·2	610·8
„ „ the Interior	1·8	13·0	14·8	184·7
„ „ Finance	111·2	1.076·2	7·9	108·3
„ „ Justice	3·1	34·8	7·7	97·2
„ „ Industry and Commerce.	0·9	7·0	2·9	34·0
„ „ Transport	—	0·3	0·3	3·3
„ „ Agriculture	1·5	11·3	2·9	37·7
„ „ Religious Cults and Education	0·2	8·3	27·8	329·3
„ „ Public Works	3·1	36·1	10·9	87·5
„ „ Labour and Social Protection	0·1	1·0	6·6	58·3
„ „ Land Reform	0·1	1·5	3·0	36·5
Pensions	2·3	26·8	8·7	82·0
Grants to Invalids	—	—	13·7	101·5
State liabilities	—	—	3·8	145·1
B) State Enterprises	17·7	107·8	1·0	14·8
C) Monopolies	59·6	647·9	—	—
Total *A* + *B* + *C*:	203·7	1.990·5	177·0	1.988·3

TAXES IN JULY. — Although the month of July is usually characterised by smaller revenue, nevertheless the receipts from public levies and monopolies in this month were considerably higher than those for the preceding one. The revenue from these in the current year is given below (in millions of ℵ).

January	158·7	May	178·4
February	141·2	June	151·7
March	182·9	July	169·7
April	162·8		

It will be seen that the period under review was one of the best in the year. The improvement in the budget position will appear still more significant, when it is compared with the corresponding period of last year, which gave only ℵ 134.8 million. The comparison of the two figures indicates that the improvement in the economic situation of Poland is reflected by increased collection of taxes, which will enable the Government to carry out certain investment schemes, which were not adequately provided for in the present budget, due to the necessity for a careful calculation of revenue and expenditure, in order that the equilibrium of the budget might be maintained.

Passing to a more detailed analysis of the State revenue and expenditure, it should be noted that all groups of public levies showed increases over the preceding month. Thus direct taxes gave ℵ 40·3 million as against ℵ 38·2 in June, and this despite the fact that the taxes on all urban and certain rural immovable properties declined by over ℵ 1·8 million, and the revenue from income tax declined from ℵ 8·6 to ℵ 8·1 million. The difference thus arising was entirely covered from the increase of the turnover tax, which rose from ℵ 20·1 million in June to ℵ 24·5 million in July.

Indirect taxes also rose considerably as compared with the preceding month and amounted to ℵ 16·6 million, whereas in June they were 12, in May 15·4, and in April only 11·1 milllion. This increase is attributable to increased collections of the sugar tax which rose from ℵ 8 million in June to ℵ 12·3 million in July, and also to the increase in the revenue from the beer tax which rose by ℵ 0·4 million.

Customs duties in July were ℵ 29·6 million as against ℵ 22·1 in June. This increase is accounted for by the import of grain during the period immediately preceding the harvest. The revenue from stamp fees was practically the same as in June and amounted to ℵ 13·6 million.

In connection with the augmentation of revenue from the public levies there was a considerable increase in the revenue from the 10 per cent supplementary extraordinary tax which was ℵ 7 million in July as against ℵ 6·4 million in June.

The property tax in July brought in ℵ 3 million, which was larger by ℵ 1·7 million than in the preceding month.

The State monopolies brought in about ℵ 59 million or ℵ 2 million more than in June, due to the payment of ℵ 25·2 million by the State Spirits Monopoly.

The comparative table showing revenue from taxes and monopolies for he month of July is given below (in million ℵ):

	Actual revenue:			*1/12 of the yearly budget for*
	July		*June*	
	1926	*1927*	*1927*	*1927/8*
Direct taxes	36·6	40·3	38·2	36·5
Indirect taxes	14·8	16·6	11·9	10·9
Customs duties	16·8	29·6	22·1	15·2
Stamp fees	10·4	13·6	13·6	9·3
Total of the ordinary public levies:	78·6	100·1	85·8	71·9
Property tax	4·2	3·0	1·7	7·9
10 per cent extraordinary tax	0·4	7·0	6·4	5·2
Monopolies	51·6	59·6	57·8	54·0
Total of public levies and monopolies:	134·8	169·7	151·7	139·0

It is of interest to note that during the first four months of the present budget year, from April to July inclusive, the State revenue from taxes and monopolies amouted to ℵ 662·7 million, whereas in the same period of last year it was ℵ 497·6 million.

STOCK EXCHANGE

FOREIGN CURRENCIES

— In the same manner as the strong currencies, the French, Belgian, Austrian and Czechoslovakian exchanges were not subject during July to any fluctuations on the Warsaw Stock Exchange. It was solely the Italian Lira that lost a few of the points, which it had gained during the past few months, the drop being gr. 75 per 100 Lira.

The business in drafts and bank notes in July rose by nearly $ 200.000, while that in Dollar notes declined considerably, in the latter part of the month. Of the total volume of transactions — $ 11·25 million, the business in U. S. A. Dollars represented only 3 per cent. As regards European currencies, brisk and extensive business was done in Czechoslovakian Crowns, as is usual at this time of the year, the purchases being chiefly made for the account of people going to Czechoslovakian health resorts and spas, notably Karlsbad.

The movement of other bank notes, namely French and Swiss Francs, Italian Lira, & c., was on a comparatively small scale. The same remark applies to the Scandinavian currencies, the purchases of which fell slightly. The quotations of the Złoty on the chief world exchanges, were practically the same as in June. Outside brokers took but a small interest in foreign drafts and banknotes, but this phenomenon was observed not only on Warsaw but also on other foreign stock exchanges.

The Dollar showed a slightly weaker tendency and fell by 1 grosz, which means that it resumed its position for the previous month, with the result that the official and the private quotations were again identical.

		30.6	1—8.7	11—15.7	18—22.7	25—28.7	29.7	*par value*
Warsaw Exchange								
London	£ 1	43·43	43·44	43·43	43·43	43·43	43·44	25·22
New York	$ 1	8·93	8·93	8·93	8·93	8·93	8·93	5·19
Paris	Fr. Fr. 100	35·04	35·03	35·03	35·02	35·01	35·—	100·—
Brussels	Belg. 100	—	124·36	124·40	124·40	124·38	—	100·—
Zurich	Sw. Fr. 100	172·19	172·19	172·16	172·19	172·28	172·25	100·—
Milan	Lir. 100	49·46	49·26	48·69	48·66	48·65	48·71	100·—
Amsterdam	Fl. 100	358·35	358·47	358·39	358·40	358·47	358·50	208·32
Vienna	Sh. 100	—	125·86	125·93	125·85	125·90	125.90	72·93
Prague	Kcz. 100	26·50	26·50	26·50 ½	26·50 ½	26·51	26·51	105·01
Stockholm	Kr. 100	—	—	—	239·60	239·70	—	138·89
Foreign Exchanges								
London	£ 1	43·50	43·50	43·50	43·50	43·50	43·50	25·50
New York	ℵ 100	11·30	11·30	11·26	11·20	11·20	—	11·75
Zurich	ℵ 100	58·—	58·—	58·—	58·—	58·—	58·—	100·—
Vienna	ℵ 100	—	79.22	—	79·19	79·15	—	137·13
Prague	ℵ 100	—	377·28	377·—	376·75	377·69	378·50	651·—
Berlin	ℵ 100	47·11	47·14	47·13	47·02	47·—	47·—	81·—
Danzig	ℵ 100	57·62	57·73	57·65	57·70	57·66	57·70	99·108

SHARES

In contrast with the weakness which prevailed in June on the Warsaw Stock Exchange, July was characterised by increased activity on the share market. The tendency throughout the month, particularly during the latter part, was slightly upward. The large purchases effected by local banking institutions on account of both local and foreign clients, had naturally a considerable bearing on the situation. The low prices of the leading Polish shares have induced many foreign capitalists to invest capital in Polish securities.

Local financial circles anticipate a further rise towards the end of the summer when there should be a big influx of capital. The fact that, according to agricutural circles, this year's crops will be better than those of 1926 has had a certain influence on the optimistic forecasts.

In view of the anticipated improvement, the bearers reduced their transactions to a minimum, so that no artificial lowering of share quotations was noticeable during the period under review.

It will be seen from the appended table that the majority of shares partly regained the losses which they had sustained in June.

The bulk of the business in banking shares was done in those of the Bank of Poland which were bought extensively by the general public, seeking sound investments. On the whole banking shares rose from 7 to 10 per cent.

The metallurgical group showed an increase from 15 to 22 per cent, the largest appreciation having been shown by Modrzejów and Lilpop Rau and Loewenstein shares.

The Warsaw Coal Mining Company improved by about 10 per cent.

Of the textile shares the Żyrardów showed a slight increase, while Zawiercie shares went up by 10 per cent.

Standard Nobel, and Borkowski shares rose by 11 and 20 per cent respectively.

Industrial shares	30.6	1—8.7	11—15.7	18—22.7	25—28.7	29.7	Nominal
Bank Polski	130·—	133·10	135·05	140·09	139·38	139·—	ℵ 100·—
Bank Dyskontowy Warszawski	130·—	130·—	130·—	130·—	130·—	130·—	ℵ 100·—
Bank Handlowy w Warszawie	6·80	6·70	6·60	6·75	6·60	—	Mk. 1.000·—
Bank Zachodni	—	25·—	—	—	25·—	—	ℵ 25·—
Bank Zjedn. Ziem Polskich	3·—	3·10	—	3·15	3.30	3·30	Mk. 1.000·—
Bank Zw. Sp. Zarobkowych	73·—	72·42	73·25	80·30	79·85	80·—	ℵ 100·—
Warsaw Coal Mining Co.	82·—	81·75	82·10	90·90	88·93	90·50	ℵ 100·—
Chodorów	—	—	—	—	—	—	ℵ 100·—
Cegielski	32·50	37·05	34·50	38·90	—	38·50	ℵ 50·—
Zieleniewski	—	17·50	—	—	—	—	Mk. 1.000·—
Norblin, Buch Bros. & T. Werner	160·—	160·—	—	—	—	—	ℵ 100·—
Starachowice	49·25	49·45	49·15	56·50	56·06	56·—	ℵ 50·—
Lilpop, Rau & Loewenstein	22·75	23·75	24·75	28·50	27·94	28·—	ℵ 25·—
Ostrowiec	70·—	68·—	74·75	79·67	73·50	77·—	ℵ 50·—
Modrzejów	7·40	7·52	7·28	8·80	9·02	9·—	Mk. 500·—
Rudzki	1·95	2·05	2·03	2·28	2·26	2·30	Mk. 500·—
Warsz. Sp. Akc. Budowy Parowozów	—	—	0·60	—	—	—	Mk. 500·—
Żyrardów	16·50	15·70	15·75	16·96	16·60	16·75	Mk. 540·—Rb. 250
Zawiercie	—	30·30	30·80	33·40	33·16	33·—	Mk. 6.000·—
Standard Nobel	43·75	46·15	46·35	48·75	48·13	48·50	ℵ 50·—
Ł. J. Borkowski (Elibor)	2·62	2·93	3·05	3·20	3·09	3·15	ℵ 216·—
Wysoka	—	121·25	—	107·50	115·—	—	ℵ 100·—
Siła i Światło	—	—	—	—	—	—	ℵ 50·—

As regards the remaining stocks, the deviations were very slight as compared with the preceding month.

STATE, CITY AND LAND LOANS

In July the movement in Government securities was somewhat weaker than in June. The 5 per cent Dollar Premium Loan, as is usual after drawing, showed also a slight decline, amounting to ℵ 1·75 per bond. The 6 per cent External Dollar Loan also dropped by about 2 per cent. The remaining Government securities were maintained at their previous level.

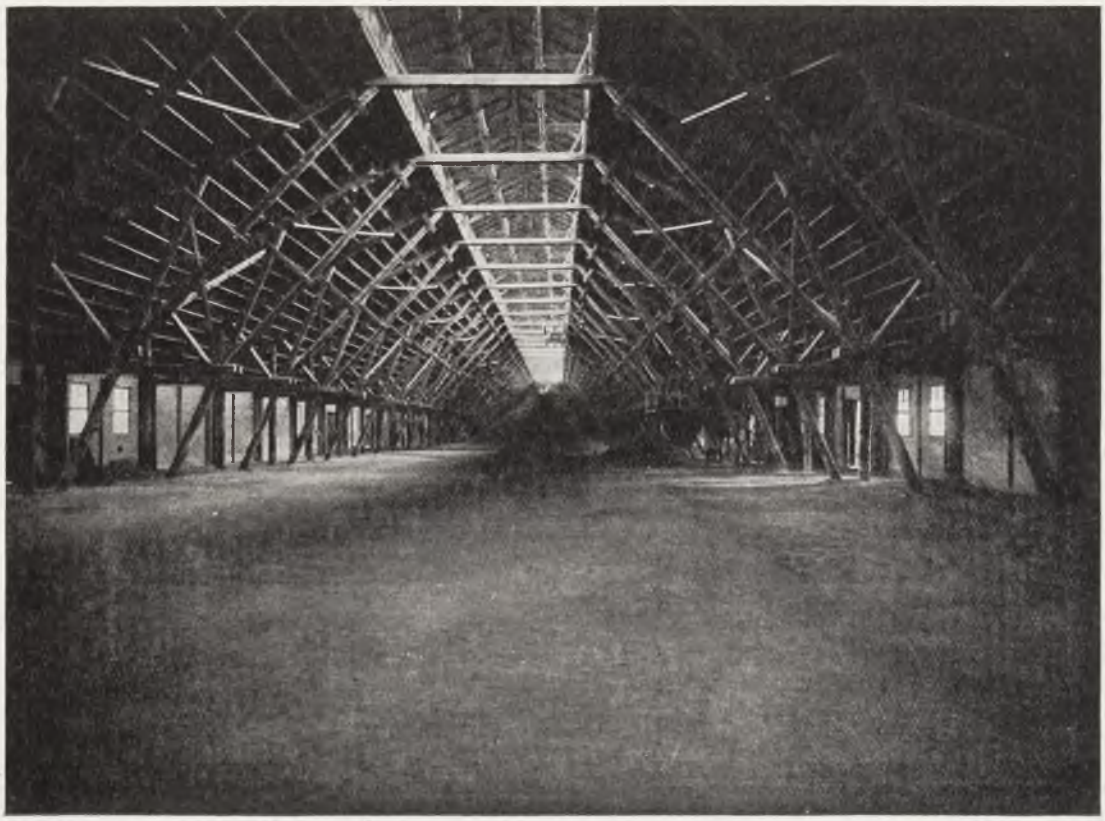
The demand for the 8 per cent communal obligations of the Bank Gospodarstwa Krajowego, the 8 per cent State Agricultural Bank bonds and the 10 per cent Railway Loan continues to be strong.

Land Credit Association Bonds, both 4 and 4½ per cent, made good the drops they had experienced during June. The same remark may be made regarding the 5 and 4½ per cent bonds of the Credit Society of the City of Warsaw. that showed a decline of 7½ per cent, due to increased issue of the bonds which cannot be absorbed by the market during the slack summer season.

State, Municipal & Land Loans	30.6	1—8.7	11—15.7	18—22.7	25—28.7	29.7	Nominal
8% Internal Gold Loan (conv. 1925)	—	99·38	99·50	—	—	—	Gold ℵ 100·—
5% Conversion Loan	62·—	62·10	62·20	62·75	62·—	62·—	ℵ 100·—
6% External Dollar Loan 1920	84·25	84·13	83·17	82·08	81·83	—	$ 100·—
5% Premium Dollar Loan Series II	55·75	53·93	54·50	54·70	54·17	54·—	$ 5·—
10% Railway Loan (1st series)	103·—	103·—	103·—	103·—	103·—	103·—	Gold fr. 100·—
8% Bank Gospodarstwa Krajowego Bonds	92·—	92·—	92·—	92·—	92·—	92·—	Gold ℵ 100·—
8% State Agricultural Bank Bonds	92·—	92·—	92·—	92·—	92·—	92·—	Gold ℵ 100·—
8% Com. Oblig. of the Bank Gospodarstwa Kraj.	92·—	92·—	92·—	92·—	92·—	92·—	Gold ℵ 100.—
4% Land Credit Association Bonds	—	43·50	49·17	—	—	—	ℵ 100·—
4½% Land Credit Association Bonds	52·50	53·17	55·50	58·73	56·81	57·—	ℵ 100·—
8% Credit Soc. of the City of Warsaw Bonds	76·25	76·85	76·70	75·85	74·70	74·50	ℵ 100·—
5% Credit Soc. of the City of Warsaw Bonds	61·50	62·20	65·60	67·87	67·50	—	ℵ 100·—
4½% Credit Soc. of the City of Warsaw Bonds	—	55·50	61·67	64·50	63·13	—	ℵ 100·—

BANK OF POLAND

While in May there was a slight decrease of the bullion and foreign currency reserves of the Bank, followed



ONE OF THE SHOPS IN A DANZIG SUPERPHOSPHATE WORKS *(PHOT. S. PLATER)*

by a lull in June, in July there showed an increase from gold ℵ 359·0 million to gold ℵ 364·3 million, a rise of gold ℵ 100 million, compared with December 31 st 1926, as is to be seen from the undermentioned statement (in miilons of gold ℵ):

		Bullion and foreign currency reserves in 1927
January	1	264·0
„	31	296·0
February	28	335·2
March	31	350·9
April	30	362·2
May	31	358·8
June	30	359·0
July	31	364·3

The increase in the volume of reserves in July, amounting to gold ℵ 5·3 million, was equally divided between the bullion reserves, which rose from gold ℵ 161·7 million to gold ℵ 164·6 million and the foreign currency reserves which increased from gold ℵ 197·3 million to gold ℵ 199·6 million.

The rise in the bullion reserves was due to purchases being made by the Bank to the amount of $ 500.000, with the result that the value of the bullion rose from gold ℵ 160·7 million to ℵ 163·6 million. The foreign gold purchases of the Bank in the current year were as follows (in U. S. $):

January	1,000.000
February	1,000.000
March	500.000
April	1,000.000
June	500.000
July	500.000
Total:	4,000.000

Silver reserves showed a small increase in July: from gold ℵ 1·0 to 1·1 million.

The increase of the foreign currency reserves from gold ℵ 197·3 to 199·6 million was mainly due to the increase of the gross value of foreign currencies and drafts from gold ℵ 218·9 to 220·7 million, combined with the the simultaneous decline in the foreign liabilities of the Bank — from gold ℵ 21·6 to 21·1 million. It will be noted that the net amount of drafts in reserve, together with sums due to the Bank, did not increase and even showed a slight decline (by gold ℵ 0·1 million), the total increase of these reserves being accounted for by the augmentation of the volume of banknotes. The volume of purchases of foreign bank notes and drafts amounted gold ℵ 86·4 million, and was larger than in June, when it was gold ℵ 88·7 million. The main source of the foreign bank notes purchased by the Bank was the proceeds of exports amounting to gold ℵ 70·5 million (in June gold ℵ 65·4 millon). It should be stated that the above mentioned figure for foreign currencies derived from exports is only a provisional one, as the returns in respect of the heavy Upper Silesian Industry are only approximate, but it is safe to assume that the inflow of foreign drafts to the Upper Silesian branches of the Bank will not be appreciably less than was foreseen.

The sale of bank notes and drafts in July was gold ℵ 80·1 million. To Government offices there was sold foreign drafts and currencies to the amount of gold ℵ 11·6 million, (in June gold ℵ 24·8 million) and on the Stock Exchange-gold ℵ 62·0 million.

The changes in the state of bullion and foreign currency reserves of the Bank, which took place in July, and during the first 7 months of this year are illustrated by the following table (in millions of gold ℵ):

	January 1st	*June 30th*	*July 31st*
gold	138·2	160·7	163·6
silver	0·6	1·0	1·1
foreign currencies and exchange	125·2	197·3	199·6
Total;	264·0	359·0	364·3

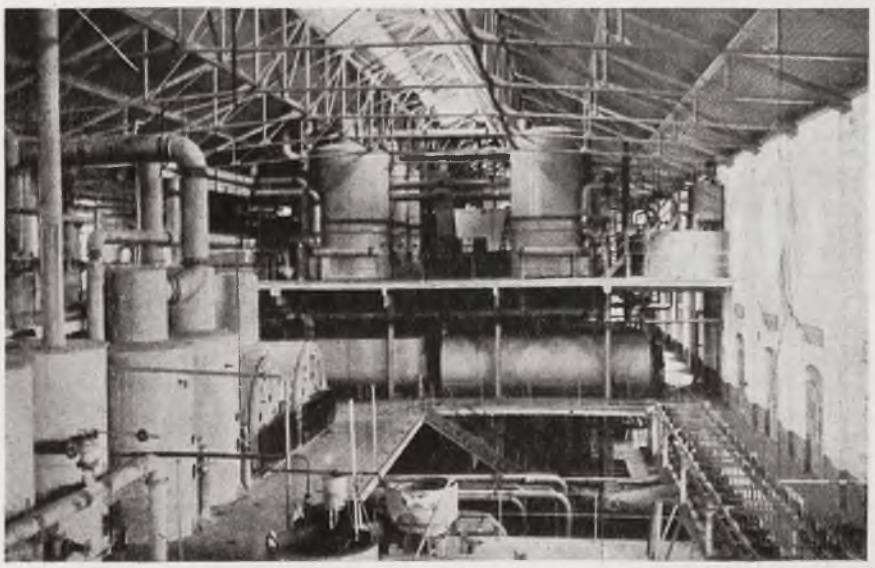
	JUNE 30th		JULY 10th		JULY 20th		JULY 31st	
Assets:								
Bullion:								
Gold in bars and cash	160,714.856·47		163,447.032·27		163,513.046·37		163,577.601·96	
Silver „ „ „ „	967.884·40	161,682.740·87	1,005.966·53	164,452.998·80	1,050.951·78	164,563.998·15	1,091.494·45	164,669.096·41
Foreign balances		218,879.461·42		220,647.443·24		220,071.239·89		220,701.731·82
Exchange difference on currency a/c.		176,398.230·44		181,601.126·57		180,013.854·86		181,370.233.77
Silver and token coins		5,842.572·52		9,285.791·32		10,071.681·92		173.822·30
Bills of exchange		387,752.867·32		396,382.824·22		389,738.064·40		406,064.276·76
Loans against securities		19,102.279·37		20,155.900·18		20,360.188·15		21,287.704·45
Report		20,404.000·—		21,184.000·—		21,014.000·—		19,983.000·—
Interest-bearing securities discounted		—		—		—		—
Interest-bearing securities bought		18,497.816·41		18,924.224·08		9,884.029·15		23,578.778·80
Loans to Government		25,000.000·—		25,000.000·—		25,000.000·—		25,000.000·—
Property and fittings		36,282.185·25		36,282.185·25		36,282.185·25		36,282.185·25
Other assets		41,480.979·95		45,384.173·09		43,781.183·04		45,735.145·92
		1,,111,323.133·55		1,,139,300.666·75		1,,120,780.424·81		1.,144,845.975·48
Liabilities:								
Capital		100,000.000·—		100,000.000·—		100,000.000·—		100,000.000·—
Reserve fund		4,653.130·—		4,653.130·—		4,653.130·—		4,653.130·—
Notes in circulation		727,513.060·—		717,864.430·—		694,394.040·—		744,865.170.—
Current accounts and other liabilities:								
Government Institutions	95,605.054·60		93,091.025·21		98,500.330·29		108,152.746·33	
Outstanding balances	113,426.005·01		152,208.721·28		149,581.784 88		112,573.325·92	
Various	6,160.482·44	215,191.542·05	4,701.580·55	250,001.327·04	5,676.308·28	253,758·423·45	6,219.137·36	226,945.209·61
Liabilities in foreign currencies		7,960.464·29		8,766.670·25		8,365 083 31		7,873.505.35
Liabilities on report transactions		13,600.550·—		14,103.550·—		13,977.800·—		13,215.050·—
Other liabilities		42,394.387·21		43,911.559·46		45,631.948·05		47,293.910·52
		1,,111,323.133·55		1,,139,300.666·75		1,,120,780.424·81		1.,144,845.975·48

Despite the increase of bullion and foreign currency reserves the percentage of bullion and foreign currency cover of the notes in circulation declined in July from 50·77 to 50·25 per cent, due to a simultaneous increase of the circulation from ℔ 727·5 million to 744·9 million. The volume of bank notes in circulation at the end of July converted into Dollars, amounted (after the deduction of advances in connection with report transactions) to $ 81·2 million. The bullion and foreign currency reserves represented $ 70·3 million. It will be seen, therefore, that the cover of the notes in circulation was 86·6 per cent.

The increase in the circulation of bank notes in July was partly due to the increase of bullion and foreign currency reserves but mainly, however to the increased credit activity of the bank. Despite the adoption of a less generous discount policy of the Bank as regards additional credits, the volume of the discount credits employed, that is the amount of bills in portfolio, rose during July from ℔ 387·8 to 406·1 million. As at the same time the amount of discount credits granted by the Bank, rose during July from ℔ 538·0 to ℔ 548·0 million, the percentage of the credits employed thus rose from 72·3 to 86·6. The advances against securities rose during the period under review from ℔ 191· to ℔ 21·3 million. The debt of the Treasury remained unchanged and was ℔ 25 million.

The stocks of interest bearing securities belonging to the Bank and those discounted (payable within three months of the date of discount), rose during July from ℔ 18·5 million to ℔ 20·0 million.

The reserves of silver and token coins fell from ℔ 5·8 to ℔ 0·2 million.



INTERIOR OF A SUGAR REFINERY

The aggregate amount of advances in connection with report transactions showed a slight increase, from ℵ 19·1 to ℵ 20·0 millon.

The changes in the bank cover of the notes in circulation which took place in July and during the first 7 months of this year, are illustrated below (in millions of ℵ):

	January 1st	*June 30th*	*July 31th*
bills	321·3	387·8	406·1
Polish silver coins and token money	29·1	5·8	0·2
loans against securities	9·4	19·1	21·3
securities bought and discounted	18·9	18·5	23·6
liability of the Treasury	25·0	25·0	25·0
Total:	403·6	456·2	476·0

Current accounts did not show any considerable changes. Private current accounts showed a decrease from ℵ 113·4 to ℵ 112·6 million, whereas those of the Government Cash Offices rose from ℵ 95·6 million to ℵ 108·2 million.

LATEST NEWS

WARSAW EXCHANGE:

	10.8.27	*20.8.27*	*30.8.27*
$ 1 =	ℵ 8·93	ℵ 8·93	ℵ 8·93
£ 1 =	„ 43·48	„ 43·48	„ 43·48

BANK OF POLAND:

ASSETS:	*10.8.27*	*20.8.27*
Gold and silver reserve	ℵ 167,337.471·13	ℵ 169,978.103·18
Foreign balances	„ 223,317.830·29	„ 228,850.918·92
Bills of exchange	„ 400,914.576·22	„ 398,059.378·06
Loans against securities	„ 21,572.637·72	„ 23,298.166·59
LIABILITIES:		
Notes in circulation	„ 737,644 500·—	„ 731,060.630·—
Current accounts	„ 240,627.941·71	„ 281,757.730·52
BANK NOTES COVER (bullion & foreign currencies)	51·40%	51·64%

THE INTRODUCTION OF MAXIMAL CUSTOMS DUTIES. — The Ministers of Finance, Industry and Commerce and of Agriculture have issued a decree introducing (maximal customs duties; the rates are higher by 100 per cent than those which were hitherto force; for certain goods hitherto admitted duty free new rates have been established. These duties are applicable to goods dispatched from countries which are not in commercial treaty reations with Poland, but only in those cases, when Polish goods, at the time of their importation into the relevant countries, receive no worse treatment than those originating in other countries, or when the import of the goods into Polish customs territory in encouraged by means of bounties.

The above decree, which was published in *"Dz. Ust. R. P."* No. 74, item 651, will enter into force on November 26, 1927.

INDEX OF ADVERTISEMENTS

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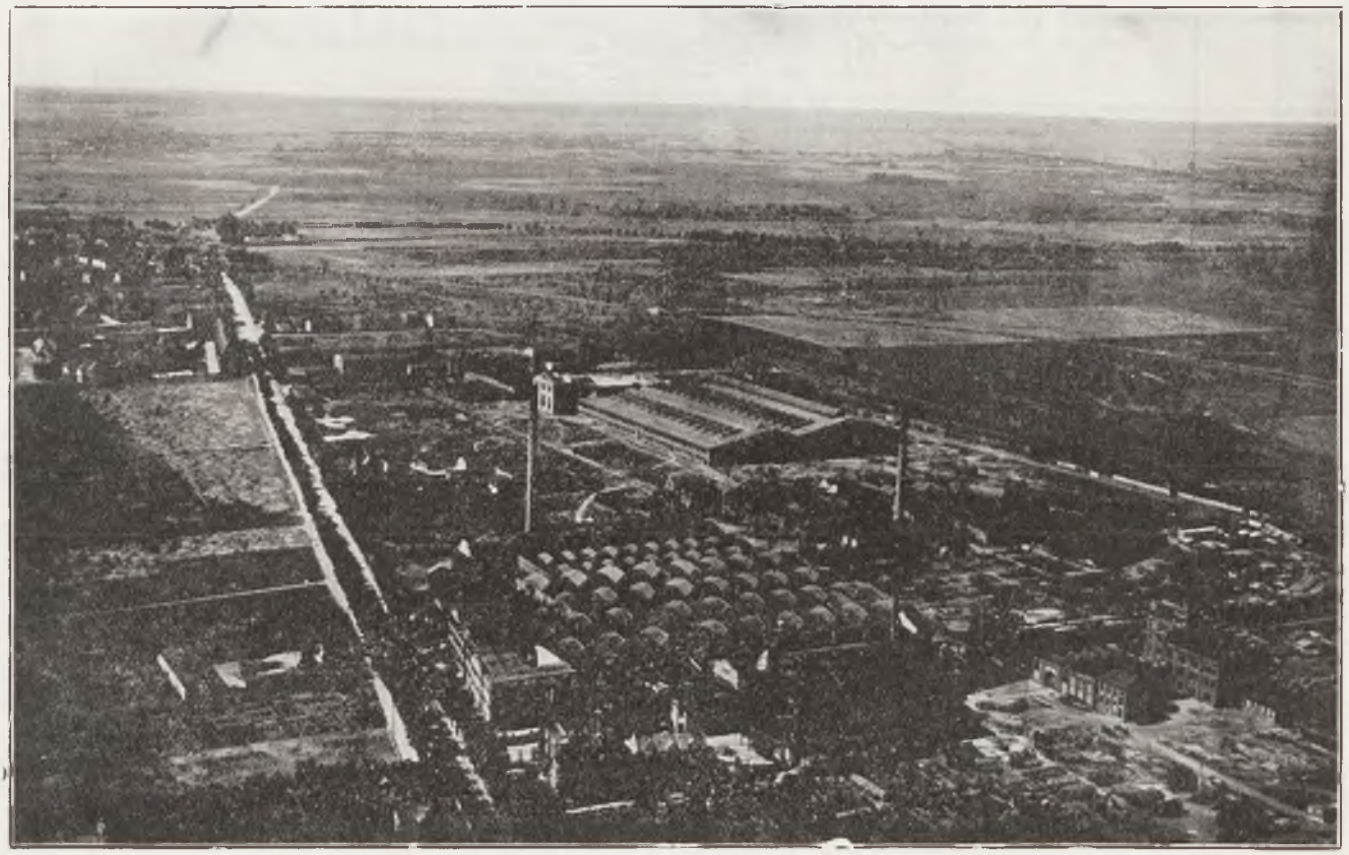

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