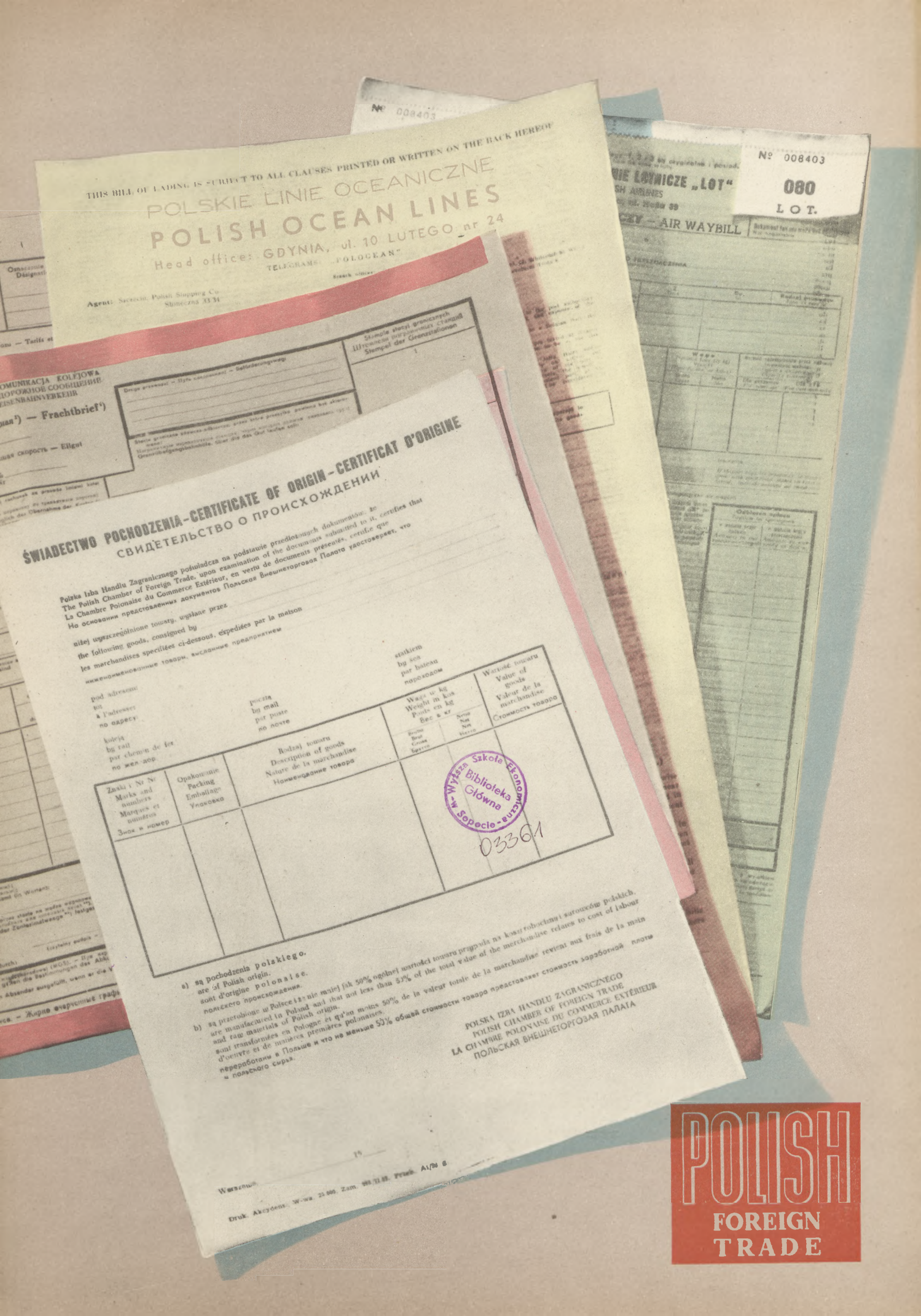
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POLISH
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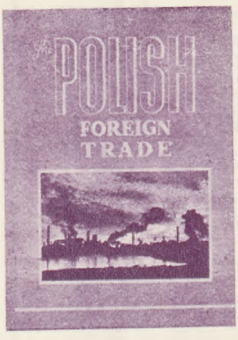

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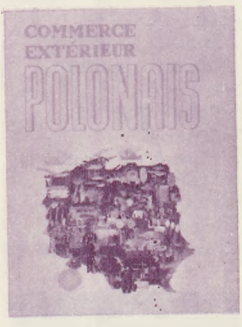

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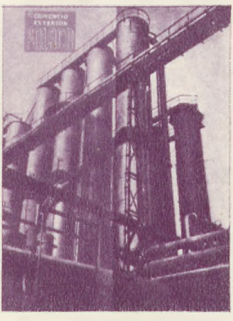

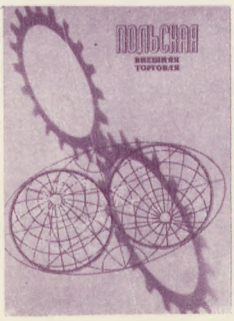

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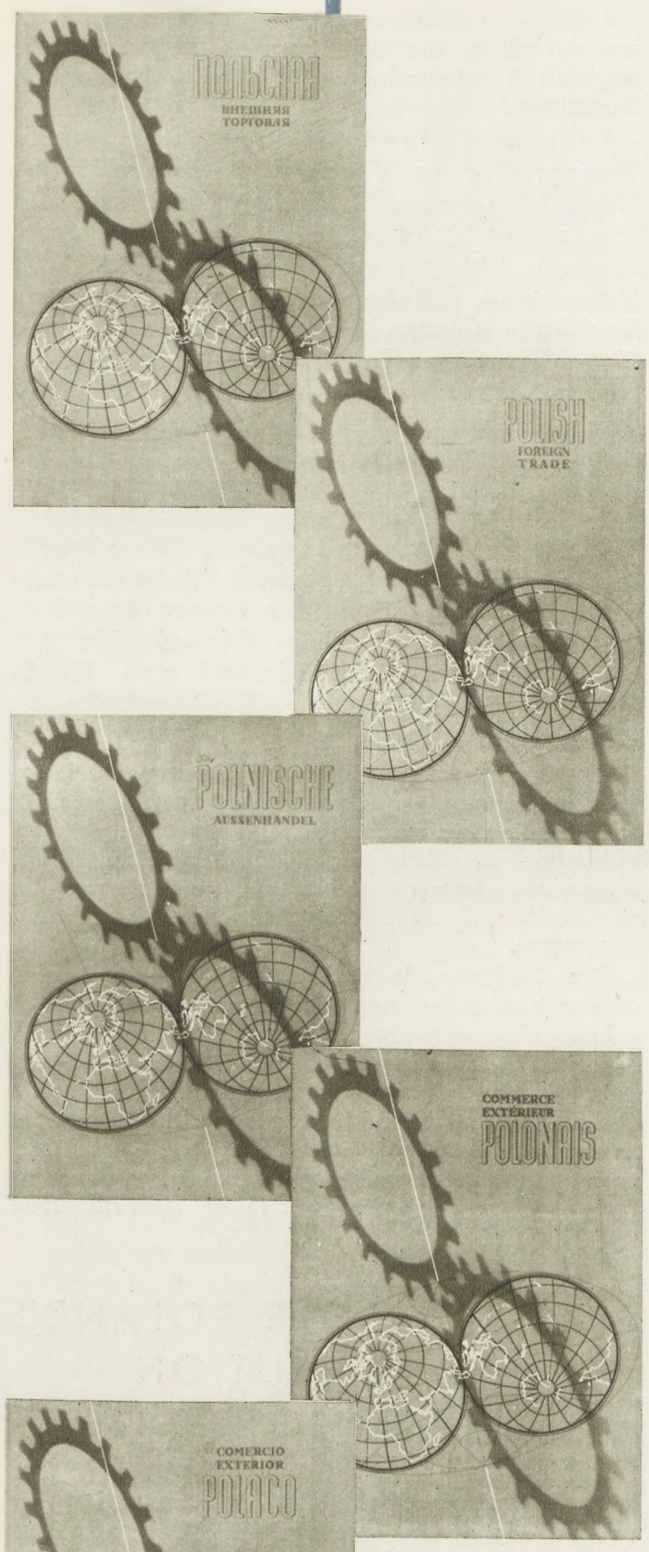


POLAND

AT THE INTERNATIONAL ECONOMIC CONFERENCE IN MOSCOW

The Editors of "Polish Foreign Trade" believe that readers will be interested in the attitude adopted at the recent International Economic Conference in Moscow by Polish social, economic and scientific circles. The collection of articles published below contains extensive abstracts of speeches made by members of the Polish delegation, together with a resumé of the Conference results by the leader of the Polish delegation, Professor Oskar Lange.

* * *

COMMUNIQUÉ

ON THE INTERNATIONAL ECONOMIC CONFERENCE IN MOSCOW

The International Economic Conference was held in Moscow from April 3rd to 12th, 1952, and was attended by industrialists, businessmen, economists, trade unionists and members of co-operative organisations. It discussed "possibilities, through peaceful co-operation of different countries and different systems and through the development of economic relations, for improving the living conditions of peoples".

The Conference brought together 471 participants from 49 countries: Albania, Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Burma, Canada, Ceylon, Chile, China, Cuba, Cyprus, Czechoslovakia, Denmark, Egypt, Finland, France, the German Democratic Republic, Western Germany, Great Britain, Greece, Hungary, Iceland, India, Indonesia, Iran, Israel, Italy, Japan, the Korean People's Democratic Republic, Lebanon, Luxemburg, Mexico, the Mongolian People's Republic, the Netherlands, Norway, Pakistan, Paraguay, Poland, Rumania, Sweden, Switzerland, the Union of Soviet Socialist Republics, the United States of America, Uruguay, Venezuela and Viet-Nam.

The Conference reviewed the present state of world trade in all its aspects and reached the conclusion that deterioration of international relations, intensified in recent years, had been responsible for multiplying artificial barriers to international trade. Traditional trade links between nations have been severed, the geographical range of trade restricted and trade between West and East drastically curtailed.

Dislocation of world trade is seriously jeopardising the economic development of a number of countries, has a deleterious effect on trade and payment balances and is exerting an unfavourable influence on standards of living by restricting food supplies, causing price rises, increasing unemployment and impeding social progress, particularly as regards housing schemes.

The Conference unanimously agreed, following an extensive and free exchange of opinion, that the volume of world trade is capable of being substantially increased and that extension of trade relations between countries would result in numerous advantages to business circles, industrialists, merchants and farmers. It would

lead to better utilisation of the economic resources of all countries and would promote employment and raise the standard of living of the people.

Statements by Conference members from various countries made it clear that differences between economic and social systems need not necessarily be an obstacle to the expansion of international economic relations based on the principle of equality and mutual advantage.

The Conference disclosed, moreover, vast potentialities for expanding trade between the countries of Western Europe, the United States of America, Canada, the countries of Latin America, of Asia and of Africa, the Soviet Union, China, and Eastern and Central Europe.

The work of the Conference showed that economic progress in underdeveloped countries and the supply of industrial plant and equipment to these countries, together with compatibility between the prices of raw materials exported and of products imported, are of vital importance for the development of international trade and of peaceful economic co-operation.

The Conference expressed the opinion that rapid industrial development of underdeveloped countries and international co-operation to this end constituted an urgent need and should be promoted.

Participants at the Conference suggested ways and means for increasing the volume of foreign trade and specified the commodities they were in a position to exchange on mutually advantageous terms. A number of definite proposals were put forward with the object of oiling the wheels of international trade and, in particular, of facilitating conclusion of business transactions in national currencies.

The Conference provided businessmen from various countries with the opportunity to establish personal contacts, to discuss thoroughly all matters of interest to them and to initiate commercial negotiations. A large number of transactions were, as a result of these negotiations, concluded between firms of various countries represented at the Conference. Trade talks initiated at the Conference are continuing. There is an earnest desire among businessmen to avail themselves of all opportunities likely to expand foreign trade.

It is, in these circumstances, the concern of Governments, as well as of the United Nations, to take proper action. The Conference decided, therefore, to suggest to the General Assembly of the United Nations Organisation that it convene, in the near future, an intergovernmental conference on world trade in which representatives of business circles, trade unions and other social organisations would participate.

The Conference revealed the unanimous desire of all its participants to continue and intensify the efforts instituted by them on behalf of world trade. It was, in particular, considered advisable to hold another International Economic Conference, based on those principles of economic co-operation between all nations, whatever their economic and social systems, which were the keynote of the International Economic Conference in Moscow. It was also decided to continue the exchange of information on individual countries' export opportunities and import requirements.

A Committee for Promotion of International Trade was elected by the Conference to implement these proposals. The following were elected to serve on this Committee:

Antoine Allard (Belgium); Paul Bastid (France); Oliver Vickery (U.S.A.); Victor Manuel Gutierrez (Guatemala); Josef Dobretsberger (Austria); Imre Degen (Hungary); Hossein Daryush (Iran); Henri Jourdain (W.F.T.U.); Mohammad Iftikhar-ud-Din (Pakistan); Greta Kuckhoff (German Democratic Republic); Lal Chand Hira Chand (India); Oskar Lange (Poland); Pierre Lebrun (France); Liu Nin-i (W.F.T.U); Dhurjati Prasad Mukerjee (India); Nan Han-Chen (China); M. V. Nesterov (U.S.S.R.); Antonio Pesenti (Italy); Jack Perry (Great Britain); Otakar Pohl (Czechoslovakia); Joan Violet Robinson (Great Britain); Otto da Rocha e Silva (Brazil); Sergio Steve (Italy); Suchjar Tedjasukmana (Indonesia); Felipe Florencio Freyre (Argentina); Carl Wilhelm de Vries (Netherlands); I.S. Khokhlov (U.S.S.R.); Edmund von Henke (U.S.A.); Chi Chao-ting (China) and Robert Chambeiron (France).

The Conference appeals to businessmen of all countries, to economists and technicians, trade unions and co-operative organisations, irrespective of their views, to support its efforts towards furthering commercial intercourse between countries and causing the elimination of those obstacles which hinder such intercourse.

The Conference is confident that the development of world trade on mutually advantageous terms, on a basis of equality and with due consideration to the need to industrialise underdeveloped countries will help to strengthen economic co-operation between nations and to raise the peoples' standard of living.

Adopted by the Plenary Session of the International Economic Conference in Moscow, April 12th, 1952.

PROSPECTS OF POLAND'S CONTRIBUTION TO INTERNATIONAL TRADE

Professor J. Chałasiński, speaking on the second day of the International Economic Conference, called attention to Poland's positive potentialities for contributing to an expansion of international trade relations.

Poland is, although her present share in international trade may be held to be comparatively modest, in a position to make a substantial contribution towards improving the prevailing situation in specific trade sectors. The vital economic development which has transformed Poland into a country with a preponderance of industries over agriculture has afforded the country encouraging prospects of participation in foreign goods

exchange. Rapid and systematic increase in output by all industrial branches has been instrumental in intensifying the country's demand for essential imported raw materials. Potential development of the metallurgical industry and extensive mechanisation of farming have caused Poland to become a highly absorptive market for all kinds of industrial plant and transport equipment. Moreover, the steadily rising standard of living creates a growing demand for imported consumer goods. The concurrent development of the country's industrial and agricultural production enables Poland to allocate for export increased quantities of goods and to supplement the export range of commodities to enable her to offset import liabilities.

The speaker then gave a retrospective review of Poland's post-war foreign trade, which this country resumed by entering into trade relations with the U.S.S.R. even before hostilities had come definitely to an end. These relations, based on friendship and reciprocity of interests, proved decisive in solving a number of intricate economic problems rooted in the war-time devastation of Poland's national economy. Poland was just as prompt in resuming trade relations with her immediate neighbours and, in the first place, in re-establishing her traditional link with the Scandinavian countries. The year 1946 witnessed, together with progressive economic rehabilitation, a further increase in the number of countries entering into goods exchange with Poland, regular trade relations being established with practically all European countries. The goods exchange was extended, during 1948-1949, to a number of overseas countries. The total value of Poland's foreign trade transactions soon revealed a rapid rate of increase, and the pre-war level, computed on a comparable price basis, was substantially exceeded as early as in 1948. Taking 100 as the value of combined transactions in 1937, the 1948 turnover amounted to 130, the 1949 to 155 and the 1950 to 161, while the corresponding figure for the current period stands at over 200.

The dynamics of trade with the U.S.S.R., the People's Democracies and the German Democratic Republic are particularly impressive. The volume of trade with the Soviet Union, deliberately curtailed before the war, has completely eclipsed the 1937 figure. Poland's total goods exchange with the U.S.S.R., Albania, Bulgaria, Czechoslovakia, Rumania, Hungary and the German Democratic Republic amounted, for the four-year period from 1947 to 1951, to 4.7 times the pre-war figure. The volume of combined transactions with the People's Republic of China for 1951 was six times that of the previous year and was considerably higher than the pre-war peak.

This spectacular increase in trade with the U.S.S.R. and countries of people's democracy — Professor Chałasiński said — arises directly from those peaceful and friendly relations which are, now that all barriers of a non-economic nature separating pre-war Poland from certain of her closest neighbours have been removed, symptomatic of Poland's co-operation with these countries. The speaker then went on to deal with the question of trade relations with other countries. It need hardly be emphasised — he said — that Poland is intent on fostering trade relations with all countries on a basis of reciprocal benefit — particularly since experience has proved beyond any doubt that this is both feasible and beneficial. Poland's trade exchange with countries of Northern and Western Europe showed, during the 1946—1949 period, considerable progress, reaching a level far higher than before the war. Poland has, in pursuance of her aims to expand mutually beneficial trade relations and ensure steady maintenance of the goods exchange, concluded long-term trade agreements with, among other countries, Sweden, the United Kingdom, France, Italy and Switzerland. Numerous countries have, under such agreements, been guaranteed a regular supply of coal — a supply which proved to be of vital importance in enabling them to tide over the period of the acute post-war coal crisis and to ensure the normal functioning of their economies. Poland's post-war coal exports to North- and West-European countries have amounted to 65 million tons. Steady increase in Poland's coal output, together with substantial investments in colliery plant intended to increase this output still further and to improve the quality of coal, favourable location of Polish coalfields and convenient traffic routes, both overland and by sea, linking Poland with all European countries — all these are factors enabling Poland to meet the importing countries' growing demand.

Poland has, in exchange for her exports, been able to secure a number of essential raw materials, plant and equipment, as well as industrial products, to meet the requirements of her own economy. Exporting countries have thus found a steady market for a variety of goods produced by individual branches of their national economy. This proved of particular importance in 1949 and in the early part of 1951, at a time when these countries, for the first time in post-war history, had once more to face that omen of an economic crisis in the West — difficulties in finding a ready market for the majority of their products. The Polish market, meanwhile, immune to fluctuations, continued to expand and to become more and more absorptive. Because Poland continues to be, in spite of her growing industrial output and rapid rate of industrial development, a potential consumer of foreign goods, her importance as an importer of industrial plant and equipment, as well as of transport means, is of particular significance to the countries of Northern and Western Europe. The share of capital plant, industrial and transport equipment in Poland's total 1951 imports amounted to 32 per cent. Poland's 1950 imports of industrial plant and equipment were 350 per cent. and of motor vehicles 700 per cent. higher than in 1937.

Poland is, thus, an important market for those North- and West-European countries the engineering industry of which constitutes one of the mainstays of national economy, and Polish orders are likely to provide work for a considerable number of undertakings.

Expansion of trade with West-European countries — Professor Chałasiński went on to say — was attended by a concurrent development in trade relations with countries overseas. Poland is an important buyer of cotton, wool, jute, raw hides, as well as of numerous other raw materials and of groceries, in exchange for coal, timber, cement, matches and other industrial products and for farm products.

Yet a number of countries have begun, since 1949, and under U.S.A. coercion, to pursue a policy of imposing artificial restrictions on trade with Poland and to discriminate against Polish foreign trade organisations. These tactics, together with the fact that the American policy of accumulating enormous stocks of all staple raw materials caused a serious disturbance of world markets, resulted in a decline in Poland's 1950—1951 combined transactions with certain countries of Northern and Western Europe. The aggregate value, at comparable prices, of Poland's 1950—1951 turnover with these countries decreased, as compared with 1949, by approximately 25 per cent. If the assumption is correct that this policy of artificial curtailment of trade between East and West was intended to throttle the economic development of countries at which it was levelled, then that policy has proved a hopeless failure. Such restrictions did not, in any way, cause any material harm to Poland. All attempts at jeopardising the economic development of Poland were bound to prove abortive, in view of this country's economic co-operation with the Soviet Union and the People's Democracies — co-operation based on reciprocal privilege, mutual benefit and full recognition of sovereign rights. The rapid rate of economic development in the U.S.S.R. and the People's Democracies provided the means for a substantial increase in Poland's aggregate goods exchange. It more than compensated the decrease in turnover with countries indulging in a policy of discrimination.

The increase in the indices of the country's industrial production throughout the time these restrictions have been operative prove how little affected Poland's economic development has been by the decline in the turnover with the Western countries referred to. 1950 industrial production showed an increase of 31 per cent. over the 1949 figure, and the 1951 production — an increase of 24 per cent. over the 1950 figure. The targets of the Six-Year Plan have been not only implemented, but actually surpassed — by 8 per cent. in 1950 and by 13 per cent. in 1951.

Poland continues, true to her trade policy, to be interested in trade with all countries anxious to remove all barriers to international trade, to restore the impartiality of goods exchange and to further develop it on principles of reciprocal advantage and full equality of rights. Poland's economic development in the past three years has considerably increased these potentialities. There is no doubt that Poland's trade with North- and West-European, as well as with overseas countries could, provided there is a return to normal international economic relations, not only be increased to beyond the present level, but even beyond the peak 1948—1949 level. Removal of restrictions would enable Poland both to increase her imports relatively to the 1945—1950 period and to supplement the list of goods imported by adding to it a number of staple commodities. Such expansion of trade relations would, in addition to still further accelerating the rate at which the standard of living is rising in Poland, prove equally beneficial to her partners genuinely interested in increasing their exports.

The speaker then went on to deal with the prospects of supplying to capitalist countries, in the forthcoming three-year period, Polish basic export goods. The present export of coal — the most important item of Poland's foreign trade, particularly with North- and West-European countries — is already two and a half times the pre-war figure. Poland will be able, in the course of the next three years, to increase her coal exports to capitalist countries by from 7 to 8 million tons per annum and could, granted favourable conditions and provided that all present international trade obstacles are eliminated, more than double present coal exports to these countries. This would, to an appreciable extent, solve the problem of the continuing coal shortage in Northern and Western Europe.

Professor Chałasiński, after dealing with the considerable export potentialities of the Polish timber and paper industries, emphasised that the Polish engineering industry is in a position to offer for export such goods as railway engines, rolling stock and railroad accessories, certain types of machine tools, agricultural and textile machinery, building contractor's plant and farm implements, cast iron pipes, pumps, water meters, nails, enamelled hollow-ware and a number of other commodities. Poland can, moreover, allocate for export, as a result of the extensive expansion of her chemical industry, a substantial range of chemicals. Poland is an important producer of textiles. The annual export of textiles could be increased — cotton and synthetic filament fabrics to from 20 to 30 million metres, woollen fabrics — to 1 million metres, and linen fabrics — to 5 million metres. Poland can, moreover, offer for export miscellaneous wearing apparel and knitware. Reference must also be made to cement, glass, chinaware, cut glass and matches exported by Poland.

The total annual value of Polish exports to capitalist countries could, during the 1953—55 period, exceed 2 milliard roubles, but that would be contingent on Poland being afforded the opportunity to acquire a corresponding quantity of the requisite goods which she was in the habit of importing during the 1947—1949 period.

This general review of Poland's foreign trade — the speaker said in conclusion — is convincing evidence of the extent to which the present trade exchange between Poland and capitalist countries falls short of availing itself of all those opportunities which are already inherent in Poland's dynamically developing economy, as well as evidence of the vast prospects which, if all artificial obstructions were removed, would lie ahead of this trade exchange. To realise these comparatively modest, though genuinely conceived prospects would be of paramount importance. It would signify the return to an unrestrained international goods exchange which would palliate the economic distress of certain countries, act as a stimulant to the national production of all participating countries and contribute towards the raising of the standard of living of the broadest masses and towards the economic development of all countries concerned, thus being instrumental in relieving the political tension in Europe and throughout the world, as well as in the restoration of co-operation between all countries, no matter how divergent their social and political structure may be.

CONCERNING THE ABOLITION OF ECONOMIC BARRIERS AND RESTORATION OF FREE TRADE BETWEEN WEST AND EAST

(From a speech by Stefan Ignar, member of the Polish Delegation, at the meeting of the Underdeveloped Countries Group of the Moscow International Economic Conference.)

The problem of economically backward countries — said the speaker — is one affecting the major part of our globe and more than one-half of the world's population. It is significant that it applies to countries blessed with vast natural resources and a surplus of land. These countries are poor, despite their wealth, and their people live in utter destitution. These countries invariably reveal a preponderance of agriculture over industries and are merely concerned with the production of raw materials which, in the majority of cases, are processed outside their boundaries. They have become, as time has gone on, entirely dependent on countries in a high state of industrial development which look upon them as nothing more than a source of raw materials.

Free, reciprocal exchange, with due consideration for national interest and without making it contingent on compliance with political or economic stipulations likely to run counter to sovereign rights, would afford to such backward countries radically new prospects for development. They would have the opportunity of securing, in exchange for their raw materials, essential industrial plant, as well as such goods and raw materials as are not avaible on the spot and which are essential for the development of their national industry. Such free enterprise would, moreover, be an effective means of immunising them, to a considerable extent, against world market fluctuations.

The Polish Delegation has already expressed Poland's readiness to expand trade relations with these countries, due respect being observed for their needs and national interests.

Industrial development in Poland and the ambitious scope of her building programme are responsible for the increasing call for all kinds of raw materials produced by overseas countries. There is, moreover, a rapid increase in the demand for metals of every variety. The expansion of the automobile and tractor industry swells the demand for raw rubber, petroleum and petroleum products. The development of light industries, again, increases the demand for cotton, wool, jute and hides. Increased imports of coffee, tea and cocoa beans, exotic fruit, spices and other goods from overseas countries are a corollary to the steadily rising standard of living of Poland's population. The development of the country's industries affords Poland vast opportunities as supplier of goods sought by economically backward countries. It provides opportunities for a steady supplementation of the export range of industrial plant and such equipment as machine tools, woodworking and farm machinery, rolling stock, as well as equipment for the light industries — particularly for textile mills — electrical apparatus and ancillary materials. There is, moreover, a steadily increasing export availability of tools and implements, optical and measuring instruments, iron castings, enamelled hollow-ware and numerous other commodities. Poland is, as the result of the powerful development of her chemical industry, of increasing importance as an exporter of chemical products.

Trade with underdeveloped countries can be based on clearing arrangements, which would facilitate the solution of their finance and currency problems. Economically underdeveloped countries will be able, by concluding agreements with countries producing capital plant, to obtain the requisite equipment, essential for the implementation of their economic plans. This would, at the same time, prevent economic exploitation and be conducive to the ultimate transformation of these countries into autonomous factors in world economy.

OPPORTUNITIES AND PROSPECTS FOR TRADE DEVELOPMENT BETWEEN POLAND AND INDIVIDUAL COUNTRIES AND REGIONS

Alexander Wołyński, member of the Polish Delegation to the Moscow International Economic Conference, speaking at a meeting of the International Trade Group, surveyed the potential opportunities and prospects of developing trade relations between Poland and individual countries and regions.

The speaker pointed out in his opening statement that Poland is even now in a position to meet, without special effort, practically the bulk of the coal requirements of Northern Europe. North-European countries have every opportunity for offsetting, if not the whole, then at least the major part of their coal imports by offering in exchange their own goods, particularly since most of them have an export surplus of such goods as Poland stands in need of. They are, moreover, afforded the additional advantage of using Polish ports for transit consignments to Czechoslovakia, Hungary and Rumania, so that vessels sent to Polish ports for cargoes of coal could be fully utilised on the outward voyage for the carriage of ores and other bulk cargoes consigned to Poland or in transit to other countries.

The speaker then dealt with the present state and future prospects of trade between Poland and individual European countries.

Referring to Sweden, he recalled that the value of orders placed by Poland with that country for industrial plant and equipment between 1946 and 1949 amounted to roughly 500 million Swedish Kronae. Poland could, if Sweden were to increase the value of her deliveries, undertake to increase her shipments of coal to Sweden up to a quantity of four million tons per annum, as well as to increase exports of other commodities by 50 per cent.

The goods exchange with Denmark could be doubled. Poland is prepared to supply to that country up to 2½ million tons of coal, as well as caustic soda and soda ash, zinc oxide, fodder grain and other goods, in exchange for chemicals and drugs, cod liver oil, fatty acids, herrings and a number of transit goods traditionally marketed by Denmark. Poland could, moreover, make use of Danish shipyards for building and repairing ships to the value of some 50 million Danish Kroner per annum. Poland is also interested in importing cement works' equipment and other industrial plant to an amount of 30 million Danish Kroner.

Trade with Norway, which showed a heavy decline during the 1950—1951 period, might well be increased beyond the 1949 level. Poland can, in exchange for pyrites, aluminium, iron ore, cod liver oil, herrings and other commodities, supply to Norway, over the 1953—1955 period, up to one million tons of coal, as well as chemicals and other goods, to an aggregate annual value of from 80 to 100 million Norwegian Kroner.

Trade with Finland shows signs of increasing steadily and is expected to exceed, in the current year, 60 million Dollars, with prospects of a further increase.

It is possible, the speaker emphasised, for Poland's trade with the United Kingdom to increase by at least 50 per cent. Poland could, in the next three years, augment annual quantities of timber and other goods, in exchange for industrial plant and transport equipment to the value of from 10 to 15 million Pounds Sterling per annum, and for increased imports of such traditional raw materials available in the Sterling area as tin, raw rubber and wool, and a number of British semi-products and manufactured goods.

The goods exchange with France valued, in 1951, at approximately 40 million Dollars, could be doubled in the 1953—1955 period. Poland can increase her annual coal shipments to from 2 to 3 million tons and supply up to 50,000 tons of fodder grain, timber, chemicals and other commodities. Reciprocal imports from France would include industrial plant and transport equipment to an annual value of from 20 to 25 million Dollars. Poland would, moreover, be able to increase her purchases of aluminium, rolling mill products, phosphorite, dyestuffs, drugs and certain consumer goods.

The value of trade with Italy, at present amounting to roughly 50 million Dollars, could be trebled, by Poland increasing her coal deliveries to from 2½ to 3 million tons per annum, together with deliveries of farm products, chemicals and other commodities. Poland is, on the other hand, interested in equipment for the engineering and shipbuilding industry, in placing orders with Italian shipyards, as well as in a number of semi-products and manufactured goods, including synthetic filaments, automobile tyres, dyestuffs, zinc concentrates and other goods.

There is — said the speaker — every reason to believe that trade with Western Germany could be expanded. Poland can, in exchange for metallurgical products, chemicals, dyestuffs and drugs, synthetic filaments, industrial equipment and sundry other goods, supply farm products and timber.

The value of Poland's goods exchange with Belgium, amounting to approximately 20 million Dollars per annum, could easily be doubled by reciprocal increases.

This also applies to the Netherlands. The value of combined transactions, which in 1951 fell to below the 1949 level, could be substantially raised even above the original figure.

Combined transactions with Austria which, in 1951, amounted to 42 million Dollars, could be increased, during the 1953—1955 period, by some 50 or 60 per cent.

The 1951 value of combined transactions with Switzerland, amounting to approximately 110 million Swiss Francs, could easily be increased by some 50 per cent.

Poland's post-war trade with numerous overseas countries is carried on in much more auspicious conditions than those existing before the war. Direct trade relations with these countries are greatly facilitated as the result of development of Poland's Merchant Service, now operating regular shipping lines to the Levant, India, China — via Bombay and Karachi — and South America. Trade agreements are in operation with Indonesia, Pakistan, India, Egypt, Turkey and Israel, and a similar agreement with Iran is now being negotiated. Polish foreign trade enterprises, moreover, trade with firms in Ethiopia, the Sudan, Yemen, Transjordan, Saudi Arabia, Lebanon, Syria and Iraq.

The speaker emphasised that the opportunities further to develop trade with these overseas countries are substantial. Poland is interested in importing cotton from Egypt, Pakistan, India, Turkey, Syria and Iran; jute from Pakistan; raw rubber, tin and copra from Indonesia; petroleum from Iran; hides from Pakistan, India and Iran and copper from Turkey. There is, moreover, a demand for a number of exotic raw materials and consumer goods, such as tobacco, coffee, tea, fruit and other commodities. Poland can, in exchange, offer to supply railway engines and rolling stock, farm machinery and implements, certain items of equipment for the light industries, particularly textile machinery, machine tools and miscellaneous metal products, as well as coal, timber, cement, glass, chinaware, a wide range of chemicals and certain other goods.

It is estimated that the annual value of combined transactions with the countries mentioned could, during the 1953—1955 period, reach a figure of approximately 200 or 250 million Dollars.

Regarding Latin America, Poland has concluded a trade agreement with Argentina and a finance agreement with Brazil. Polish foreign trade organisations are, moreover, in touch with firms in Mexico, Venezuela, Uruguay and other countries. The opportunities for expanding trade relations with these countries are equally encouraging as in the case of Asiatic and African countries. Poland is interested in the supply by countries of Latin America of numerous commodities, including wool, cotton, raw hides, tanning extracts, oleiferous seeds, coffee, cocoa and fruit, offering in exchange coal, cement, sawmill products, dyestuffs, chemicals, machinery, railway engines, rolling stock and a variety of other industrial products.

The speaker made it clear that this review does not exhaust the opportunities of promoting trade between Poland and other countries not referred to in his speech and with which Poland is either engaged in trade relations or would welcome the opportunity to open up such relations.

AFTER THE INTERNATIONAL ECONOMIC CONFERENCE IN MOSCOW

The success of the International Economic Conference in Moscow exceeds the boldest expectations of its initiators. The Conference proved to be an international event of great importance and is recognised as such by the press and radio throughout the world.

Let us summarise the main achievements of the Conference.

The attendance at the Conference was truly world-wide. 471 persons participated, of these more than 60% were businessmen. All major countries were represented.

Western Europe was represented by strong delegations from Great Britain, France, Italy, Western Germany, Switzerland, Belgium, the Netherlands and Luxemburg. There were delegations from all three Scandinavian countries, from Finland, Iceland, Austria and Greece. The countries of South East Asia and of the Middle and Near East were particularly strongly represented: India, Pakistan, Ceylon, Indonesia, Burma, Iran, Lebanon and Egypt sent delegations. A group of businessmen from the United States took part in the Conference, and also representatives from Canada, Mexico and Cuba. South America was represented by delegations from Brazil, Argentina, Chile, Uruguay, Paraguay and Venezuela. From the Pacific area there were delegates from Japan and Australia. The Soviet Union was well represented, as also were all the countries of Eastern Europe — Poland, Czechoslovakia, Hungary, Roumania, Bulgaria and Albania — together with the German Democratic Republic. Of great importance was the delegation from People's China. There were also representatives from the Mongolian People's Republic, Korea and Viet-Nam.

Thus all parts of the world were represented at the International Economic Conference in Moscow.

An outstanding feature of the Conference was the businesslike character of the discussion. The rules of procedure adopted by the Conference excluded the discussion of the respective merits of different economic and social systems. Participants from different countries explored in a businesslike manner the possibilities of developing trade relations between their countries and of promoting world trade in general.

Many of the participants, while sincerely desiring that economic co-operation between nations, irrespective of their economic and social system, might be possible, came to Moscow with many doubts in their minds. The Conference dispelled any doubts which existed. It convinced all those who took part that differences in economic and social systems need not be an obstacle to successful economic co-operation and mutually advantageous trade relations. The participants of the Conference learned to know each other, to respect each other, and, what is most important, to work together.

The International Economic Conference demonstrated that there are great possibilities for the development of international trade. Delegates from a number of countries disclosed remarkable potentialities for increase in their foreign trade. The working group on development of international trade, in particular, established that during the next two or three years the Soviet Union is able to increase its trade with private enterprise countries to the amount of 2500 to 4000 million dollars annually. The Soviet Union, China, Poland, Czechoslovakia, Rumania, Hungary, Bulgaria, Albania and the German Democratic Republic, taken together, are able to treble their present trade with other countries.

In turn, speakers from countries of Western Europe, Asia, the Americas and other parts of the world indicated their willingness to develop their trade relations with the Soviet Union, China and the countries of Eastern Europe.

The existence of vast potentialities for expanding trade between countries, and the desire of businessmen to take advantage of all such opportunities, was confirmed by the many transactions which were concluded during the Conference. The total value of the transactions amounts to 500 million dollars. This in itself is a substantial volume. Considering that the number of participants was not large, the volume of transactions achieved indicates the vast opportunities for expanding international trade which exist and are waiting to be taken advantage of.

The International Economic Conference was a meeting of non-governmental character. Its participants represented business circles, economists and trade-unions. It was felt, however, that the present unsatisfactory situation of world trade requires action by governments as well as by the United Nations. For this reason, the Conference adopted an appeal to the General Assembly of the United Nations to convoke an intergovernmental conference on world trade, with the participation of representatives of business circles, trade-union organisations and other social organisations.

The participants at the Conference were unanimously of the opinion that the effort, so successfully begun, should be continued. For this purpose the Conference established a Committee for the Promotion of International Trade. This Committee will act as a permanent body to promote the development of trade relations between all countries, irrespective of their economic and social system.

The results of the International Economic Conference in Moscow have aroused great interest throughout the world. As can be seen from the reaction of the world press and of business and economic circles in different countries, the achievements of the Conference have met with a strong and favourable response. We are, therefore, hopeful that the work of the Committee for the Promotion of International Trade will bear great fruit and we look to businessmen of all countries to lend their full support to the Committee.

Professor OSKAR LANGE,
Member of the Committee
for the Promotion of International Trade

POLAND'S ELECTRICAL ENGINEERING INDUSTRY INCREASES THE RANGE OF ITS PRODUCTS

The spectacular development of the electrical engineering industry is one of the results of the vast investment drive taking place in Poland. New works, now being built, embody the latest achievements in technique.

How wide is the range of goods now manufactured by the Polish electrical engineering industry will be appreciated from the following specification:

I. Electric machines

Chief among electric machines manufactured in Poland are the serially-built asynchronous motors and oil-transformers.

Asynchronous motors — squirrel-cage and slip-ring types, both protected and fully-enclosed, are made in a range of from 0.37 HP to 100 HP. Units with a higher capacity, up to several thousand horsepower, are supplied to special order. The Polish industry also supplies special asynchronous motors, that is lift and immersible motors to work under water, as well as flame-proof motors. These latter are of particular importance as being essential in collieries — for conveyors and for all kinds of coal mining equipment. One of the types produced is square in shape and is adapted for operating coal cutters. The range of flame-proof motors made in Poland is extremely wide — from 0.34 HP to 108 HP.

Polish-made asynchronous motors are of extremely robust design, with perfect insulation — a fact which enables them to operate even under adverse climatic conditions. They are, moreover, most reasonable in price.

Synchronous motors for speeds of from 300 to 1500 r.p.m. and in a wide range of sizes are also made.

Oil-transformers of up to 1600 kVA are also built serially, and are, as a result, supplied at moderate prices and for comparatively early delivery. Poland also builds, in addition to this popular type of oil-transformer extensively used for electrification schemes in all countries, high-power and special transformers.

High-power transformers are made in sizes of up to 40 kVA for a primary voltage of 60,000 and up to 25,000 kVA — for a primary voltage of 121,000. The range of transformers made also includes transformers adapted to such special purposes as mercury vapour rectifiers or electric heat treatment furnaces.

The Polish electrical engineering industry has, in view of the important role played by the coal mining industry in national economy, designed a special portable transformer station for use in collieries. This includes a dry transformer, fitted with safety and signalling devices and mounted on a trolley for rapid movement to the working site. Transformer stations of this type have, by cutting out the cost of installing a number of stationary transformers and of the requisite cable system, produced appreciable savings in the electrical installation in mines. They are designed for from 100 to 200 kVA and for a tension of 3000/525/133 V.

The range of electric machinery made in Poland also includes, in addition to A.C. plant, Direct current machines — series motors for electric traction, various types of generators and converters.

Welding sets and heat treatment furnaces are also included in the list of electrical equipment available for export from Poland.

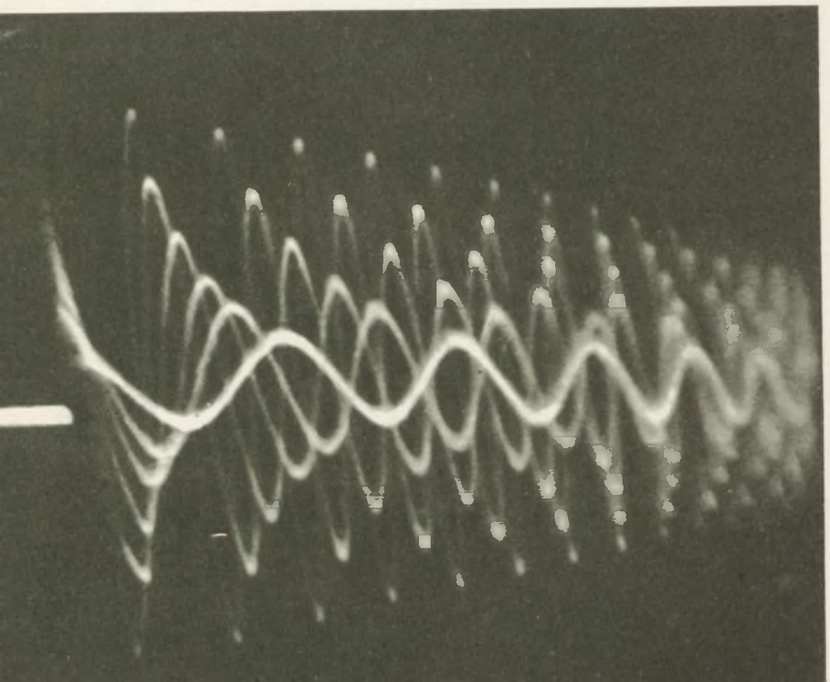
Welding sets are of two types — rotary sets for D.C. welding and resistance welders.

Electric heat treatment equipment is manufactured by the Polish electrical engineering industry in a variety of types for hardening, carburising, annealing, etc. It includes salt and oil bath furnaces, laboratory furnaces and drying ovens.

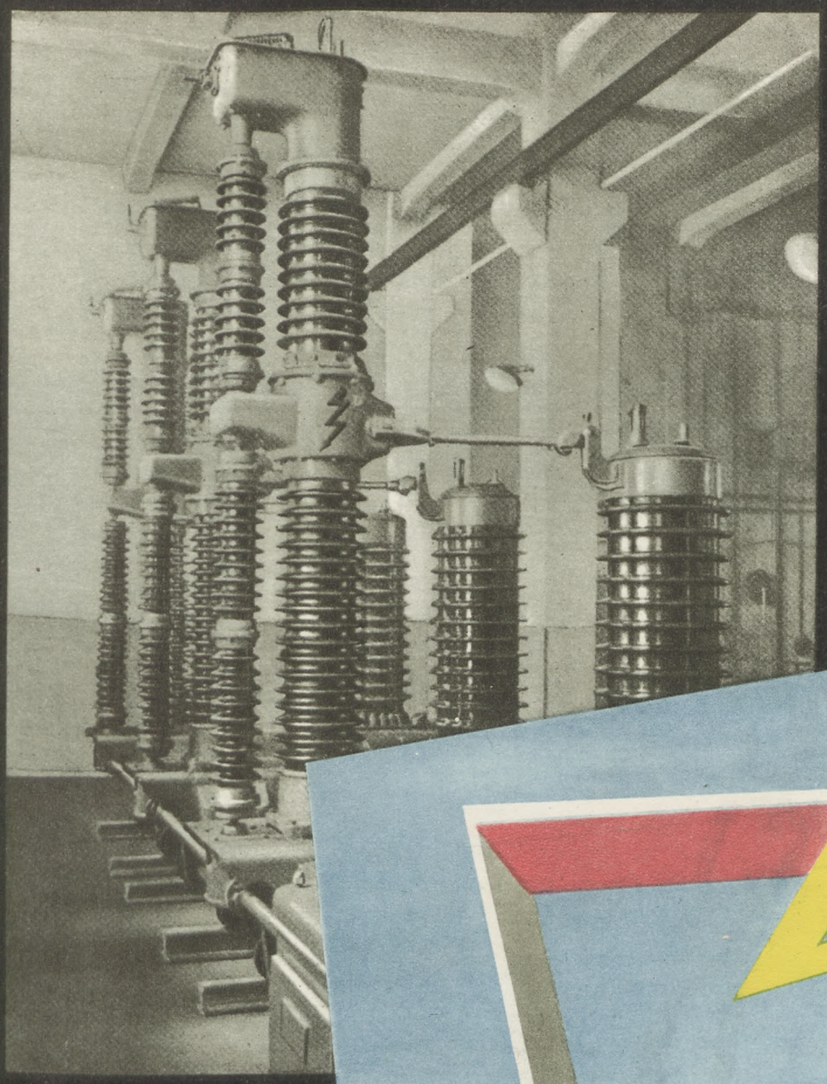
II. Measuring instruments

Certain types of electric measuring instruments, such as supply meters, were exported from Poland even prior to the recent war. The Polish industry is now in a position to offer substantial quantities of single-phase meters for early delivery. Polish Mark EFk-1 meters are renowned in countries of the Middle and Far East. A new model — Mark A2 meter — has recently been placed on the market. This model, being of simpler design, lighter in weight and more accurate, yet equally moderate in price, is a considerable improvement on former types.

Three-phase meters are also made.



The output of electrical energy is, under the provisions of the Six-Year Plan, to be more than doubled, ultimately reaching, by 1955, a figure of 19.3 milliard kWh, as compared with 8.3 milliard kWh in 1949 and 4 milliard kWh in 1938. The output of the electrical engineering industry shows a corresponding rate of increase



PRODUCTS OF THE ELECTRICAL ENGINEERING INDUSTRY

METALEXPORT

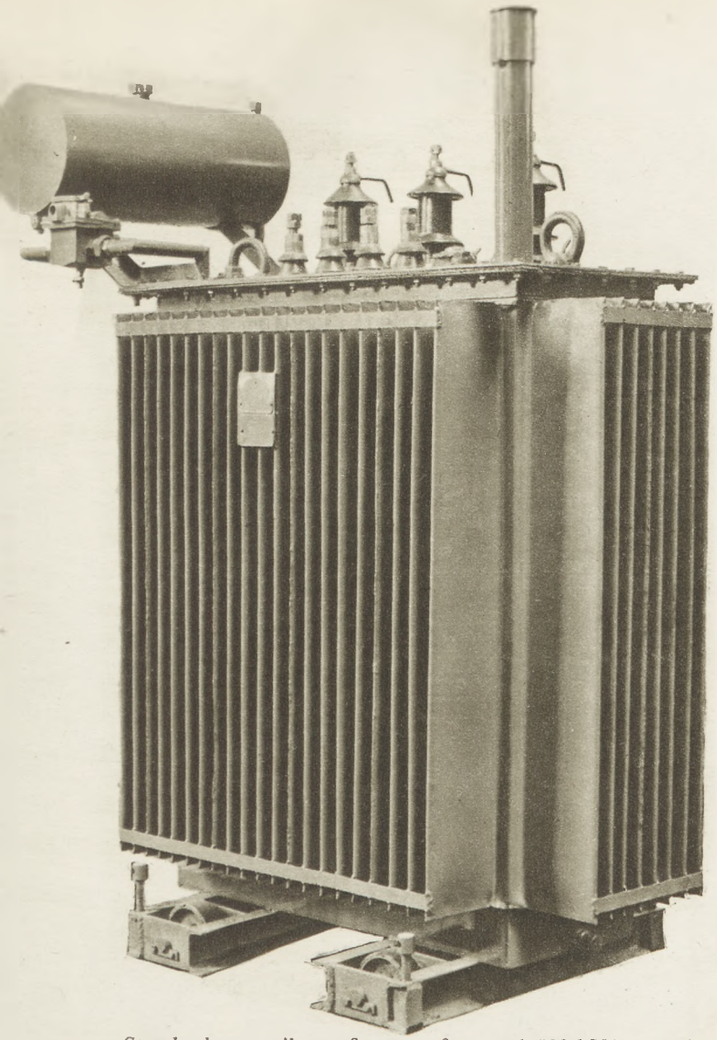
MOKOTOWSKA 49, WARSAW
Telegrams: METALEX — WARSAW

Other measuring instruments can, although only recently released for export, be offered in quantities as large as in the case of meters. The export range includes various types of voltmeters and ammeters — both for panel mounting and portable, ohmmeters, Wheatstone's bridges, insulation testers, etc.

III. Cables

The manufacture of cables and conductors is one of the oldest branches of the Polish electric materials industry. It has, moreover, so distinguished an export tradition that Polish power and telephone cables are nowadays in great demand in all markets. A number

The production of standard asynchronous electric motors with squirrel-cage and slip-ring rotor includes plate-protected and totally enclosed machines rated at from 0.37 HP to 100 HP. Motors of higher ratings, up to some thousands of horse-power, are made to order



Standard type oil-transformers of up to 1,600 kVA capacity are available for early delivery and at moderate prices. Illustration shows a type TO 315/6 three-phase oil-transformer for 315 kVA

of special cables, such as mine cables, screened, submarine and similar cables are also made.

IV. High and low tension equipment

The number of items under this heading is considerable.

Poland supplies mainly protective devices, such as Buchholz relays for transformer protection, lightning arresters, oil-break circuit breakers, as well as instrument, current and voltage transformers and a number of other items.

V. Incandescent lamps and fluorescent tubes

The incandescent lamp industry, largely devastated during the war, has made a rapid recovery and has for the past few years been exporting millions of lamps of various types, including normal types, railway and motor car lamps, telephone pilot lamps, wireless set dial lamps and miniature lamps — all supplied neatly packed for export.

Poland manufactures, moreover, the most up-to-date types of fluorescent tubes, giving a saving in electrical energy of from 65 to 75% and producing light of any shade; these tubes give longer service and a smaller degree of glare than incandescent lamps. They are in common use in Warsaw — capital of Poland, now rising from war devastation.

VI. Telecommunication equipment

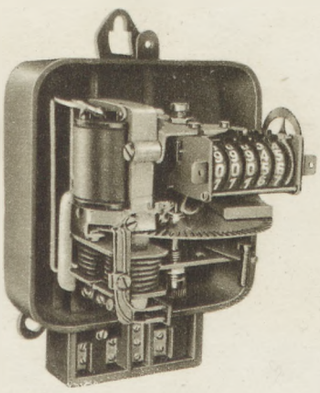
Telephone exchanges and instruments — two of the most perfected items made by the electrical engineering industry — are also included in Poland's export list. Poland produces, in addition to types made under foreign licences, her own model C. B. and inductor type telephone instruments. These instruments are of neat design, in bakelite casings, and can be supplied in any colour to suit customers' requirements. Poland supplies, in addition to small manual exchanges for from 5 to 100 extensions, complete town and trunk line exchanges. Attention is directed to the fact that, in the course of the construction in the country of a number of telephone exchanges to replace those destroyed during the war, Polish designers of telephone equipment have gained wide experience.

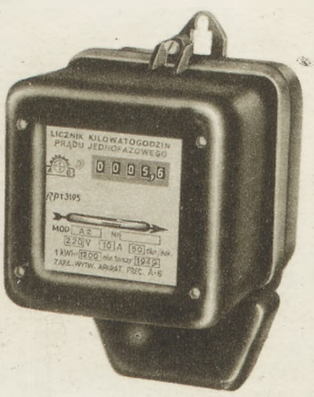
VII. Installation materials

Electrical porcelain, dealt with in a separate article in the current number of this magazine, is an important item among our range of electric materials. Polish exports include, in addition to miscellaneous items, such as various types of switches, fittings, socket outlets, plugs and fuses, Bergman type insulating tubes made under the Polish "Bergmanmex" trade mark.

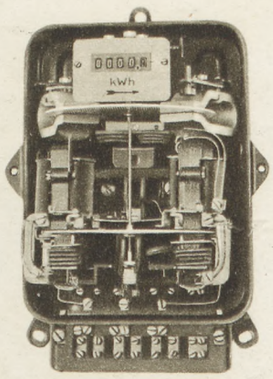
The items referred to above do not by any means exhaust the range of goods produced by the Polish

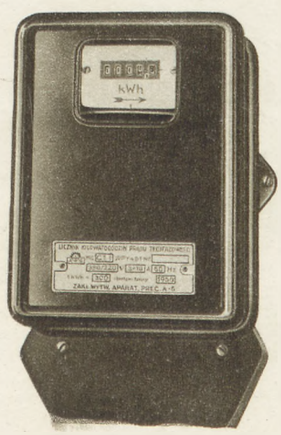
The latest type A2 single-phase supply meter is outstanding for simplicity of design, accuracy, small weight and moderate price

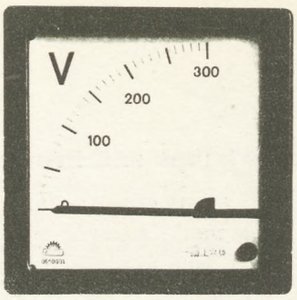


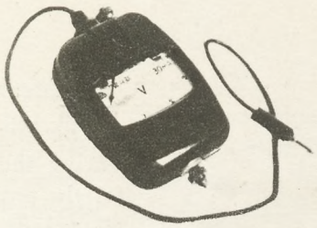


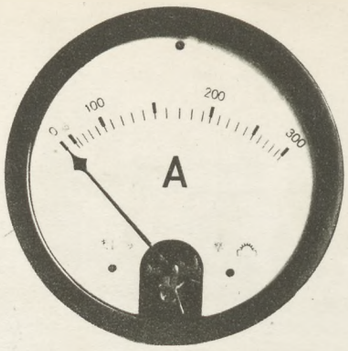
Type C1 three-phase supply meter





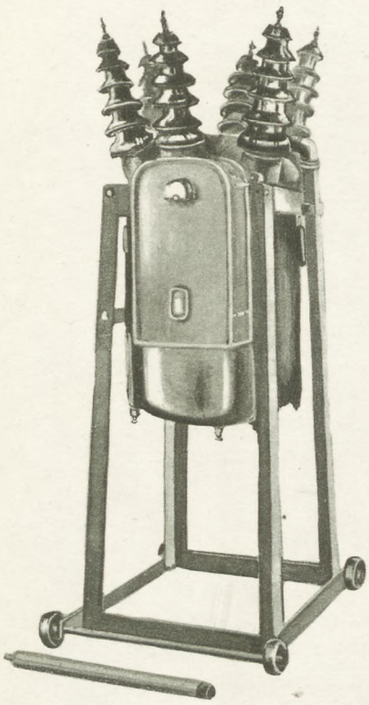


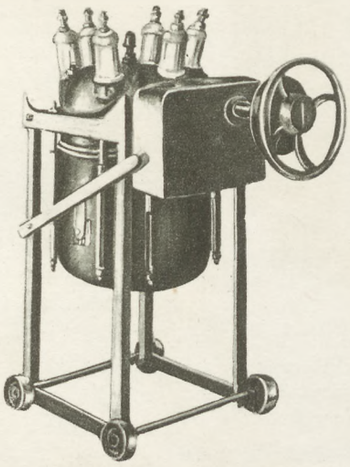




The export range of electric measuring instruments includes voltmeters, ammeters, ohmmeters, Wheatstone's bridges, insulation testers, as well as a number of other items

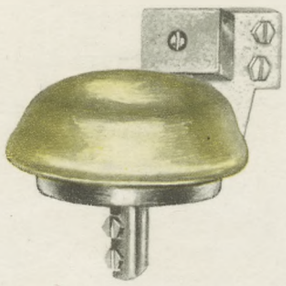
electrical engineering industry, particularly since every month opens up fresh scope and opportunities. No mention has been made, for instance, of X-ray and other electro-medical apparatus which Poland has been manufacturing for some years. This review is intended merely to provide a general idea of the scope of this new export branch which hardly existed before the war. Exports of the items listed above are in the hands of "METALEXPORT", Mokotowska 49, Warsaw.





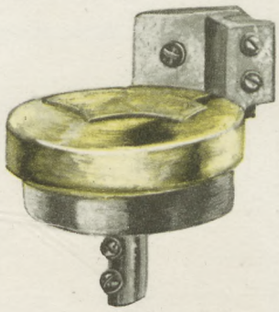
Type 1180-10 indoor oil-break circuit breaker, handwheel operated

Type 1182-30 outdoor oil-break circuit breaker, with type 1025 motor drive

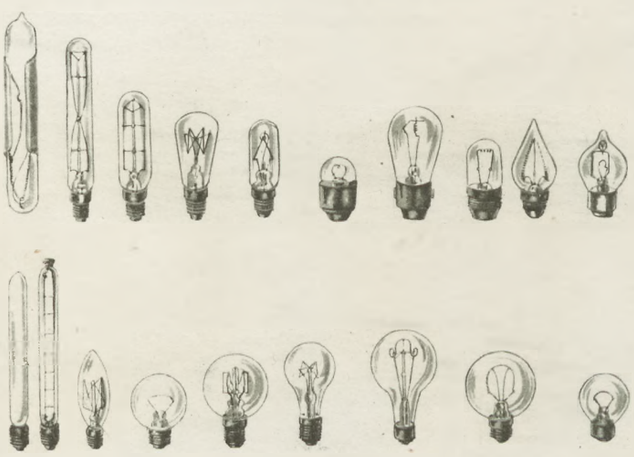


Type 949 valve arrester

Type 925 valve arrester



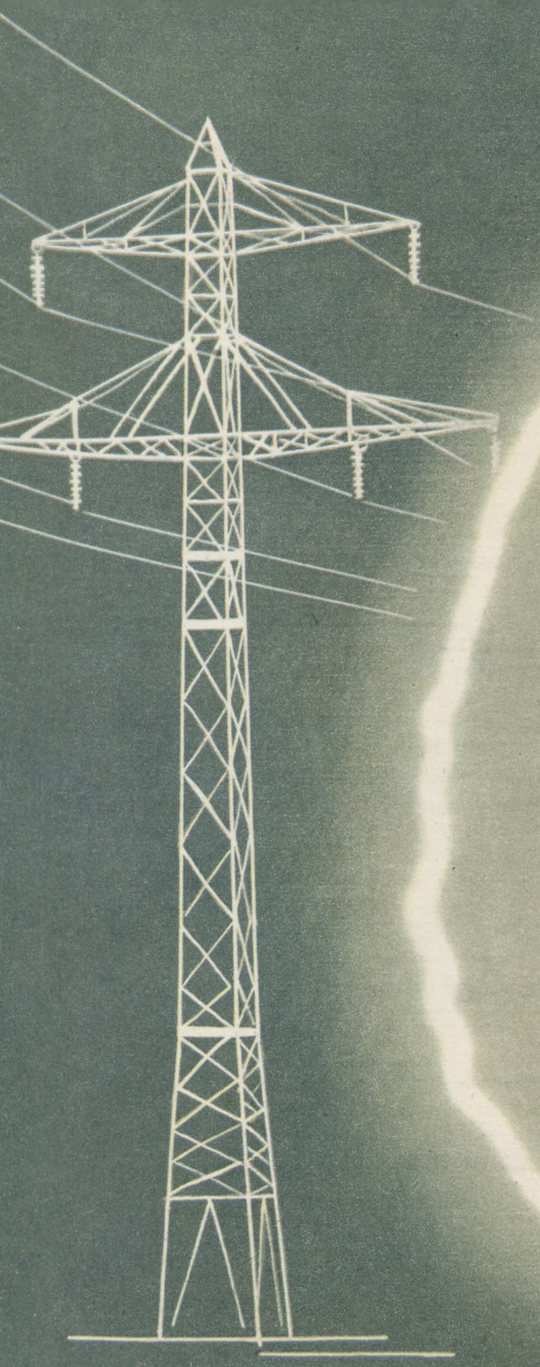
Poland manufactures both incandescent and up-to-date fluorescent lamps, the latter rapidly coming into general use. Fluorescent lighting has been installed throughout Warsaw's Central Department Stores, here illustrated

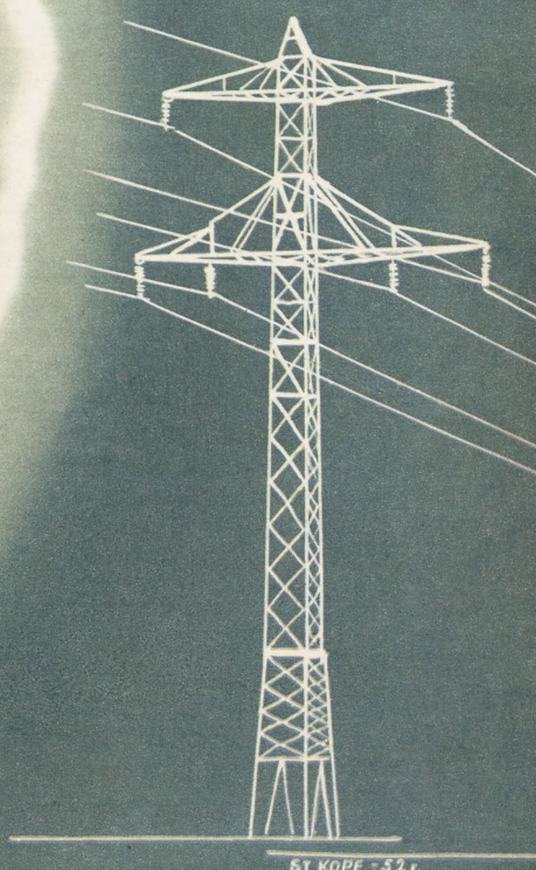


MINEX

EXPORTERS AND IMPORTERS OF MINERALS, CEMENT, GLASS AND CERAMICS

KREDYTOWA 4, WARSAW





ST. KOPF '52 r.

SUPPLY:

STRAIN AND BUSHING INSULATORS • SUSPENSION INSULATORS

AS WELL AS OTHER HIGH AND LOW TENSION ELECTRICAL PORCELAIN MADE FROM HIGH-GRADE MATERIALS • POLISH ELECTRICAL PORCELAIN MANUFACTURES ARE TESTED FOR QUALITY AND STRENGTH IN WORKS' LABORATORIES AND RESEARCH INSTITUTES, IN ACCORDANCE WITH LATEST SCIENTIFIC PRACTICE

POLISH
ELECTRICAL PORCELAIN

The substantial development of the Polish pottery industry producing dielectric materials rests on the expansion of the electrical engineering and power industries. This development has been two-directional — quantitative production, revealing a year-to-year increase, and qualitative production, to which has been added a sustained introduction of new lines to the already existing range of porcelain manufactures for dielectric purposes.

The electro-ceramic industry is, as a result of having extended its production enterprises and introduced modern manufacturing methods, in a position to meet home market requirements and, moreover, to provide a certain export surplus.

The range of manufactures is extremely varied and covers thousands of items which can be arranged, for the sake of convenience, in five main groups —

(a) telecommunication line insulators,
(b) heavy current low tension line insulators,
(c) heavy current high tension insulators,
(d) high tension bushing and strain insulators, as well as electrical apparatus insulators,
(e) low tension porcelain mountings and fittings.

(a) Telecommunication line insulator group. This comprises insulators for telegraph and telephone lines, as well as for wire broadcasting. Export type insulators are supplied in a range of 4 sizes, made to German Standard Specification VDE 0444, as well as special types to Swiss, Swedish and Turkish standards. The insulators are submitted, on completion, to electric and mechanical tests in accordance with effective standard specifications. Telecommunication insulators are being supplied to Switzerland, the Netherlands, Turkey, Egypt and Indonesia.

(b) Low tension line insulator group. This group includes insulators for heavy current systems of less than 500 V. This particular type of insulator is available in a range of 3 sizes, made to German standard specifications. The insulators are subjected to electric and mechanical regulation tests at the makers' works. Low tension line insulators are being shipped to Middle East markets.

(c) High tension line insulators - for use on transmission lines and distributing systems of up to 220,000 V. Delta pattern pin type insulators are invariably used for voltages up to 35,000, whereas, in the case of higher voltages, single-cap or two-cap suspension type insulators are used in chains consisting of units corresponding to the rated line voltage. A new model of single-cap suspension type insulator to work on 220,000 V line masts was designed last year, together with a new type of two-cap suspension type insulator of exceptionally high mechanical strength for export.

Suspension type insulators are supplied complete with caps and high-grade steel pins.

A type of suspension insulator, with specially increased leakage distance, is available for high tension lines operating under difficult atmospheric conditions (high rate of dust pollution, saturation with chemical fumes, fog).

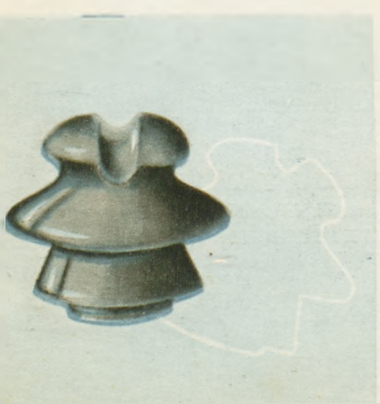
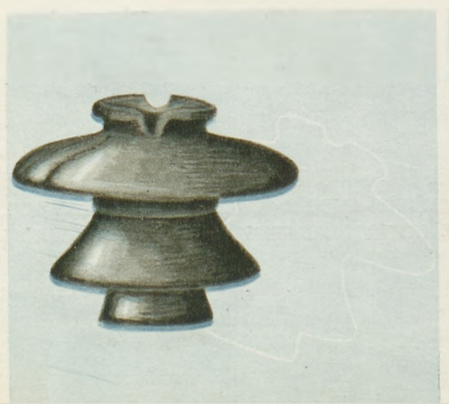
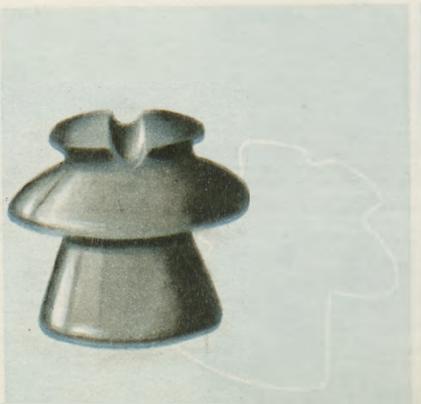
Every insulator is submitted, prior to despatch from works, to mechanical and electric tests. High tension line insulators have for a number of years been supplied to Rumania, Bulgaria, Norway, Austria and Finland, and considerable interest in them has recently arisen in countries of the Far East.

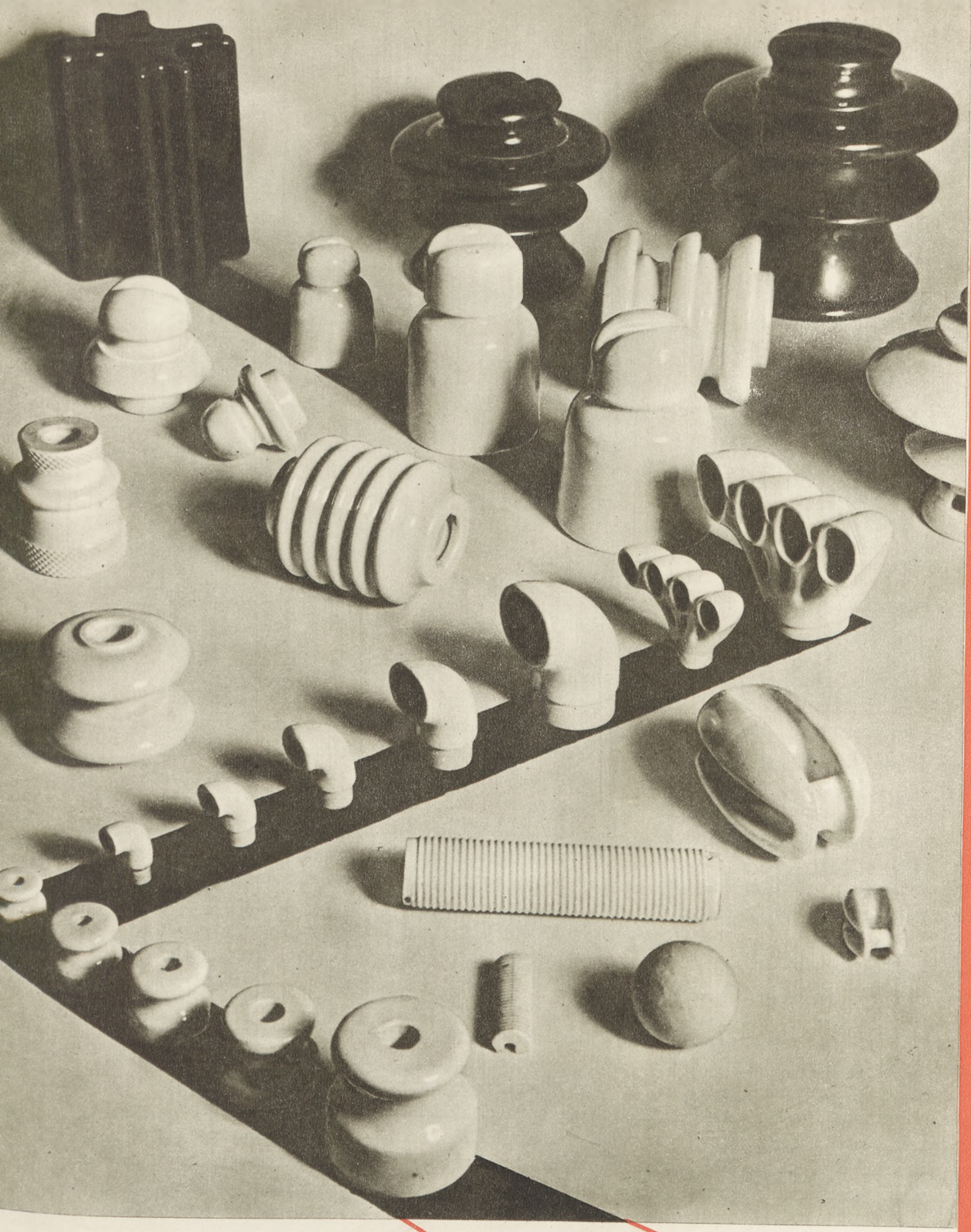
(d) High tension strain, bushing and electrical apparatus insulator group. This group comprises a wide range of insulators as used in electrical apparatus and machinery construction, as well as for high tension switchgear. The majority of insulators of these types are not standardised and they are made to individual designs of the electrical apparatus makers. The manufacture of electrical apparatus insulators is, in view of the complicated design of these insulators and the rigorous technical requirements as to dielectric and mechanical strength and dimensional tolerances, probably the most involved of all electro-ceramic processes.

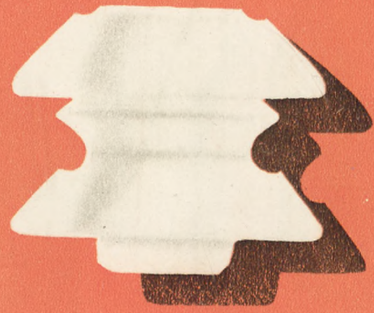
The experience gained by Polish works in the production of insulators for use in electrical apparatus, together with the high quality of the insulators and the precision of their finish, are fully appreciated in foreign markets, particularly in Switzerland where electrical apparatus manufacturers are showing an increasing inclination to place with Polish works their orders for the more complicated insulator types.

We are also exporting apparatus insulators to Rumania, Austria, Norway, Denmark and the Netherlands.

e) The group of porcelain mountings and fittings for low tension installations reveals the greatest diversity in the range available. It includes fuse boxes, cartridges, heads, rollers, nozzles, bushings and similar mass-produced pressings. A distinct group is comprised of ceramics for electric heat equipment. Goods in this line are made from a special compound



The development of the Polish electro-ceramic industry is pursuing three courses — increasing output, improving quality standard and widening the range of products. Certain items made by this industry are shown in our illustration

called "pyrolite", which reveals high thermal resistance properties.

Porcelain mountings and fittings are exported to the Netherlands, Turkey, Egypt and Indonesia. The Polish electro-ceramic industry is, in order to meet the growing demand for electric porcelain, continuing, within the scope of the Six-Year Plan, to extend existing works and is, at the same time, building new works with the most up-to-date appointments for the production of electric pottery.

The export of electric porcelain is in the hands of "MINEX", Exporters and Importers of Minerals, Cement, Glass and Pottery, Kredytowa 4, Warsaw.

TEXTILE MACHINERY

The textile machinery industry ranks among the oldest branches of engineering in Poland. The development of this industry has been closely associated with that of the Polish textile industry which has, in course of time and largely as the result of being equipped with plant of Polish manufacture, earned the appreciation, for its exceptionally high quality standard, of numerous customers abroad.

The Polish industry was originally organised for the production of machinery mainly for the processing of wool. The "Josephy" and "Schwabe" types of wool processing machines have, as a result of years of experience, established for themselves a high reputation in 32 countries.

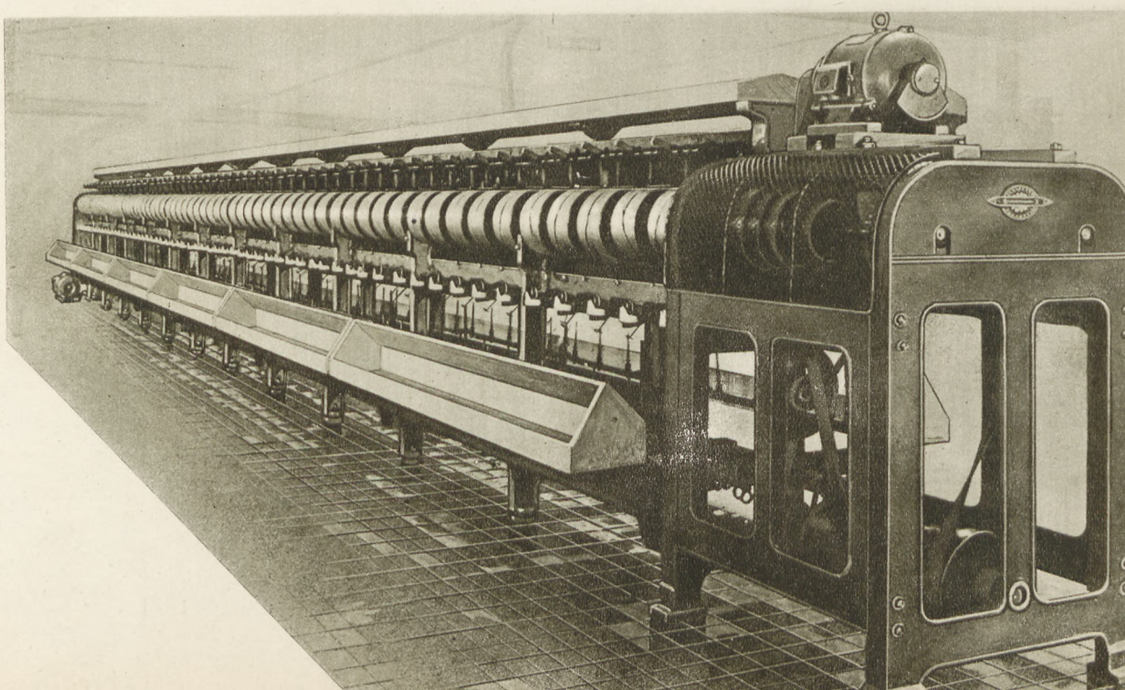
Steps were taken, immediately the war was over, to recover the position the textile machinery industry had occupied among Poland's machinery exports. This was completely successful, Polish textile machinery regaining, due to its high quality, the markets of the Middle and Far East and, mainly, of the Scandinavian countries.

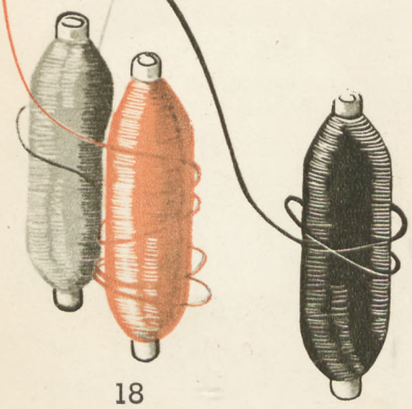
The production of textile machinery was, in the years immediately following the termination of the recent war, contingent on existing industrial equipment. The growing demand, however, made it necessary to draw up a plan for large-scale development of this industry, a plan which aims at a sixfold increase in the output of textile machinery. This plan provides not only for the development and modernisation of existing works, but also for the construction of new large plants. The older types of machinery are being steadily improved, and new types of machines, fully automatic in operation, reaching a high standard of perfection and ensuring high quality of textile manufactures, have been designed. Special care has been devoted to the development of production of complete cotton spinning mill equipment and of up to date automatic looms. Moreover, new production lines, such as for instance large-scale production of plant and equipment for processing synthetic filaments, have been planned and commenced.

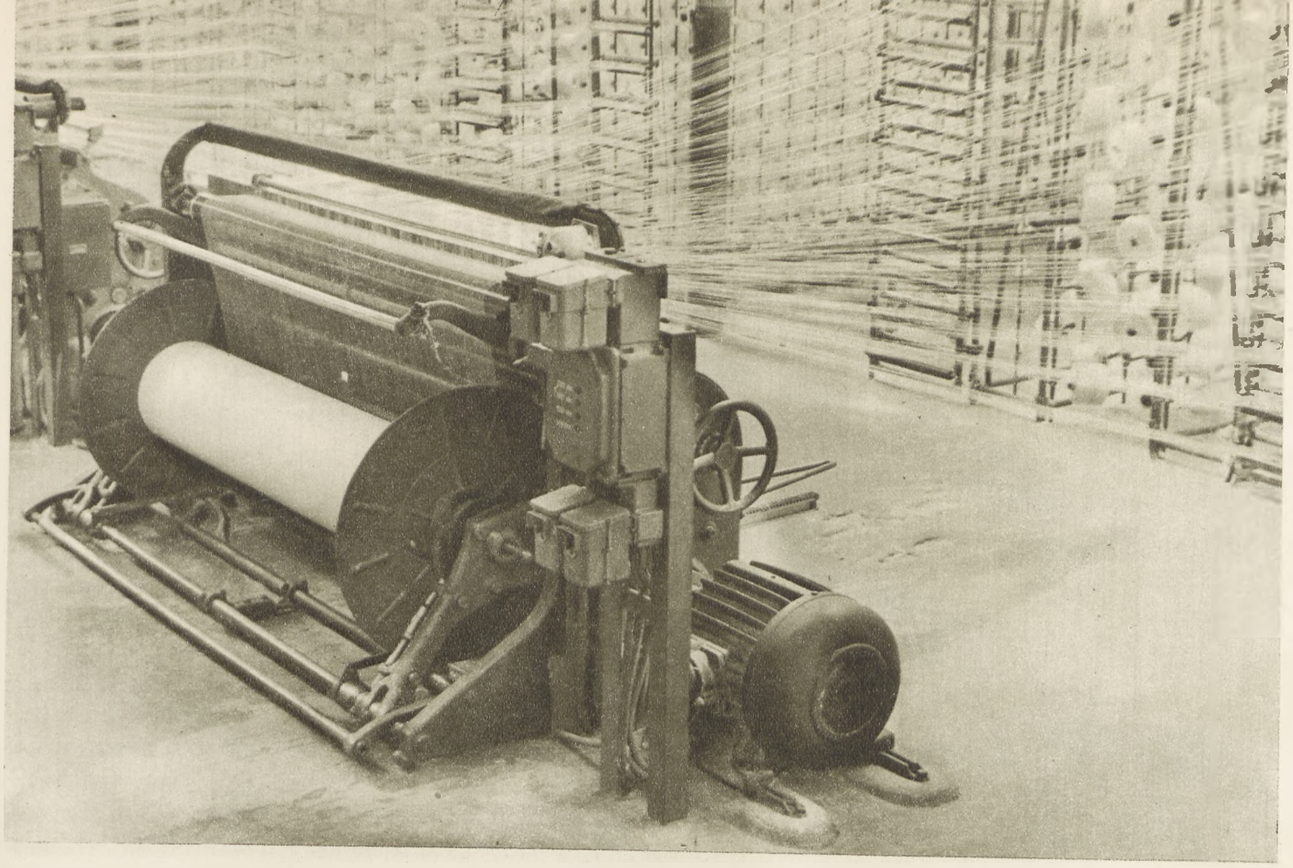
It has thus been possible, as a result of the steps taken, to meet not only the requirements of the home textile industry, but also to earmark a substantial quantity of machinery and equipment for export. The skill of the works' staff and designers, with years of experience behind them and wholeheartedly devoted to their craft, guarantees workmanship and constitutes the basis of our achievements in the export of textile machinery.

The designing of new types of machinery, in con-

Cross Winder







High-speed Beam Warper

formity with the latest achievements, is largely influenced by the Office for Textile Machinery Construction, the work of which is based on scientific principles, thus ensuring that the plant produced meets the most exacting requirements of both home and foreign customers.

Our export programme for textile machinery comprises the following groups of machines:

1. Wool processing machinery

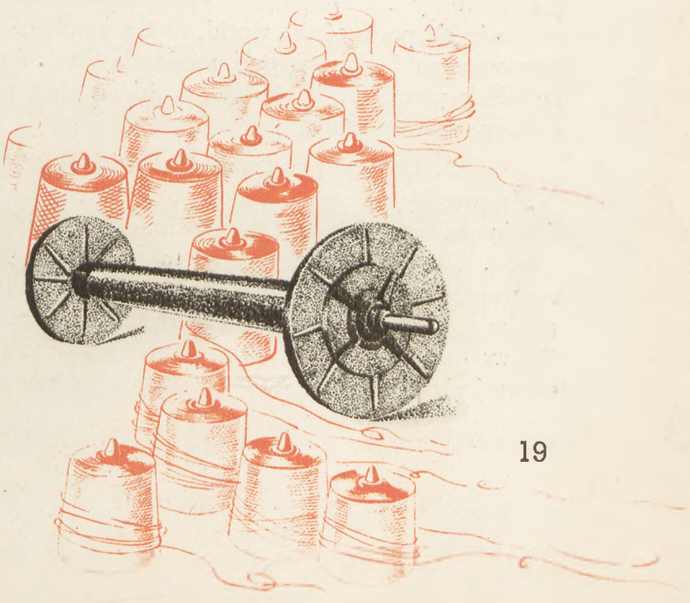
Wool processing machinery made by the "Befama" Works (formerly C. Josephy's Successors) is famous throughout the world. These works have, with a hundred years tradition behind them, at their disposal a highly skilled staff responsible for the leading position they hold in textile machinery production.

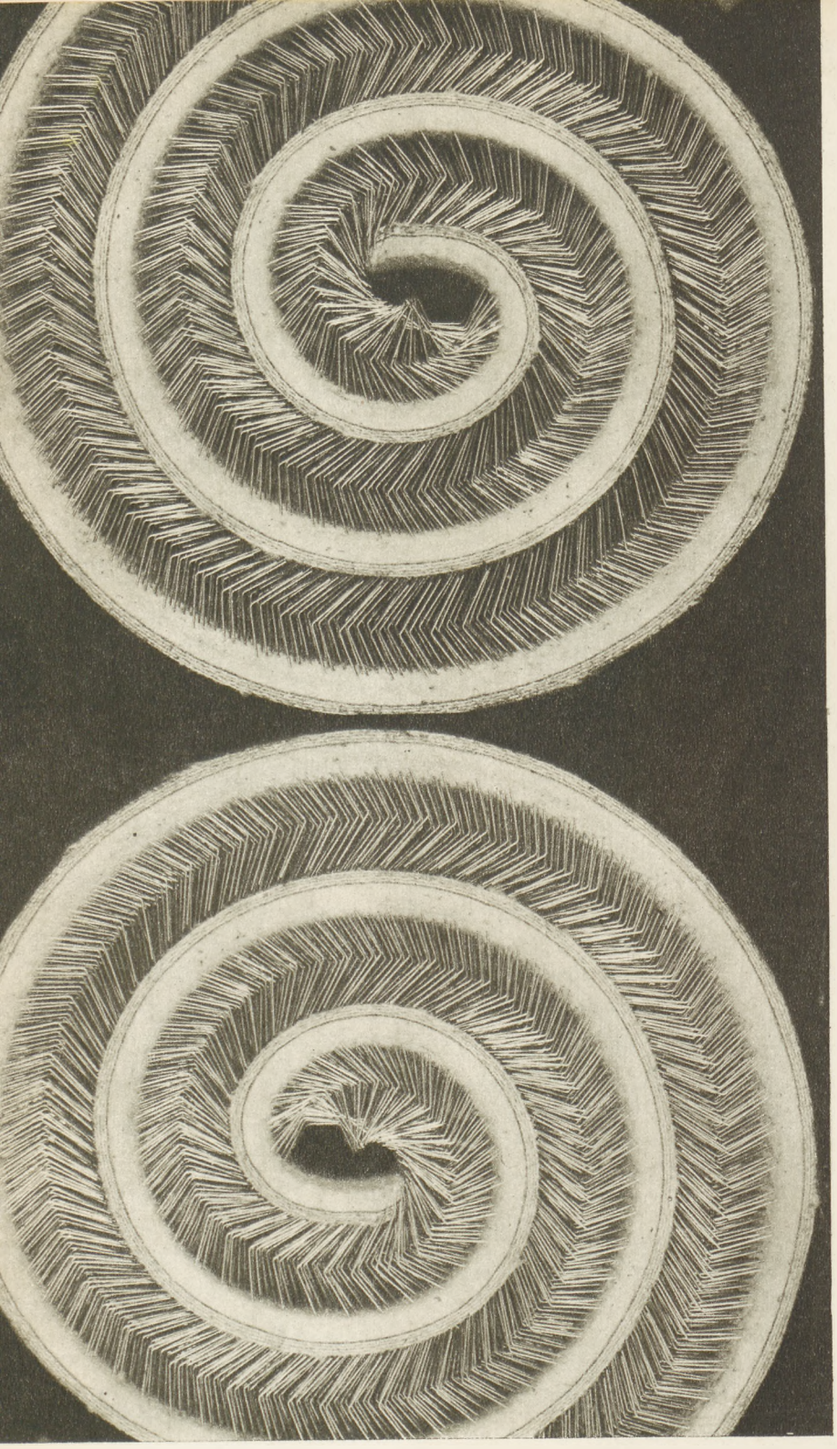
The production facilities of these works have been substantially increased since the war by large-scale investments and instaliation of the latest type of machine tools, so that the works are in a position steadily to introduce new and improved types of machinery.

The works have recently designed and placed on the market an improved automatic three-card set — type 133-Z. Improvements in the design of this set have simplified both assembly and operation. The type 133-Z carding set is produced mainly in widths of 1800 or 2000 mm. It consists of an automatic hopper feeder, three carding engines, two transferring apparatuses and a tape condenser. This plant is particularly suited for the processing of wool, wool waste and mixtures of wool with cotton and synthetic filaments. The works produce, moreover, an entire range of complete equipment for processing carded wool and cotton waste, as well as felt, wadding and cotton-wool carding machines, droussette and vigogne cards. The multiplicity of the designs of these machines and equipment is adapted to the varieties of raw material to be dealt with. The works also have available a substantial range of preparatory machinery, such as the "Gigant" dust extractor for rags, scutchers for synthetic fibres, modern tenter-hook willows, multi-cylinder openers, combined openers and beaters for waste, etc.

The range of plant manufactured includes, also, the type S-5 self-acting mule of modern simplified design, ensuring increased output and better quality yarn.

A separate item, for the use of homecrafts, comprises spinning units consisting of a tenter-hook willow, two carding machines with a working width of 1000 mm and a 60-spindle ring spinning frame. This spinning set will produce coarse quality yarn, from 1s to 9s, metric count. They are remarkable for simplicity in design and operation.





Polish-made card clothing has been renowned for its quality standard for over a 100 years. Card clothing for wool: on seven-ply felt-covered base. Card clothing and fillets for cotton: on a CWC or CWCC base

High grade steel wire teeth with specially hardened points. Made in all sizes on automatic machines

The works are in a position to offer, as the result of their extensive experience and ambitious production programme, equipment to suit, according to the class of raw material to be dealt with, the specific requirements of individual customers. Textile machinery produced by the "Befama" works has earned high praise in all parts of the world, as the result of steady improvement in design and modernisation of manufacturing processes. It should be added that prompt delivery can be made.

2. Cotton processing machinery

Noteworthy success has been achieved in the production of machinery for the preliminary processing of cotton. This applies primarily to the design of the new automatic single-process beater intended for the preliminary processing of every class of cotton. Next follows the type CZ-62 cotton carding machine built on entirely modern lines.

The improved sizing and drying units made by our works have been most favourably commented on by our foreign customers. This arrangement consists of a type EZ-9 sizing machine and type ED-1 air-drying chamber. Two warper's beams can be run through simultaneously. The overall length of the unit is 21600 mm, and the working width of the sizing machine 1900 mm. The latter is suitable for sizing both wool and cotton warp, or synthetic wool warp, prior to weaving.

Mention must also be made of the new type double cross-winder with 120 bakelite drums and of the high-speed warper with a 600-thread beam. A further item — a ring spinning frame of entirely up-to-date design — is to be added in the coming year to our already comprehensive range of cotton processing plant.

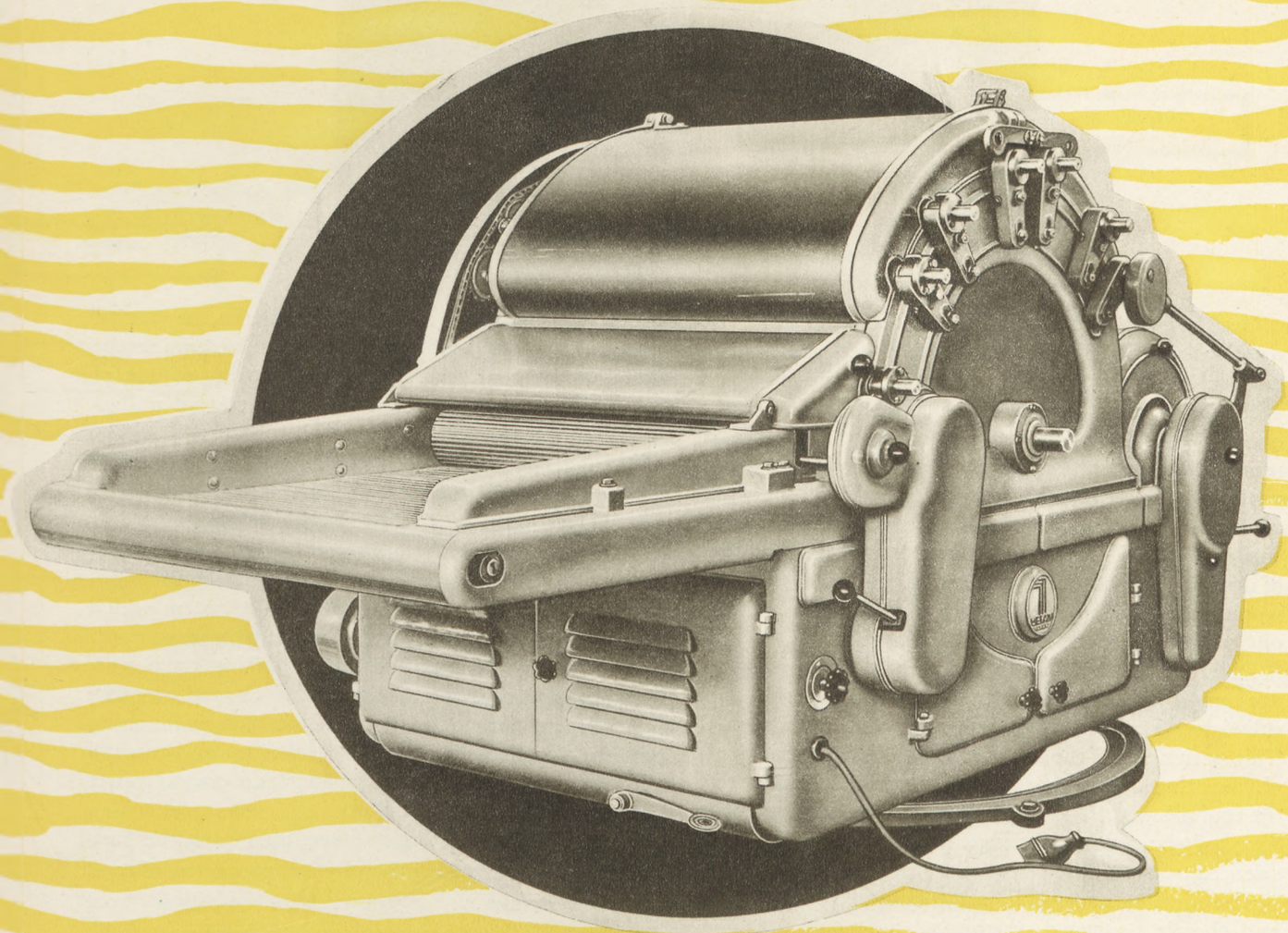
3. Looms

Prime representative of the range of looms is the type SB-25 semi-automatic loom for wool which has, due to its exceptional features, well-known to the widest circles of experts, emerged triumphant in competition with the more expensive and intricate automatic loom. This loom, 144 wide, has 5 shuttle boxes on either side and a precision-milled harness arrangement for 24 shafts. The type KA automatic loom for cotton, arranged for 80 and 90 cm wide fabrics, is, on account of design, simplicity and foolproof nature of operation, unique in its class. The type KA loom, with a speed of 175 picks per minute, is intended for light and medium weight cotton fabrics. One weaver is, in mills equipped with KA looms, able to mind 36 looms. Special care is taken in the selection of materials for parts particularly susceptible to wear.

4. Accessories

High quality of materials used in the manufacture of card clothing (both for wool and cotton) and accurate workmanship are factors responsible for the high reputation earned by Polish card clothing among foreign customers. The export of card clothing shows, as the result of improvements introduced in the manufacturing processes since the war, a considerable development and comprises the full range of card clothing required for wool and cotton, inclusive of flats. We are also in a position to offer for early delivery rubbing leathers and condenser tapes.

The export of textile machinery and accessories is in the hands of "METALEXPORT", Mokotowska 49, Warsaw. P.O. Box 442.



TYPE 48 TENTER HOOK WILLOW

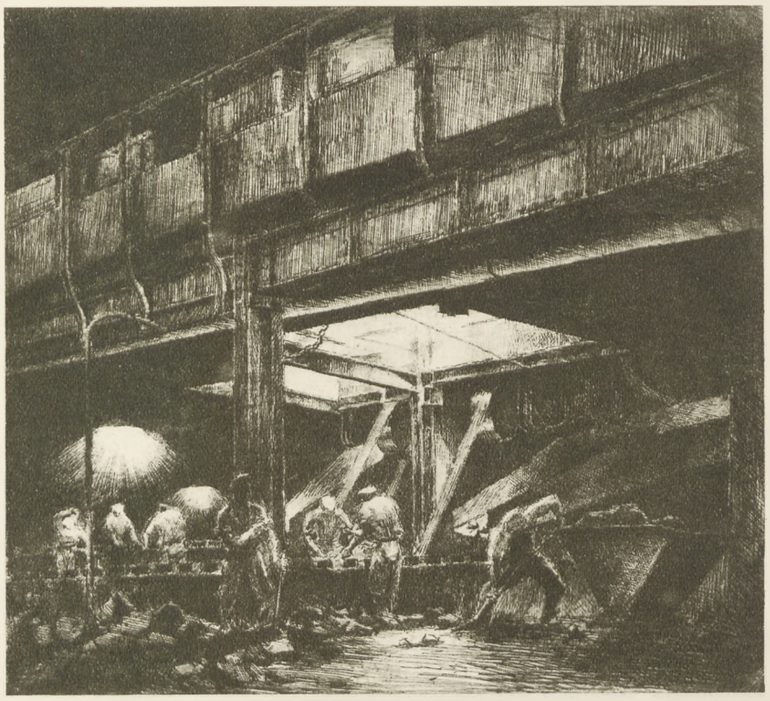
TEXTILE MACHINERY FOR WOOL AND COTTON

SOLE EXPORTER

METALEXPORT

P. O. BOX 442, WARSAW

COAL SYSTEMATICS AND CLASSIFICATION



Coal grading plant. From an engraving by S. Zakrzewski

Coal has, for a number of years, been the subject of research by such branches of science as geology, palaeobotany, petrology and, particularly, chemistry. The problems of every one of these sciences differ; every one of them adopts research methods peculiar to it and uses a different scale for its researches into coal: geology — in a scale of metres (stratigraphic profile) and of kilometres (area of coalfields); petrology — examines coal in a scale of millimetres (macroscopic examination of deposits) and of thousandths of one millimetre (microscopic examination). These investigations are carried out by means of physical methods.

Different methods again, and on a different scale, are employed by chemists, who examine the coal substance in a micellary, molecular and atomic scale. This series is of the magnitude of 5.10^{-7} mm. It is obvious that it is impossible to determine the nature of the coal substance and the carbonification process on the basis of the results obtained by a single branch of science.

The aims of geologists, palaeobotanists, petrologists and chemists engaged on research into coal are:

a) the explanation of the geological process which has resulted in such an immense accumulation of solar energy in the form of latent chemical energy in natural solid fuels;
b) the determination of physical properties in such fuels;
c) the determination of the structure and chemical nature of coal and of other natural solid fuels; and
d) the definition of the suitability of individual ranks of solid fuel for miscellaneous technological processes and for the requirements of our daily life.

Diversity of research methods

The experimental methods of testing coal and other solid fuels may be roughly divided into two basic groups — a) physical and b) chemical. In the case of the latter, the test methods designed to determine the behaviour of coal in relation to temperature are of paramount importance from the point of coal utilisation and classification.

Physical test methods include the determination of the physical properties of coal, such as true and apparent density, hardness, friability and grindability, as well as thermal conductivity and outer appearance (colour, lustre). The physical group of test methods includes, moreover, microscopic examination — a system which has, in recent decades, been considerably developed. Physical test methods play, broadly speaking, an important role in geological and petrological coal research problems and are of great value to the coal mining industry — primarily in coal exploitation and in such coal preparation processes as sizing and cleaning (wet and dry washers, flotation).

Geologists and petrologists have, mainly on the basis of the methods of testing the physical properties of coal, advanced numerous suggestions for so-called "coal classification", yet these have invariably proved to be neither a technological classification nor a classification of industrial or commercial value. They have been found to consist mainly of genetic tables or systematics of natural solid fuels.

Geological systematics of caustobioliths

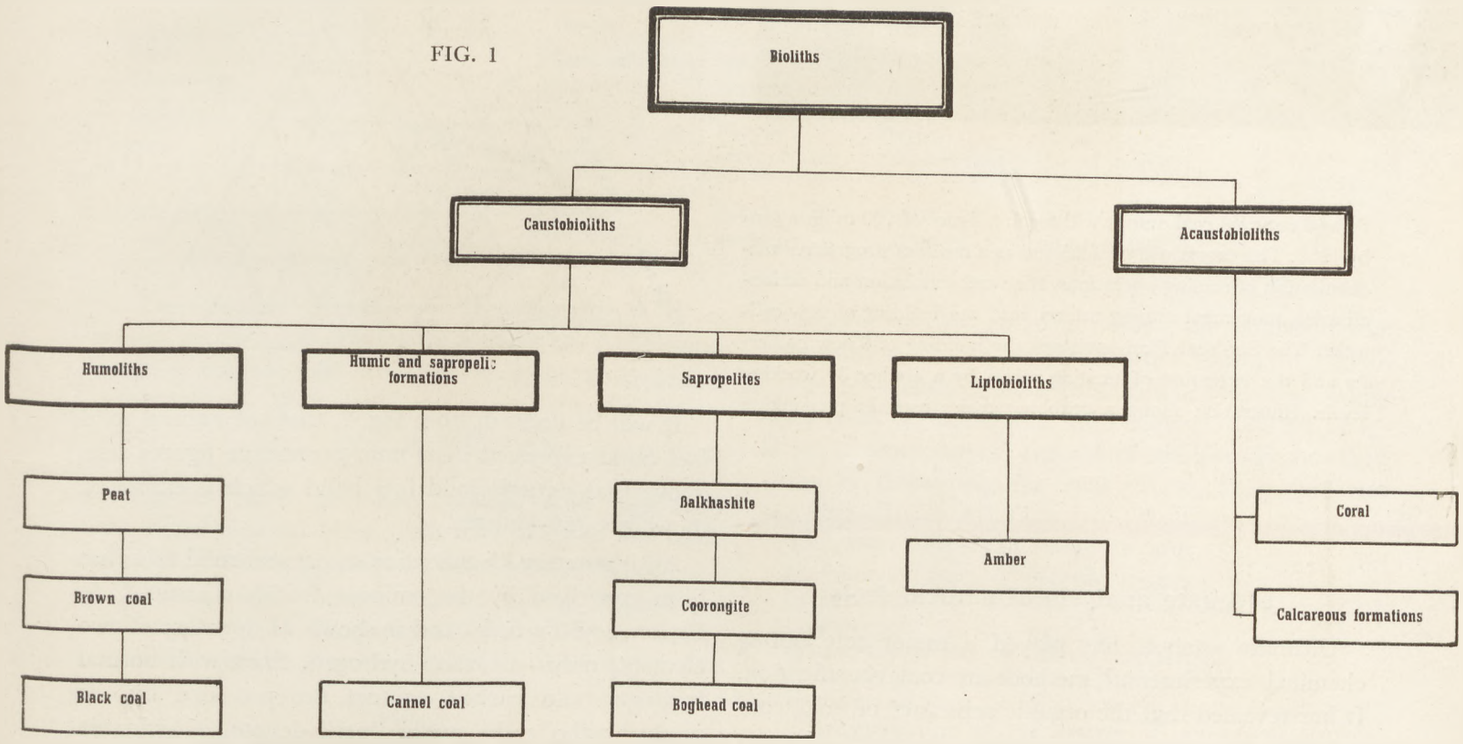
Geology, as is commonly known, divides bioliths, or rocks of organic origin, into caustobioliths and acaustobioliths. Since there were, in nature, various initial materials from which the caustobioliths originated and in view of the divergence in conditions in which the deposits of natural solid fuels were formed (duration of the carbonification process, temperature, pressure, etc.), the genera of natural fuels vary. We distinguish, from

the point of initial materials from which they originated, humic, sapropelic and mixed (humic and sapropelic) coals. We differentiate, moreover, with regard to the extent of carbonification, three coalification stages: the peat stage, the lignitous stage and the hard (mineral) coal stage.

The majority of natural solid fuels, including the most important — peat, lignite, sub-bituminous and bituminous coals and anthracite — are derived from humic material (humites) or from mixed (humic and sapropelic) material.

The geological systematics of bioliths are shown below:

FIG. 1



The coalification process in the light of chemical research

Chemical methods intended to reveal the chemical composition and chemical nature of coal are the next extensive group of coal research methods. This problem is somewhat involved, since coal is not a homogenous substance and has a most intricate structure.

The most important experimental method employed by chemists for the investigation of the coal substance are action of solvents on coal, determination of the chemical constitution of coal by means of oxidation, reduction and hydrolytic reactions and, finally, action on the coal by means of various chemical reagents, such as alkalis, acids, halogens and other media. These diversified chemical methods have largely made possible the determination of the two basic groups constituting the organic substance of coal — the ulmins and bitumens.

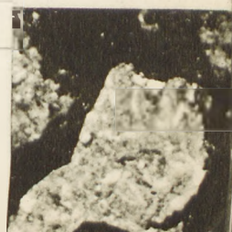
It must be emphasised that the terms ulmins and bitumens are actually a collective definition, since they comprise a number of groups of chemical substances, just as do, in organic chemistry, such general terms as waxes, resins, hydrocarbons.

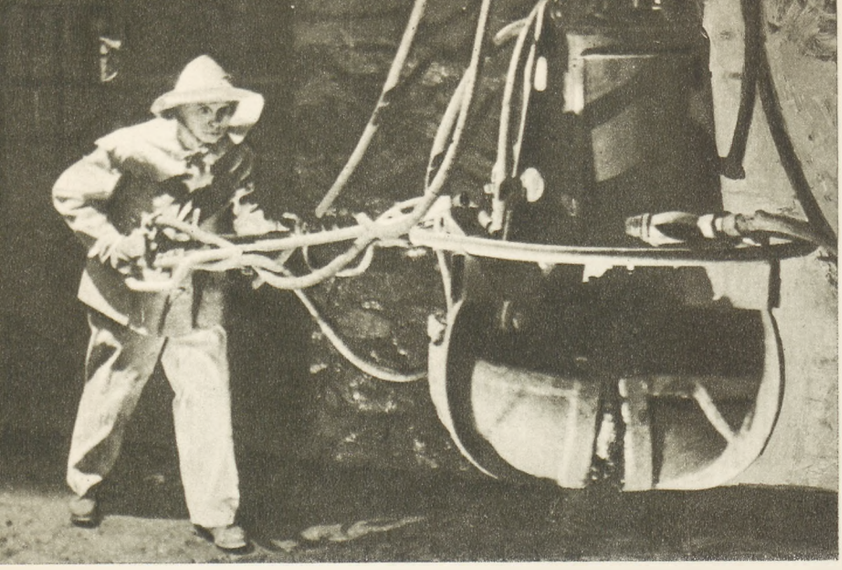
The coalification process is shown, from the point of chemistry, in Table I.

TABLE I.

Chemical composition of solid fuels (Numerical examples referring to humic coals)

Chemical substance	%	Wood	Peat	Brown Coal		Bituminous Coal		Anthracite	%	Chemical substance
				lower ranks	higher ranks	gas coal	ortho-coking coal			
Cellulose and pentosans	%	65	10	—	—	—	—	—		
		—	30	—	—	—	—	—	%	Organic acids soluble in water
Lignin	%	30	15	5	—	—	—	—		
		—	30	60	20	—	—	—	%	Humic acids
		—	—	20	70	92	96	98	%	Ulmins
Resins and Waxes.	%	5	15	—	—	—	—	—		
				15	10	8	4	2	%	Bitumens





Poland's annual coal output will reach a figure of 100 million tons by 1955. This target will be achieved as a result of progressive mechanisation of mining operations, the work emulation and rationalisation movement among miners, and the building of new collieries. The Six-Year Plan envisages the building of 9 new collieries and the extension of existing mines by a further 31 working levels. Illustration shows a grabbing crane used in pit sinking

Ultimate analysis of natural fuels

Ultimate analysis has played a major role among chemical experimental methods in coal classification. It has revealed that the organic substance of coal consists of 5 basic elements — carbon, hydrogen, oxygen, nitrogen and sulphur (organic), as well as the existence of genetic relationship between natural solid fuels constituting the wood-peat-lignite-hard coal-anthracite series which geologists, petrologists and palaeobotanists have discovered by physical (macro- and microscopic) methods. This prompted certain scientists to arrange these genetics and systematics of natural solid fuels in graphic or numeric form. De Grout, O.C. Ralston, Drakeley, D.J.W. Kreulen, Apfelbeck and, particularly, C.A. Seyler share the distinction of having represented, in graphic form, the coalification process of natural solid fuels. These scientists have assumed that three out of the five elements present in natural fuels, namely C, H and O, are of paramount importance.

The results of ultimate analysis of individual fuels are transposed on to a triaxial diagram, where C corresponds to 100 per cent. carbon, H — to 100 per cent. hydrogen and O — to 100 per cent. oxygen. The coordinates of point P in the specimen diagram denote 70 per cent. C, 20 per cent. O and 10 per cent. H.

Natural solid fuels arrange themselves, as will be seen, in the form of a band in the left hand bottom part of the triaxial diagram (natural solid fuel band) — Fig. 2.

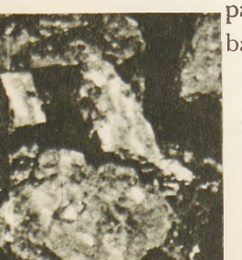
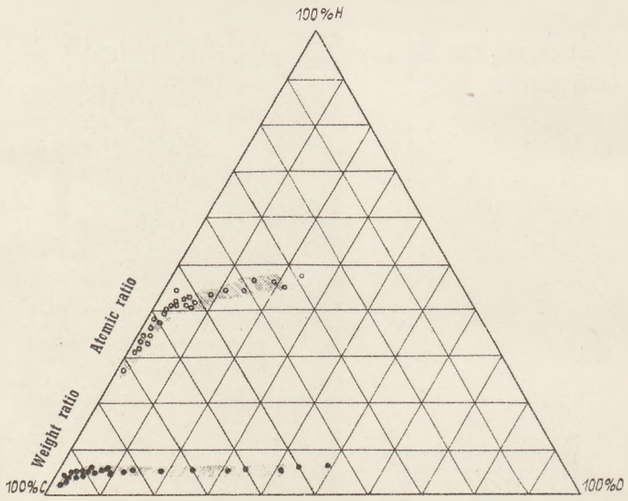


FIG. 2
Two-band three-element (C.H.O.) solid fuel diagram
(B. Roga and L. Wnękowska)



It will be noticed, from Fig. 2, that the natural solid fuel band expressed in atomic percentage figures rests above that natural solid fuel band which is expressed in weight percentages.

An interesting classification of natural solid fuels has been conceived by the eminent British scientist C.A. Seyler. Seyler's fuel band is shown as a system of two elements only — carbon/hydrogen. Fuels with normal hydrogen and carbon content are preceded by the prefix "ortho"; the prefix "per" denotes a hydrogen content above normal, whereas the prefix "sub" denotes a hydrogen content below normal. Seyler's classification is shown in Fig 3. and Table II

FIG. 3
Classification of natural solid fuels according to Seyler

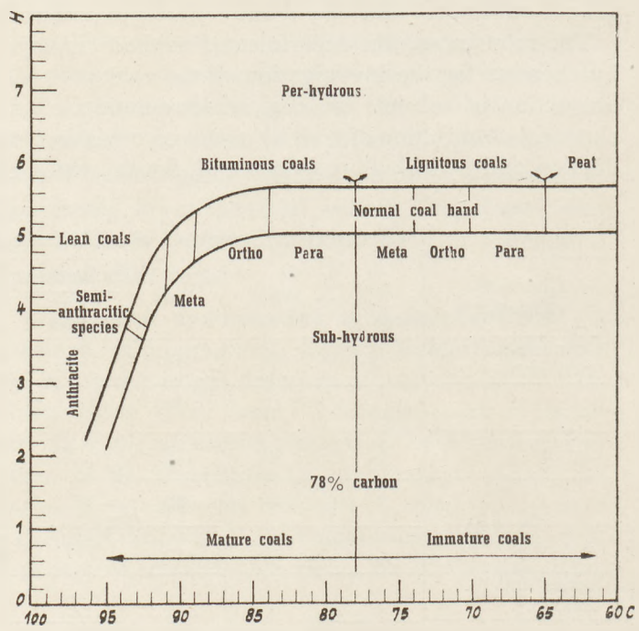


TABLE II.
COAL CLASSIFICATION (after Seyler)

Genus		Anthracite	Carbonaceous	Bituminous			Lignitous	
				Meta-	Ortho-	Para	Meta-	Ortho-
	%C / H%	93·3	93·3—91·2	91·2—89	89—87	87—84	84—80	80/75
Per-Bituminous	5·8	—	—	Per-meta-bituminous	Per-ortho-bituminous	Per-para-bituminous	Per-lignitous	
Bituminous	5—5·8	—	Pseudo-bituminous species	Meta-bituminous	Ortho-bituminous	Para-bituminous	Lignitous (Meta-Ortho)	
Semi-Bituminous	4·5—5·8	—	Semi-bituminous species	Sub-meta-bituminous	Sub-ortho-bituminous	Sub-para-bituminous	Sub-lignitous (Meta-Ortho)	
Carbonaceous	4—4·5	Semi-anthracitic species	Carbonaceous species	Pseudo-carbonaceous	Pseudo-carbonaceous	Pseudo-carbonaceous	—	
Anthracitic	4	Ortho-anthracite (True anthracite)	Pseudo-anthracite	Pseudo-anthracite	Pseudo-anthracite	Pseudo-anthracite	—	

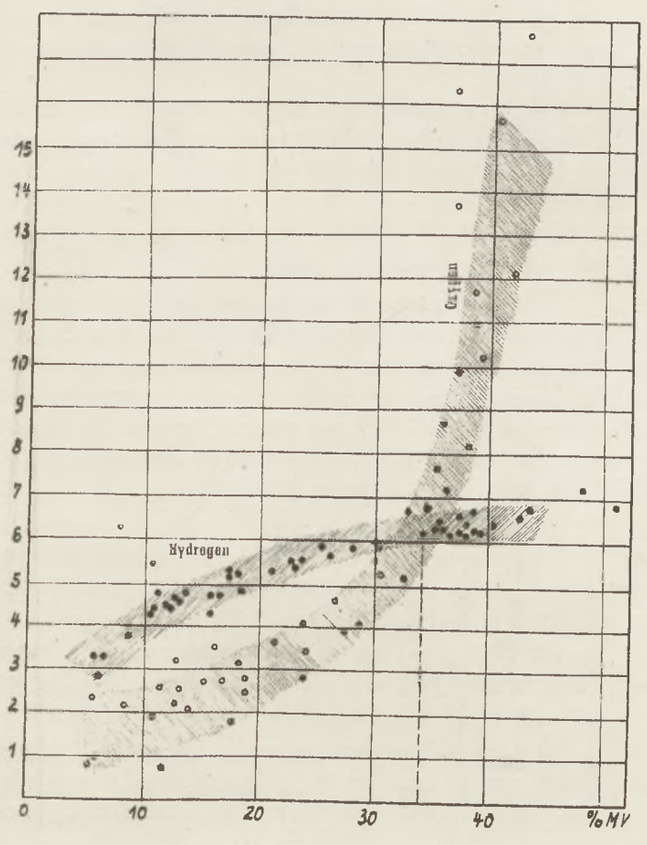
The Polish chemist — D. Wieluch — determined on the basis of ultimate analysis the coalification stage of natural solid fuels and its numeric expression according to the formula

$$K = \frac{2.1O + 42H + 3N}{7C}$$

Lignites have an index between 0.35 and 0.50, the index for coal being from 0.54 to 0.84. The coalification index for graphite amounts to exactly 1.00.

Investigations, recently carried out in Poland (by B. Roga and L. Wnękowska), of coals from various coalfields reveal that the decline in the oxygen and hydrogen content in coals follows the course of the coalification process in the manner shown in Fig. 4.

FIG. 4
Oxygen and hydrogen bands for all coals examined



Physico-chemical methods of testing coals are mainly contingent on examining the behaviour of coal in relation to temperature and are of considerable practical value in estimating the rank of coal from the point of utilisation, as well as in coal classification.

The more important methods are:

a) determination of volatile matter;
b) investigation of the phenomenon of swelling pressure
c) determination of caking properties;
d) investigation of the phenomenon of plasticity;
e) determination of dilatometric properties;
f) investigation of the course of carbonisation;
g) determination of the low-temperature tar yield;
h) determination of calorific value.

Methods based on investigating the behaviour of coals in relation to temperature have become the basis for the industrial and commercial classification of coal.

Industrial and commercial coal classification

The diversity in the utilisation of coal as a source of heat and as a raw chemical material, together with the differing requirements of various types of technical equipment and, finally, the tendency to use the type of coal most suitable for any specific equipment, by virtue of the principle "the right coal in the right place" have led to the necessity for classification of coal according to:

I. Rank (Classification by Rank)
II. Degree of cleanness (Classification by Grade)
III. Granulation (Classification by Size).

Both the grading and the size of coal can be controlled — a fact which has led, as a result of increasingly rigorous demands by consumers, to a vast improvement of such coal processing methods as cleaning, sizing, crushing, briquetting, drying etc.

The coal rank is beyond control, since it is determined by its natural properties. Intimate knowledge of the essential natural features of the individual coal varieties and, consequently, the classification of coal according to rank is, thus, of primary consideration in the utilisation of coal.

The world has for long been aware of the existence of various ranks of coal. Here are quoted only the words of Jędrzej Śniadecki, eminent Polish chemist, whose statement to this effect, in his manual of chemistry published in 1817, runs as follows: "It is not always and not everywhere that mineral coal is exactly uniform, and it is for that reason that it has been divided into different varieties". It is generally agreed in world literature that the work by M.V. Regnault (published in 1837) entitled "Recherches sur les Combustibles Minéraux" was the first attempt at industrial and commercial coal classification. Regnault, having carried out research into coals of various origin, divided the coals examined into five ranks, according to their suitability for utilisation processes, namely: 1) "les anthracites, 2) les houilles grasses et fortes ou dures, 3) les houilles grasses maréchales, 4) les houilles grasses à longue flamme, 5) les houilles sèches à longue flamme".

There has hitherto been no uniform classification of coal on an international or even European scale. It also happens that in particular countries every major coalfield has its own specific classification. Thus, in the U.S.S.R., for instance, there are distinctive classifications for the Kuznetsk and the Donetz coalfields. Both these classifications are based on the following parameters: volatile constituents, thickness of plastic layer and contraction of coal during carbonisation.

American classification by rank is based on the following parameters: fixed carbon, calorific value, agglomerating faculty and weathering properties.

British classification by rank is based on the following parameters: volatile matter content and caking property (determined by the Gray-King method). It introduces the following Code Numbers for coal ranks: 100 (for anthracite), 200, 300, 400, 400a and so on — up to 900.

French classification by rank is based on the volatile matter content and free swelling number, the latter being actually a qualitative method of determining the caking properties of coal.

Dutch, Belgian, and German (Ruhr) classifications provide for all known coal ranks, from flame, gas, coking and lean coals to anthracite. Coking coals are frequently still described in these classifications as fat coals (charbon gras, Fettkohle), and, moreover, the group of coking coals provides for such ranks as fat coals (gras), ¾-fat (¾ gras), semi-fat (demi-gras) and ¼-fat (¼ gras).

It is apparent from the instances quoted that there are still considerable divergencies in the coal classifications hitherto published. This is due to the fact that these specifications do not lay down in a sufficiently lucid manner the principle that coal ranks should be determined according to certain essential technological features, as volatile matter content, caking property, expansion pressure, etc.

Attention is drawn to the fact that recently, on the initiative of the Economic Commission for Europe in Geneva (ECE/COAL), a special Coal Classification Working Party was set up in 1949 for the purpose of classifying coals. Over ten countries, including Poland, participate in the work.

Classification by rank

Classification by rank should cover an adequate number of coal ranks to make possible, without further difficulty, the allocation to its proper rank of any variety of coal examined though, to prevent confusion, the number of ranks should not be unduly numerous.

Classification by rank should be contingent on certain most essential features of coal so as to render it possible to determine, in the least complicated manner, the characteristics and the suitability of coal for one purpose or another. The methods for determining a particular feature of coal should be simple to operate, involve a minimum of time, reveal a sufficient degree of accuracy and yield reproducible results.

Opinions have on occasions been expressed that the number of classification parameters should amount to two, and certainly to not more than three. It is obvious that an unduly arbitrary increase of the number of parameters is not expedient, yet it must be born in mind that the number of classification parameters cannot be too small, in view of the varying uses of coal and its complicated structure. This contention is substantiated by G. Stadnikoff who refers to it in his book "The origin of coal and oil" as follows:

"Classifications at present available are based on an inadequate number of properties of coal and cannot therefore lead to a lucid appreciation. Certain properties, such as boiling point, specific gravity, index of refraction and a number of chemical properties are already being taken into consideration for the accurate determination of comparatively simple substances".

"Yet, in order to define the characteristics of such a complex conglomerate of substances as comprise coal, we rely at times on a much smaller number of properties."

G. Stadnikoff expresses the following opinion on the necessity for classifying coal:

"The inadequacy of existing classifications is generally appreciated, and this appreciation is reflected in the fact that the problem of classification is provided for in the programmes of all international congresses concerned with fuel. It is not merely the coal investigators who are interested in the satisfactory solution of this problem, but also industrial circles."

Stadnikoff goes on to say:

"The importance of reliable coal classification was raised at the Second Coal Congress (1928) by C.A. Fieldner who stated that: "A uniform classification would be a great aid to better understanding between seller and buyer, and should result in directing each class into the use for which it is most suitable".

"C.A. Fieldner pointed out, moreover, that the initial step to be taken is the compilation of a scientific coal classification, while a practical classification should

be contingent on and, as far as possible, in agreement with the scientific classification. This provides the reason for the efforts of various investigators concerning the compilation of a rational classification."

Polish coal classification by rank is based on the classification of natural solid fuels compiled by T. Laskowski and B. Roga. This classification introduces the following new elements:

a) it divides a whole range of natural solid fuels into 5 groups according to their degree of coalification (**0**, **1**, **2**, **3** and **4**);

b) it introduces a two-figure code number for fuel ranks, the first figure denoting allocation to the corresponding group and the second — the position of the fuel within this group:

wood . . . . . 01—09
peat . . . . . 11—19
lignite . . . . . 21—29
coal . . . . . 31—38
anthracitic coal . . . 41—42

c) it introduces a segregation of hard coals, including anthracites, into 10 ranks;

d) it introduces for coal ranks certain new terms not hitherto provided for: gas-coking coal, ortho-coking, meta-coking and semi-coking coal.

B. Roga and T. Laskowski have, under instructions from the Polish Standards Committee and on the basis of classification of natural solid fuels, drawn up a Polish standard specification for classifying coal by rank (PN/G — 97002) which provides for the following classification parameters:

1. volatile matter.
2. caking property (according to the Roga method) and
3. expansion pressure (according to the Korten Damm method) (Table III)

TABLE III
COAL CLASSIFICATION BY RANK

Coal rank		General features	Instances of use
Designation	Code number		
Flame Coal	31	High volatile matter content Lack of caking properties Long and bright flame	Industrial furnaces, domestic fuel, gas producers
Gas-flame coal	32	High volatile matter content Low or moderate caking property Lack of expansion pressure High yield of low-temperature tar	Industrial furnaces, domestic fuel, low-temperature carbonisation, hydrogenation
Gas coal	33	High volatile matter content High caking properties Limited expansion pressure High gas and tar yield	Gas industry, coke oven industry, (blending), low-temperature carbonisation (indirectly heated ovens)
Gas-coking coal	34	High volatile matter content Extremely high caking properties Moderate expansion pressure High gas and tar yield	Gas and coke oven industries
Ortho-coking coal	35	A coking coal with moderate volatile matter content High caking properties High expansion pressure	Metallurgical coke production
Meta-coking coal	36	A coking coal with a lower volatile matter content Moderate caking properties High expansion pressure	Foundry coke production
Semi-coking coal	37	Low volatile matter content Low caking properties Low expansion pressure	Coke industry (for blending, as "leaning" component)
Lean coal	38	Low volatile matter content Lack of caking properties	Steam coal, industrial furnaces, domestic fuel, gas producers
Anthracitic coal	41	Low volatile matter content Lack of caking properties	Special fuel
Anthracite	42	Extremely low volatile matter content Lack of caking properties	Special fuel

The Polish classification allows, moreover, for Saposhnikoff's plastometric parameters, namely:

4. thickness of plastic layer "y" and
5. contraction "x".

This has been done with the object of determining further properties of coal, equally important for defining its suitability for various coal utilisation purposes.

The Polish classification simplifies the determination and allocation of coal to one rank or another. This applies to both indigenous and foreign coals.

Classification by Grade

The object of Polish Standard Specification PN/G-97003 is to classify by grade Polish coals, according to their degree of cleanness and suitability for in-

KOHLE

CHARBON

COAL

WĘGIEL

CARBONE

CARBÓN

УГОЛЬ

CENTRALA ZBYTU WĘGLA (CENTRAL COAL SALES OFFICE)
NATIONAL ENTERPRISE (INDEPENDENT LIABILITY)
KOŚCIUSZKI 30, KATOWICE • Telegrams: Węglokoks-Katowice • Phones: 36941 to 36945

Warsaw Office: Ordynacka 11, Warsaw — Telegrams: WĘGLOKOKS, Warsaw — Phones: 85289 and 85889
Shipping Offices: Batorego 25, Gdańsk-Wrzeszcz — Telegrams: POLCOAL, Gdańsk — Phones: 41141 to 41147
Wały Bolesława Chrobrego 1, Szczecin — Telegrams: POLCOAL, Szczecin — Phone: 3295

REPRESENTATIVES ABROAD:

AUSTRIA: Hessgasse 1, Vienna — Telegrams: WĘGLOKOKS, Vienna — Phone: U 29514
FRANCE: 23 rue Taitbout, Paris 9 — Telegrams: WĘGLOKOKS, Paris — Phone: Paris TAI 4446
SWEDEN: 22, Regeringsgatan, Stockholm — Telegrams: Koldelegat, Stockholm — Phone: 216809

EXPORTS: to various countries in Europe and overseas: coal and coke — for industrial, transport and domestic fuel purposes. Wide range of grades and qualities of coal and coke — clean, uniformly sorted by modern equipment. Grain size to suit particular requirements. Favourable terms

dustrial and commercial purposes. Classification of gas and coking coals by grade is based on the classification by rank, allowance being made, moreover, for the degree of cleanness, that is to say — for mineral constituents (ash).

The classification of steam coals is also contingent on classification by rank, introducing calorific value as a further parameter for the division into sub-classes of the lower coal ranks. The classification of steam coals by grade also provides for the degree of cleanness (ash content).

Classification by Size

Run-of-mine coal is seldom supplied to the consumer without being sorted, since the consumer calls for not only a definite rank of coal of an appropriate standard of cleanness, but also for coal of a definite granulation. Collieries throughout the world are, therefore, screening the coal, thus obtaining a whole range of sizes. Polish Standard Specification PN/G-97001 provides for the following basic size nomenclature:

Basic nomenclature of sizes for coal

Sizes				Grain size (mm)
Designation			Symbol	
Classification	Coarse	Large lumps	Ks	over 125
		Cobbles	Ko	126—63
		Nuts, French	O I	80—40
		Nuts, stove	O II	50—25
	Medium	Peas I	GK I	31.5—16
		Peas II	GK II	20—8
		Grains	Gs	10—5
	Fine	Smalls	M	6.3—0
		Dust	P	1—0

Detailed specification of coal properties

Consumers are invariably interested in the numeric values of those technological features which are decisive for the qualification of coal for one rank or another, or for allocation to any particular grade. They frequently want to know the numeric values of such factors as volatile matter content, caking property (agglutinability), swelling pressure, plastometric parameters and calorific value.

They are, moreover, interested in the ash and moisture content. It is also useful, in certain instances, to be informed, in view of the specific features of the technical equipment or of the utilisation process, of such characteristics of the fuel, as for instance — sulphur and, though rarely, phosphorus content and other features. It is frequently important to know the ash fusion temperature.

The requirements of individual consumers vary, as also do the individual characteristics of coal adopted by world trade.

The publication entitled "A.S.T.M. Standards of Coal and Coke" contains the following example of the commercial characteristics of a certain grade of coal:

(62—146) 4 × 2 in., 132 - A8 - F24 - S1.6

These figures should be decoded as follows, the figures in parentheses denoting the coal rank:

a) the first figure — **62** stands for fixed carbon and corresponds to a figure of 100 less volatile matter (estimated on dry coal, free from mineral matter);

b) the second figure in parentheses — **146** indicates that the combustion heat amounts to 14,600 B.Th.U (estimated on air-dried, ash-free coal);

c) the symbol **4 × 2** in. indicates the size of coal;

d) the figure **132** indicates that the calorific value of this particular coal amounts to 13,200 B.Th.U;

e) the symbol **A8** implies that the coal contains less than 8% (6.1—8%) ash;

f) the symbol **F24** refers to the ash fusion temperature — namely from 2400 to 2590°F and, finally,

g) the symbol **S1.6** — to the sulphur content, namely from 1.4 to 1.6%.

T. Laskowski and B. Roga have suggested the adoption of the following formula, covering 10 of the most important features of coal, for estimating the industrial and commercial value of coal:

R	a	b	c	d	S
	e	f	g	h	

The Symbol R in the above formula should be replaced by a Code Number denoting the coal rank (say **35** ortho-coking coal). The top indices (**a-d**) denote the features of coal most essential from the point of chemical processing, viz.:

a) volatile matter content,
b) caking property (according to the Roga method),
c) swelling pressure (Korten-Damm method) and
d) low-temperature tar yield.

The bottom indices (**e-h**) provide for other coal properties of particular industrial and commercial value, viz.:

e) combustion heat,
f) moisture content,
g) ash content,
h) ash fusion temperature.

The last column **S** represents the grain size.

It must be emphasised that, in general practice, the acceptance standards do not make provision for all of these features of coal. Data concerning such features as ash fusion or low-temperature tar yield is not required except in certain special instances, and supplementary provision may be made for them in individual contracts.

Both the coal mining industry and the consumers have for long felt the need of standards for classifying coal. There is no doubt that the new Polish classification of coal by rank will contribute largely towards a more rational economy in coal — that most important source of heat and one of the most valuable raw materials for chemical purposes.

Dr. B. Roga,
Professor, Wrocław Polytechnicum

PRIMEVAL MINING CENTRES OF POLAND

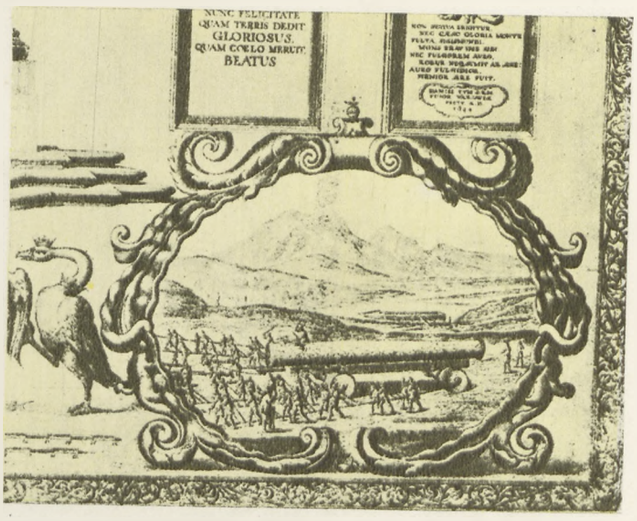
The beginnings of the mining industry in Poland reach far back into the twilight of past ages. Although recent scientific investigations have revealed the existence in various parts of Poland of remains of primeval mines — from the amber deposits on the Baltic coast to the dense system of ore mines in the foothills of the Carpathian mountains — it is still not possible to say which of these mines are the oldest in Polish history.

The coat of arms and mining charter granted to the Silesian mining guild by Prince Jan of Opole in 1528

Was it the mines, known for over a thousand years, of Lower Silesia, in the valleys of the Bobr and Kaczawa rivers? Or was it the lead and silver mines of Olkusz and Bytom which, according to tradition, were in operation in the VIII century? Or perhaps the large salt mines of Bochnia and Wieliczka still in operation today? Or possibly one of the numerous ore mining and smelting centres extending between the Mała Panew river and Upper Silesia, the history of which reaches far back into the mists of antiquity? The answer has not yet been found.

Early historical documents point to the almost concurrent existence of the Wieliczka salt mines and the lead and silver mines of Bytom, the earliest reference

Wincenty Rożdżeński, Polish iron ore miner, who described and praised the mining craft in a poem written in the 17th century



King Sigismund's Column — famous landmark of the city of Warsaw. This contemporary engraving, here reproduced, shows the 20-ton marble column on its way, in 1644, from the Chęciny quarries to Warsaw — a distance of 129 miles. (National Museum Collection in Warsaw)

CHEMICAL SEMI-PRODUCTS
(II)

An article published in No. 9 of our magazine dealt with chemical products and semi-products exported by "CIECH" Ltd., General Import and Export Agency for Chemicals (Jasna 10, Warsaw) and used by the dyestuff, paint and varnish, rubber, wood, paper, pharmaceutical and textile industries.

In amplification of that article, there appears herewith a list of chemicals which are used by the metallurgical, glass, electrical engineering, match and food-processing industries and which are available for export.

Chemicals used in the metallurgical and glass industries

The metallurgical industry — the most powerful of all industries, uses a wide range of chemicals, together with large quantities of carbon electrodes and linings, cathode blocks and such substances as anode compounds used in the production of aluminium.

The following list includes the more important chemicals, electrodes and other carbon products exported by CIECH for the use of this industry:

Antichlor (Sodium Thiosulphate) — used in electroplating baths for the deposition of gold and silver.

Arsenic — used in the manufacture of enamel, for galvanic baths and, in the glass industry, in the production of lead crystal glass.

Sodium Bichromate — used in silver and copper deposition processes.

Sodium Chlorate — used in the glass industry (lead crystal glass manufacture).

Zinc Chloride — used in the glass industry (glass decoration).

Calcium Carbide — used in the manufacture of iron and steel, metallic magnesium, and as a reducing agent.

Potassium Carbonate — used in glass manufacture.

Ammonium Chloride — used in galvanising and tin-plating iron, brass and copper.

Zinc Sulphate — used for galvanising.

Soda Ash — used in glass manufacture; for desulphurising iron; in the production of ores of such metals as copper and silver.

Carbon products: a) electrodes, b) cathode blocks, c) carbon linings, d) other products — used in steel and alloy steel manufacture, as well as in the manufacture of iron alloys containing silicon, chromium, manganese, vanadium, tungsten and molybdenum; in the production of electro-corundum, brass, zinc, etc.; for lining electrolysis furnaces for the production of aluminium and beryllium; in the manufacture of acid-resisting carbon bricks; for welding, jointing and sealing; for case-hardening of steel.

Chemicals used in the electrical accessories industry

The electrical accessories industry, contingent on all dielectric substances, uses a variety of chemicals for the production of miscellaneous compounds. It uses, moreover, large quantities of minor carbon products, element carbons, zinc compounds for the manufacture of cells, dry and wet cell batteries. The more important basic chemicals and carbon products used by this industry and exported by "CIECH" are as follows:

Sodium Bichromate — for elements and galvanic pastes.

Sodium Chlorate — as a component of electrolytes.

Zinc Chloride — in the manufacture of Leclanché cells.

Lithopone — in the preparation of cable compound.

Ammonium Chloride — in the manufacture of primary cells.

Zinc Sulphate — for galvanising processes.

Bicarbonate of Soda — as a component of electrolytes in gold and platinum plating.

Soda Ash — in dry cell manufacture.

Montan Wax — in cable manufacture.

Battery carbons — for the manufacture of miscellaneous cells.

Miscellaneous carbon products — such as current collectors, unions, heating rods, sleeves, brushes, etc.

Chemicals used in the match industry

A variety of chemicals are required for the manufacture of matches and match boxes — for the preparation of combustible mixtures for coating the striking surfaces on match boxes, for the preparation of the oxidising agent for match tips, as well as for impregnating the match splints. The oxidising and combustible mixtures vary according to the technical formulae used and to raw material calculation. The list quoted below includes the more important of our chemicals which, as a result of their high quality standard and careful packing, enjoy a high reputation in world markets and fully meet the requirements of match manufacturers.

Antichlor (Sodium Thiosulphate) — used in the production of trisulphide of lead for phosphorus-free matches.

Sodium Bichromate — a component of match tips.

Sodium Chlorate — a component of match tips.

Zinc oxide — a component of the oxidising compound.

Bone and hide glue — used for dressing match splints.

Chemicals used in the food-processing industry

The food processing industry includes, among other processes, preservation, curing and baking. Chemicals used for these purposes must possess a high quality standard and also call for durable and airtight packing — requirements fully complied with by the chemicals exported by "CIECH". The leading chemicals offered to the food processing industry are:

Sodium Nitrite — for curing meat.

Formaldehyde — as a preserving medium.

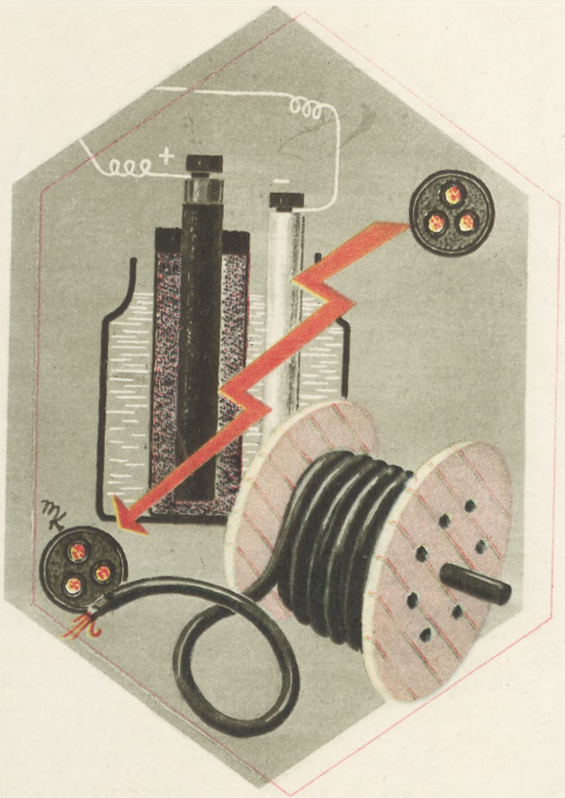
Bicarbonate of Soda — as a preserving medium and as baking powder.

Ammonium Bicarbonate — as baking powder.

Potassium Nitrate — for curing meat.

It is desired to add that publication is imminent of a comprehensive catalogue of Polish export chemicals which will inform customers concerning the full range of products of the Polish chemical industry.

Chemicals for the metallurgical industry



Chemicals for the electrical accessories industry

Chemicals for the glass industry

Chemicals for the food processing industry

"FOTON" SENSITISED PHOTOGRAPHIC MATERIALS

The photo-chemical industry dates back, in Poland, to the 90's of the last century. The export of certain sensitised photographic materials was carried on even during the inter-war period.

Notable progress in this branch of manufacture has been made since 1946, when all production enterprises were centralised and specialisation introduced. Factories devastated during the war have been reconstructed and rehabilitated and modern equipment installed, resulting in both quantitative increase and qualitative improvement of production.

Skilled specialists, using the latest experimental methods, and with up-to-date laboratories at their disposal, are engaged on steady improvement of "FOTON" sensitised photographic materials. Their efforts have already led to certain positive results as, for instance, in sensitising pigments, in perfecting emulsions and in other achievements.

The following "FOTON" photographic materials are now available for export:

1. 35 mm positive film-strip
2. cut-sheet X-ray film
3. photographic papers.

The standards of spectral and colour sensitivity, as well as graduation, comply with international specifications.

I. "FOTON" 35 mm positive film-strip

This film-strip gives an exceedingly sharp positive image with a wide range of details in shadows and lighting effects. Its remarkable maximum density makes possible the achievement of rich tones.

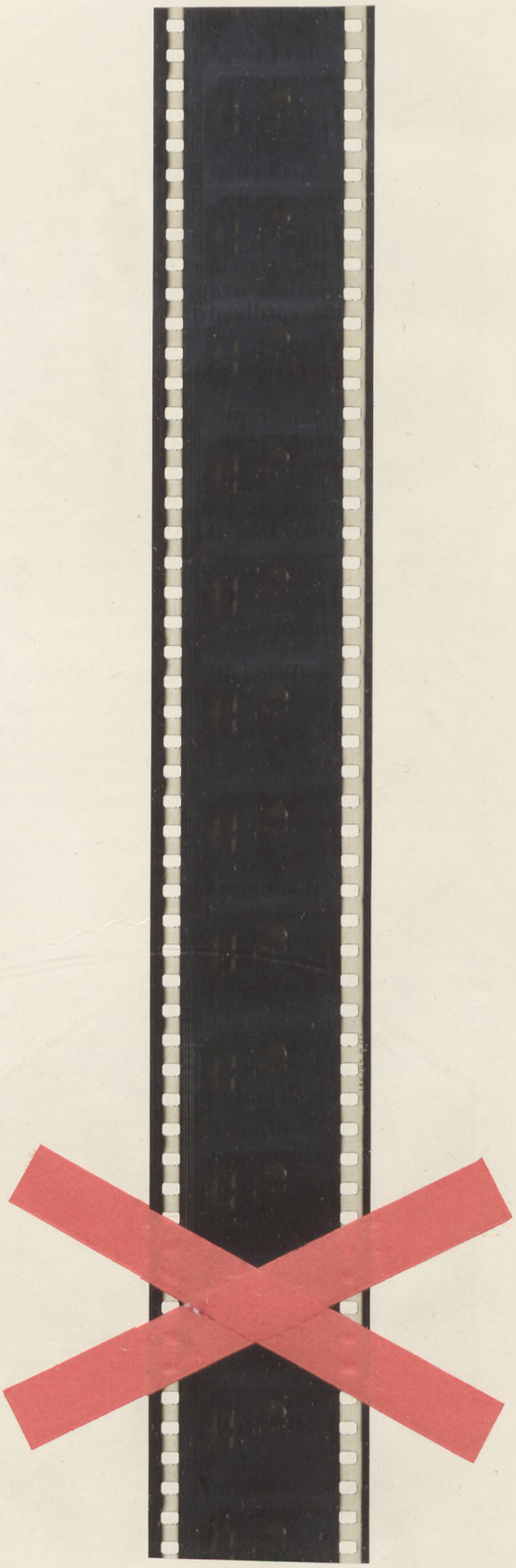
The emulsion is, in the wet state, highly resistant to heat. The temperature at which the emulsion begins to melt or to creep amounts to approximately 50°C (122°F).

Processing is by the usual methods and is not contingent on any special requirements.

35 mm positive film-strip is wound on international standard cores and backed with opaque paper. Packing is in metal boxes, sealed with rubberised tape to protect the film from moisture. Each box contains approximately 300 m (1000 ft) of film-strip.

II. "FOTON" cut-sheet X-ray films

These films are made on a high-grade non-flammable triacetate base which does not distort in the developing and fixing baths and maintains its high degree of stiffness.



The emulsion on these films produces high contrasts, enabling perfect discrimination of such details as are of importance for diagnostic purposes.

"FOTON" cut-sheet X-ray film is made in the following sizes:

9 × 12 cm
13 × 18 cm
18 × 24 cm
24 × 30 cm
30 × 40 cm
35.6 × 35.6 cm
35.6 × 43.2 cm

Careful attention is paid to packing. A protective layer of black paper is inserted between every 2 film sheets which are then wrapped in bulk in black paper and placed in a cardboard box.

III. "FOTON" photographic papers

"FOTON" photographic papers satisfy all the requirements of amateur, professional, press, scientific and art photography.

They are divided, according to the purpose for which they are intended, into three main groups:

Bromide (Symbol B)
Chloride B (Symbol CB)
Chloride (Symbol C).

"FOTON" papers are graduated, according to group, into 5 grades, expressed in degrees:

Grades:	very vigorous	— 26°
	vigorous	— 34°
	normal	— 42°
	special	— 50°
	soft	— 58°

"FOTON" photographic papers are extremely simple in processing and, though optimum results are obtained by relying on the special formulae enclosed with each packet, are not affected by considerable divergencies in development conditions.

The best results are obtained by exposing the prints to an extent which enables the image to be developed to the requisite strength and degree of contrasts within a strictly definite time amounting to:

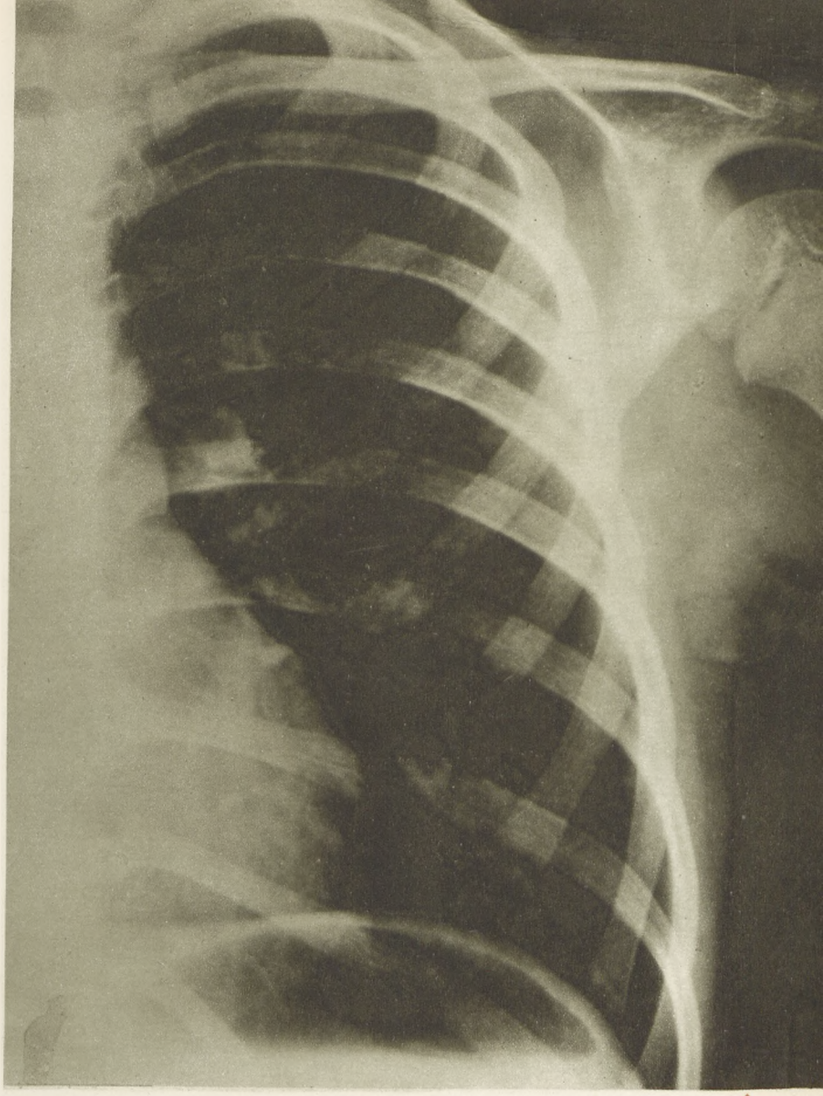
3 minutes for "Bromide"
2 minutes for "Chloride B"
1½ minutes for "Chloride".

"FOTON" photographic papers tolerate drying in modern drying machines which, by heat treatment, imparts a high gloss.

It is recommended that matt papers be dried in a normal temperature or in drying machines heated to a maximum of 25°C (77°F).

Bromide papers

These papers, highly sensitive and recommended for enlargements, produce rich black prints if developed in normal conditions, or of blue-black tone if the developer is intensified. The black may be turned to delightful sepia by subsequent toning with sodium sulphide, after prior bleaching.



Reproduction of an X-ray photograph made on Polish "FOTON" cut-sheet film

These papers are supplied in 4 grades — vigorous, normal, special and soft. They constitute particularly valuable material for amateur, art, press and technical photography.

Chloride B papers

These papers, carrying a chlorobromide emulsion, are of average sensitivity and are intended for making prints by contact. They produce, when using metol-hydroquinone as a developing agent, black to reddish brown tones.

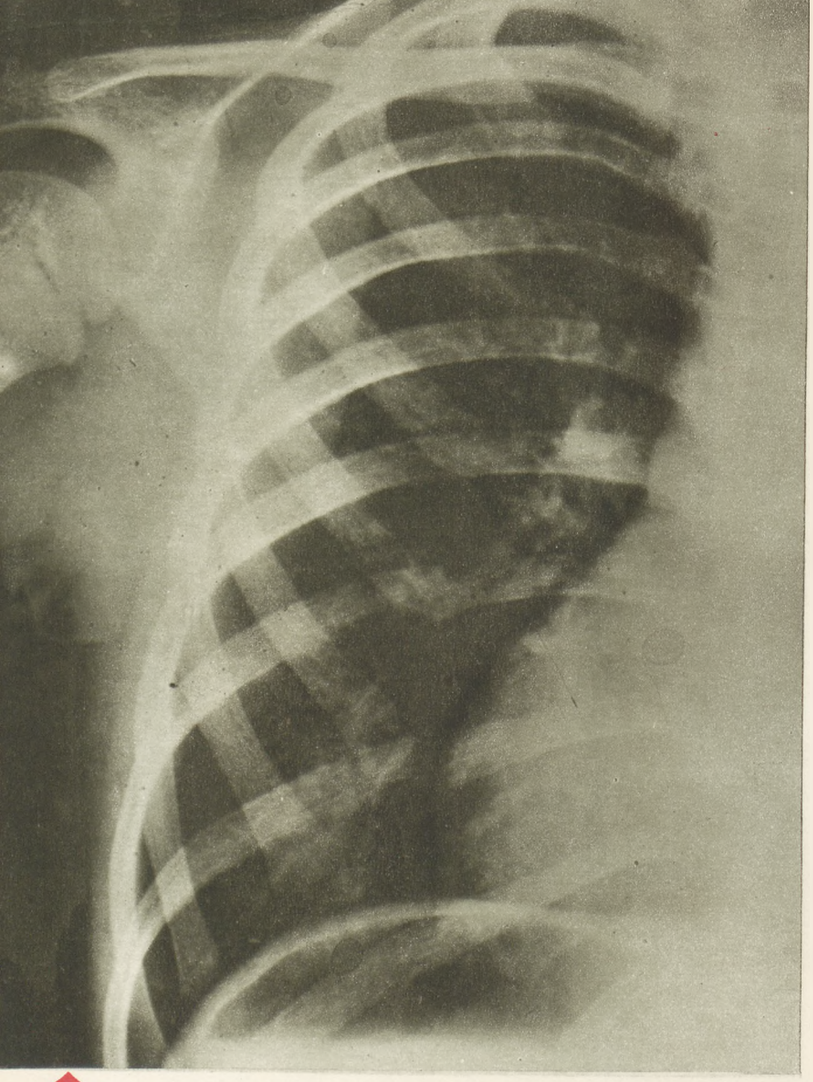
Rich brown tones may be obtained by relative over-exposure combined with restrained hydroquinone-glycin developer.

Made in 3 grades — normal, special and soft, these papers are intended primarily for amateur work, while the second and third grades are eminently suitable for portraiture.

Chloride papers

These are low sensitivity papers intended for making prints by contact from amateur negatives. They produce blue-black or brownish-black tones, harmonising with the base on which they are made.

They are supplied in 5 grades, making it possible to obtain good prints, alike from thin negatives with



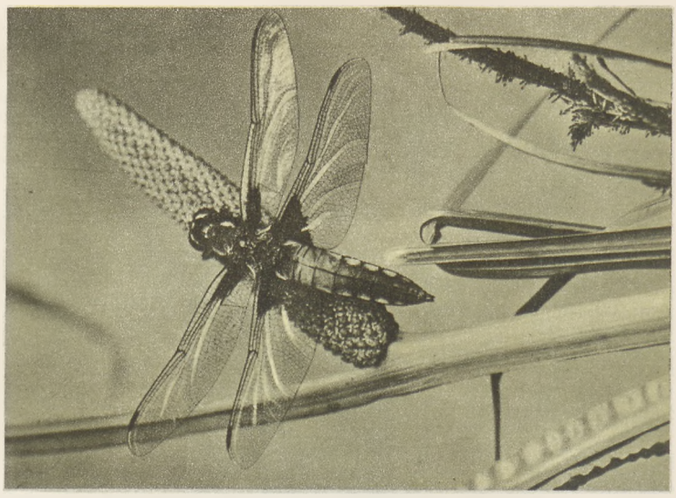
Reproduction of an X-ray photograph made on Polish "FOTON" cut-sheet film

low contrasts and from dense negatives. Reproduction of details and tones of the image are uniform throughout all grades.

"FOTON" photographic papers are available in a wide range of sizes and are conveniently packed, for both professional and amateur use. Proper storage of "FOTON" sensitised photographic materials lengthens their life.

It is recommended that they be kept in a temperature of 10—15°C (50—59°F), at a relative humidity of 45—55%, in places not exposed to the direct influence of sun, daylight, open fires or heaters. The presence in air of gas, hydrogen sulphide or ammonia has a deleterious effect on the materials.

The sole exporter of Polish "FOTON" sensitised photographic materials is "VARIMEX" Ltd., Polish Company for Foreign Trade, 50/52, Wilcza, Warsaw. Telegrams — "Varimex".



Photographs reproduced from the catalogue of Polish "FOTON" photographic papers

THE EXPORT OF SULPHATE WOOD-PULP PRODUCTS OF THE POLISH PAPER INDUSTRY

Chemical pulping of wood by the sulphate method is rapidly becoming the prevalent process in paper cellulose production.

This is due to an increasing improvement in the technique of processing such raw materials as pine and straw — materials available in quantities far in excess of world resources of spruce, poplar and other timber genera.

The following factors, to be more explicit, influence the increase in sulphate pulp production:

1) an infinitely more abundant raw material base, that is to say — the preponderance of pine over fir;
2) the regenerative process of sulphate wood-pulp production (production cost economics, by-products, heat source);
3) the sole means of processing annual plants — that is — cereal straws, representing, as compared with slowly growing timber, a new, exceedingly valuable and theoretically inexhaustible raw material source;
4) the high quality of sulphate wood-pulp, with long and firm fibre, making it suitable for the manufacture of the strongest kinds of paper.

The production merits of the sulphate cellulose referred to above have caused this particular processing method to be particularly fostered in Poland — a pine and cereal country, with the result that a planned extension of the relevant cellulose and paper combines has taken place. The successes already achieved, together with the sustained improvement in production processes, have placed Poland among the world's leading producers of sulphate papers. The raw material base has not only made possible the development and technical cultivation of this branch of the paper industry, but has also consolidated Poland's position as a world supplier of sulphate papers which find a ready sale in all countries throughout the world.

Their strength is the notable feature of papers made from sulphate cellulose, for example dielectric papers for cables and transformers, sausage casing paper and, primarily, wrapping and sacking paper.

Kraft wrapping papers, in a variety of finishes, viz.: machine-glazed, ribbed, supercalendered on one side, crêped, etc. are made in substances of from 40 gm/m². They are outstanding for high tensile strength and folding endurance. They are the strongest variety of all cellulose wrapping papers and are extensively used by factories for general packing of merchandise for long transport. They are, coated with asphalt, strongly resistant to moisture and particularly suitable for goods shipped by sea. The paper is supplied in reels or sheets of varying size. The sheets can be reamed in accordance with customers' instructions, the reams being wrapped in cellulose paper. Protective battening and steel-banding of bales complies with international practice.

Kraft sack paper, intended for sack manufacture, is mass-produced for the use of the food, chemical and mineral industries. The production of this kind of paper is, in view of the purpose for which it is intended, subject to special technical control to meet any specific customers' wishes which are, according to the product the sacks are to contain, most varied and subject to various technical requirements. Provision must be made even during the manufacture of sack paper for all exigencies, according to the varying purposes for which they are intended, which

the ready sacks have to meet. In some cases an exceptional bursting strength is required, in others — a high rate of air penetration, in others again — a high tensile strength. Polish sack paper can be made to comply with optimum technical conditions laid down by customers. Laboratory tests prove that this kind of paper reveals, in the case of the most prevalent substance of 70—90 gm/m², the following features:

tensile strength	— machine direction	— 9500 m
		average 7250 m.
	— across machine direction	— 5000 m
elongation	— machine direction	— 2.5%
		average 4.25%
	— across machine direction	— 6%
bursting strength	—	average 3.24 kg/cm²
tearing strength	— machine direction	— 146 gm
		average 173 gm
	— across machine direction	— 200 gm
air penetration	—	average 260 ml/min.
folding endurance	— machine direction	— 2500
		average 2250
	— across machine direction	— 2000

These data prove the quality, strength and resistance of Polish sack paper and enable customers to make, in their orders, the necessary technical stipulations according to the purpose for which the paper is required.

Polish sack papers come up to the standard of the highest quality papers produced anywhere in the world. The increasing number of customers in various countries proves that these papers hold an established reputation in export markets, while Poland's extensive experience in export matters enables her to execute every order individually, strictly adhering to technical requirements specified.

Sack paper is made in substances most generally used for the manufacture of kraft paper sacks (70—90 gm/m²) and supplied (in view of the fact that sacks are machine-processed) almost invariably in reels in a variety of widths.

Modern production of kraft paper sacks is performed in high-speed automatic machines, all operations being fully mechanised. This manufacturing method is the only means of coping with the substantial market demand. Automatic technical control, expert supervision of manufacturing processes and the high quality of paper used are responsible for the fact that Polish kraft paper sacks are renowned in world markets for many years. This particular export section requires special care and technical equipment because there are considerable divergences in details of orders as affecting characteristics of paper adapted to the products to be packed, size of sacks and method of manufacture. Poland produces sacks of all types in a range of sizes in general use: open and with valves, sewn or glued, single or multiwall. Sacks can, according to customer's request, be provided with bottom inserts for reinforcement, special protective flaps or collars, side folds for light-weight materials of greater volume,

the ready sacks have to meet. In some cases an exceptional bursting strength is required, in others — a high rate of air penetration, in others again — a high tensile strength. Polish sack paper can be made to comply with optimum technical conditions laid down by customers. Laboratory tests prove that this kind of paper reveals, in the case of the most prevalent substance of 70—90 gm/m², the following features:

tensile strength	— machine direction	— 9500 m
		average 7250 m.
	— across machine direction	— 5000 m
elongation	— machine direction	— 2.5%
		average 4.25%
	— across machine direction	— 6%
bursting strength	—	average 3.24 kg/cm²
tearing strength	— machine direction	— 146 gm
		average 173 gm
	— across machine direction	— 200 gm
air penetration	—	average 260 ml/min.
folding endurance	— machine direction	— 2500
		average 2250
	— across machine direction	— 2000

These data prove the quality, strength and resistance of Polish sack paper and enable customers to make, in their orders, the necessary technical stipulations according to the purpose for which the paper is required.

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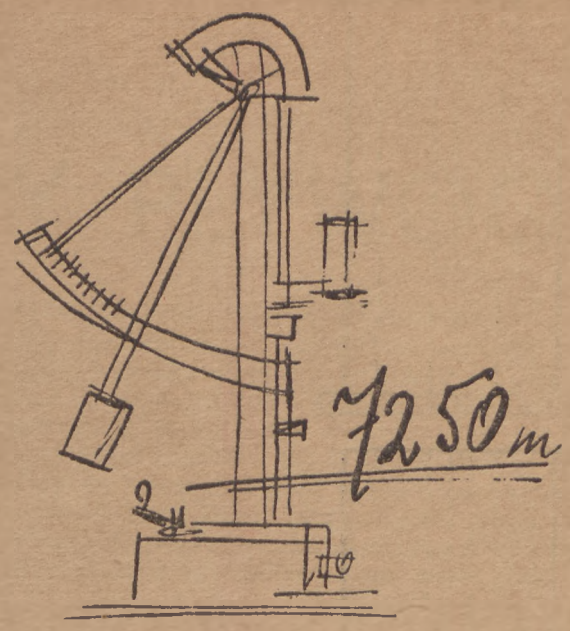
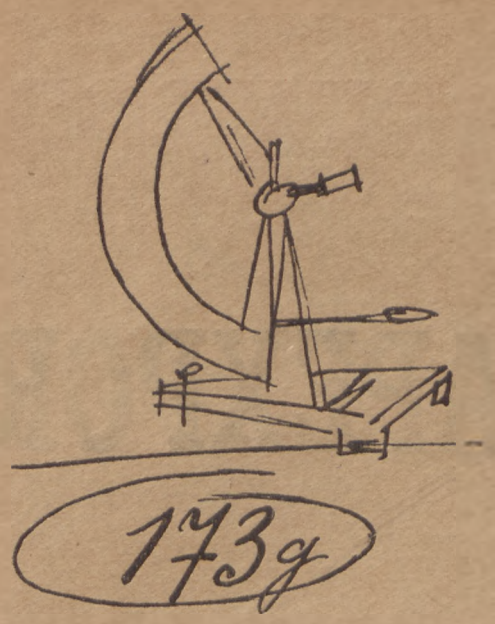
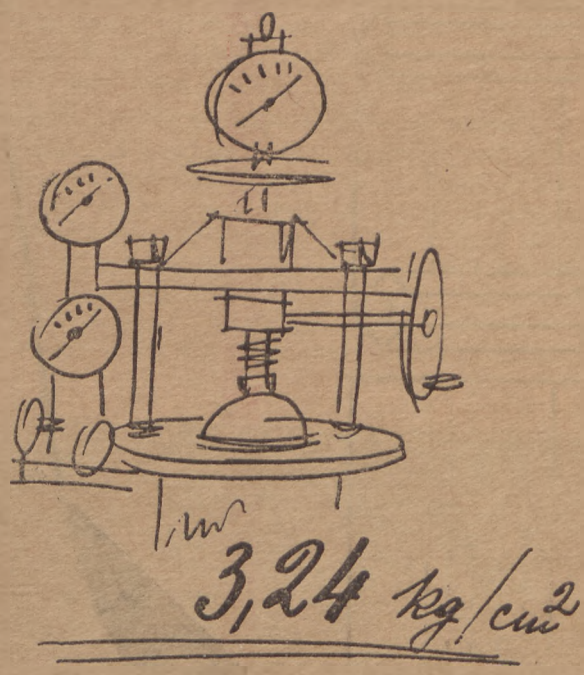
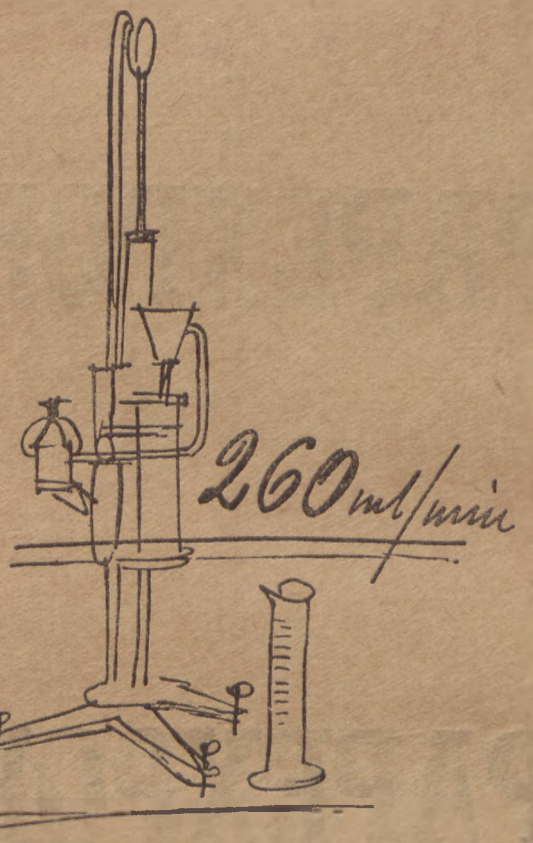
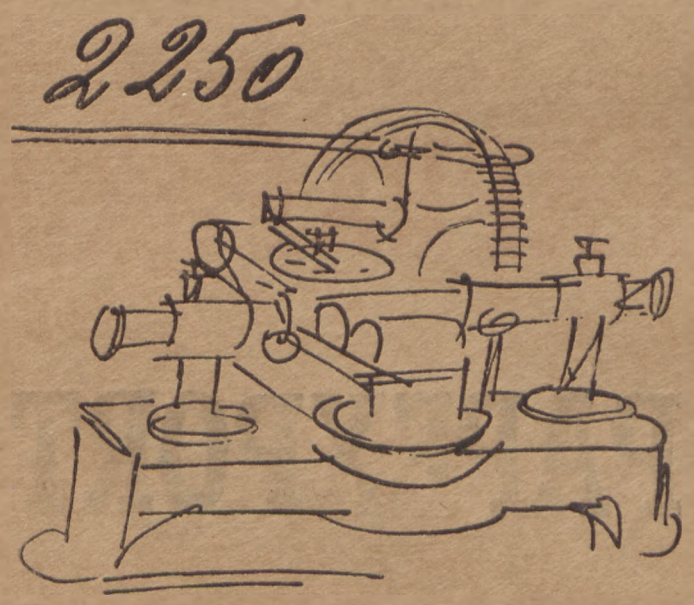
Orders for kraft wrapping paper, sack paper and sacks should be addressed to the sole exporters — "PAPEXPORT", 50, Wspólna, Warsaw.











Papexport

KRAFT WRAPPING PAPERS AND SACKS

EXPORTED BY

·PAPEXPORT·

Wspólna 30, Warsaw • Telegrams: PAPEXPORT — WARSAW

EXPORT-QUALITY PLYWOOD

Poland has for some dozens of years figured prominently as one of the most important exporters of plywood from both softwood and hardwood timber.

General technical specifications stipulate that plywood shall consist of an odd number of veneers of either uniform or varying thickness. Plywood consisting of veneers of irregular thickness must be so produced that the veneer forming the core of the board divides it into symmetrical halves. It is customary to specify in the contract whether the centre of the boards is to be of hardwood or softwood. Detailed classification is given below, together with consideration of the various kinds and export grades of plywood.

Wet glued pine plywood

Wet glued pine plywood is supplied in boards measuring

205×125 cm
155×125 cm

in thicknesses of 4 cm and over, having a tolerance of approximately 40% in the cross grain, in grades BB, BBB, BBBB.

Grade BB: Small knots, not exceeding four on one surface are admissible on both sides of the board. Blue sapstain, streaks or shakes are not admissible. One rough streak allowed.

Grade BBB: Blue sapstain and small knots not exceeding 10 mm in diameter and from 5 to 8 in number on one surface are admissible on both sides of the board. Minor rough streaks admissible.

Grade BBBB: Small holes or shakes not exceeding 10 mm in diameter admissible. Knots, numbering from 8 to 12 on each surface, as well as blue sapstain and streaks are admissible.

Grade BB is sanded on both sides, while grades BBB and BBBB are sanded on the face side only.

Dry glued pine plywood

Dry glued pine plywood is supplied in boards measuring

213×125 cm.
210×122 cm.
204×120 cm.
204×155 cm.
205×125 cm.

in thicknesses of 4 mm and over,

with a tolerance in the cross grain of approximately 15%, in grades B, BB, BBB, the class standards being as follows:

Grade B — Face Surface. Imperfections admissible:

streaks of divergent colour along the edges, but not more than 4 per sq. metre. Sound knots, embedded, of up to 5 mm diameter, but not more than 4 per sq. metre of surface.

Back surface. Imperfections admissible:

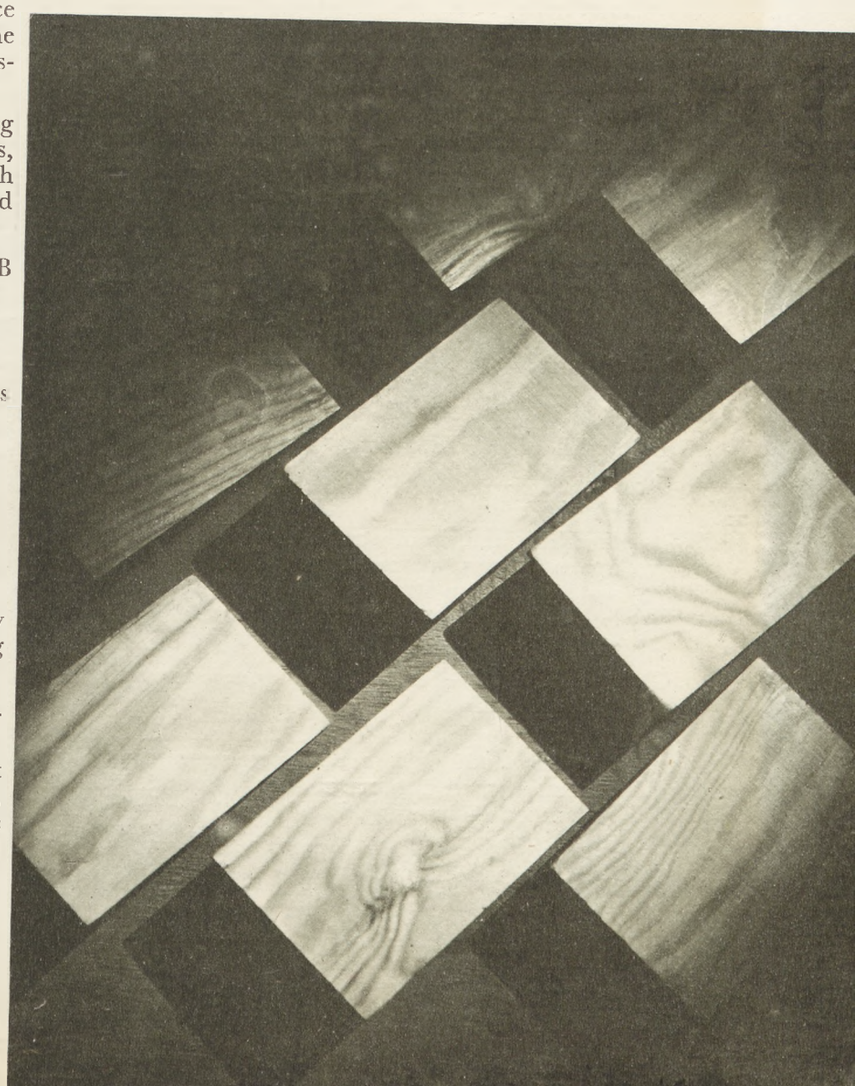
blue sapstain on not more than one-tenth of the surface, streaks of divergent colour on not more than one-fifth of the surface. Sound knots, embedded, of up to 8 mm diameter, but not more than 6 in number. Black knots, firmly seated, of up to 5 mm diameter, but not exceeding 6 in number. Knot holes, plugged with wood, up to 10 mm diameter, but not exceeding 6 in number. Holes caused by insects — not more than 4.

Grade BB — Face surface. Imperfections admissible:

Moderate resinous stains; blue sapstains on not more than one-tenth of the surface; streaks divergent in colour on not more than one-fifth of the surface; sound knots, embedded, of up to 8 mm diameter, but not more than 6 in number; black knots firmly seated, of up to 5 mm diameter, but not more than 6 in number; knot holes plugged with wood, up to 10 mm diameter, but not more than 6 in number; holes caused by insects — not more than 4 along the edges.

Back surface. Imperfections admissible:

unlimited sapstains; blue sapstains on not more than one-quarter of the surface; streaks of divergent colour on not more than one-third of the surface; sound knots, embedded, of up to 12 mm diameter, not exceeding 6 in number; black knots, firmly seated, of up to 8 mm diameter, not exceeding 6 in number; knot holes, plugged with wood, of up to 15 mm diameter, not exceeding 6 in



number; shakes, repaired, 3 centimetres wide by 150 mm long, not exceeding 4 along the edges; knot holes, of up to 5 mm diameter, not exceeding 4 in number; overlaps along the edges, 5×150 mm, not exceeding 4 in number; major holes caused by insects — not exceeding 2 in number; nail holes — not exceeding 4 in number; resin pockets — not exceeding 2 in number.

Grade BBB — Face surface. Imperfections admissible:

unlimited sapstains; blue sapstains on not more than one-quarter of the surface, or streaks on not more than one-third of the surface; sound knots, embedded, of up to 12 mm diameter, not exceeding 6 in number; black knots, firmly seated, of up to 8 mm diameter, not exceeding 6 in number; knot holes, plugged with wood, of up to 15 mm diameter, not exceeding 6 in number; shakes, repaired, 3 mm wide by 150 mm long, not exceeding 4 in number; overlaps along the edges, 3×150 mm, not exceeding 4 in number; knot holes along the edges, of up to 5 mm diameter, not exceeding 4 in number; nail holes — 4; joints — 5 seams each, selected according to grain design.

Back surface. Imperfections admissible:
unlimited sapstains; blue sapstains on not more than one-third of the surface; other stains on not more than one-half of the surface; sound knots, embedded, of up to 10 mm diameter, not exceeding 6 in number; black knots, firmly seated, of up to 10 mm diameter, not exceeding 6 in number; knot holes, plugged with wood, of up to 15 mm diameter, unlimited; shakes, repaired, 5 mm wide by 150 mm diameter, not exceeding 6 in number; overlaps along the edges, 5 mm wide by 150 mm long, not exceeding 6 in number; knot holes, of up to 5 mm diameter, not exceeding 6 in number; major holes caused by insects — not exceeding 6 in number; nail holes — not exceeding 4 in number; joints — without limitation.

The number of knots and other holes referred to in the above specification apply per square metre of surface.

Grade B and BB plywood is sanded on both sides, while grade BBB is sanded on the face only.

The thickness of boards is determined prior to sanding and allows for a margin of 0.7 mm loss in sanding.

Dry glued alder plywood

Dry glued alder plywood is made in boards of 223×153 cm

in thicknesses of 4 mm and over, in grades B, BB, BBB, to the following standard specification:

Grade B — Face surface. Imperfections admissible:

limited number of sound, embedded knots, of up to 15 mm diameter; small dark knots, well seated, of up to 10 mm diameter, as well as minor holes caused by insects, small shakes, colour streaks and other minor defects.

Grade BB. — Face surface. Imperfections admissible:

greater number of sound, embedded knots, as well as small dark knots, loosely seated, major shakes, a small number of streaks formed by hard rot, minor holes caused by insects on one-third of the surface of the board, colour defects such as streaks, etc.

Grade BBB. — Face surface. Imperfections admissible:
greater number of dark knots, loosely seated; shakes, hard rot, excessive sanding of the top veneer, protuberances, cavities; weakness in cementing not admissible.

The back surface of grade B, BB and BBB boards is covered by veneer of inferior appearance to that used for the face ply. Grade B, BB and BBB alder plywood may contain mortised boards, the permissible percentage of such boards in individual batches being:

grade B — approximately 15%
grade BB — approximately 20%

whereas in the case of grade BBB, there is no limit to this percentage.

Grade B and BB plywood is sanded on both sides, while grade BBB is sanded on the face only.

The following tolerances are effective for softwood and hardwood boards:

Thickness:
for boards of from 4 to 10 mm. — 15%
for 12 and 15 mm boards — 1.6 mm max.
for 18 and 20 mm boards — 1.8 mm. max.

Length and width: 5 mm

Plywood angle: rectangular deflection — 3 mm per metre of edge.

The moisture content of plywood may not exceed 15%.

The cementing of plywood must be perfect and free from:

(a) ondulation of plies
(b) cleavage on corners and edges
(c) blisters
(d) tendency to cleave on bending of the board.

Plywood is despatched in packs, adapted to transport by sea or rail.

Packs of plywood intended for shipment contain numbers of boards as follows:

Size of boards, cm	Thickness of boards, mm								
	4	5	6	8	10	12	13	18	20
	No. of boards per pack								
225 × 153 or nearest	20	17	13	10	8	7	5	5	4
213 × 153 "	20	17	13	10	8	7	5	4	4
204 × 153 "	20	17	13	10	8	7	5	4	4
225 × 122 "	25	20	17	13	10	8	7	6	5
213 × 122 "	25	20	17	13	10	8	7	6	5
204 × 122 "	25	20	17	13	10	8	7	6	5
153 × 153 "	25	20	17	13	10	8	7	6	5
153 × 122 "	30	25	20	15	12	10	8	7	6

The edges of packs are protected by four battens. The surfaces of the outer boards are, moreover, protected by suitable materials to prevent damage. The packs are steel-banded, two bands being strapped parallel to the narrow end and two parallel to the broad end of the pack. Packs longer than 160 cm are provided with three steel bands.

The packs are marked in accordance with customer's instructions, as well as with the following details:

(a) size of boards
(b) thickness
(c) grade
(d) timber species
(e) trade mark.

Polish plywood made from softwood and hardwood timber, both wet and dry glued, is supplied in prime grading and quality and possesses an excellent reputation in continental and overseas markets.

The sole exporter of plywood is "PAGED", Bracka 4, Warsaw.

POLISH RAYON FABRICS

Pre-war exports of the Polish rayon industry were notable for the 100 to 3.5 preponderance of yarn over fabrics.

The tide turned, following the Second World War, in favour of fabrics, the following lines now having become available for export:

Linings, made in widths of 90 cm and 140 cm in the following qualities:

(a) rayon
(b) rayon and staple fibre mixture
(c) rayon and cotton mixture.

These qualities are, generally, made in the full range of popular colours, from light-grey and light-beige, to dark grey, brown, navy and black.

This group of fabrics also includes striped sleeve linings in twill and satin weave, made in a 100 cm width. Stripes are available in a variety of colours and widths.

The considerable output of linings and the wide colour range in which they are made enable Poland to meet the diverse requirements of her numerous customers, particularly in Europe — the U.S.S.R., Rumania, Bulgaria, Albania, the United Kingdom, Finland, Iceland, the Netherlands and a number of other countries.

Another important group comprises prints, headed by dress fabrics made by our rayon industry in the following varieties:

crêpe-matt, 90 cm. wide,
crêpe-georgette, 90 cm. wide, made of 100% viscose yarn,

as well as a variety consisting of 50% staple fibre and 50% of viscose rayon yarn, made in widths of 80 and 90 cm.

All these fabrics are either:

(a) machine printed or
(b) screen printed

in plain colours or multi-colour effect.

Dress fabrics are, as is reflected by exports, the most prominent line in Polish rayon manufactures.

The steadily increasing export of rayon dress fabrics is directed to 50 countries in all parts of the world, including such markets as Switzerland, noted for their fastidiousness.

The versatility of Polish textile exports may be judged from the fact that Poland must keep up a wide production range in dress fabrics to be in a position to meet, in design and colour range, the most varied requirements of the host of her customers throughout the world, particularly since certain designs and colours are suitable for a limited number of countries only. This versatility foreshadows a further increase in demand for the products of the Polish rayon industry which has prepared, for the current season, a number of novelties in a galaxy of patterns and colours.

It should be emphasised that our industry, although it is based on mass-production methods, gives, in the case of larger orders, careful consideration alike to the wishes of individual foreign customers and to special designs required.

Prominent among the group of printed fabrics is also our range of lingerie fabrics, remarkable for their exquisite quality, delightful pastel colours, with neat floral or other designs. These are made of 100% viscose rayon yarn, in a width of 90 cm. Exports of these fabrics were initiated in 1951 and proved highly successful.

Reference must also be made to Polish dressing gown fabrics which complete this group of products. This is a heavy satin fabric on a napped cotton base. The face is of viscose rayon, with large ornamental designs done by screen technique. The background, finished in gay shades, enhances the colour effect of the fabric — a feature calculated to satisfy the most exacting requirements.

The second group of tissues is comprised of colour woven fabrics, principally 80 cm wide taffetas. These consist of blouse fabrics available in a wide range of checks in all conceivable colours, shades and patterns — small, medium and large.

The United Kingdom is, on account of the special character of these designs, the largest buyer of these fabrics and is followed by other European markets, Egypt and other countries.

Scottish checks, being eminently suitable for both ladies' and children's dresses, command a ready sale among our foreign customers whose orders, to ensure prompt delivery, reach us well in advance of the season.

The range of other products of the Polish rayon industry includes haberdashery, suitable for dressmaking and millinery, or simply used as decoration and ornamentation.

"CETEBE" offers a wide choice of:

velour ribbons, in widths of from 8½ to 35 mm, and in a wide range of colours. Both output and demand show a steady increase;

trimmings, including zig-zag tape, braid, bias banding, lingerie tape;

satin shoulder straps, in a variety of colours and widths, much in demand on account of their high quality and perfect finish;

elastic for braces, suspenders, corsets, lacings etc.;

cotton haberdashery — tailor's trouser tape and other items, in a variety of widths.

"CETEBE" complies with customers' wishes as to the method of packing and for dispatch divides the goods into suitable batches, strictly in accordance with instructions received.

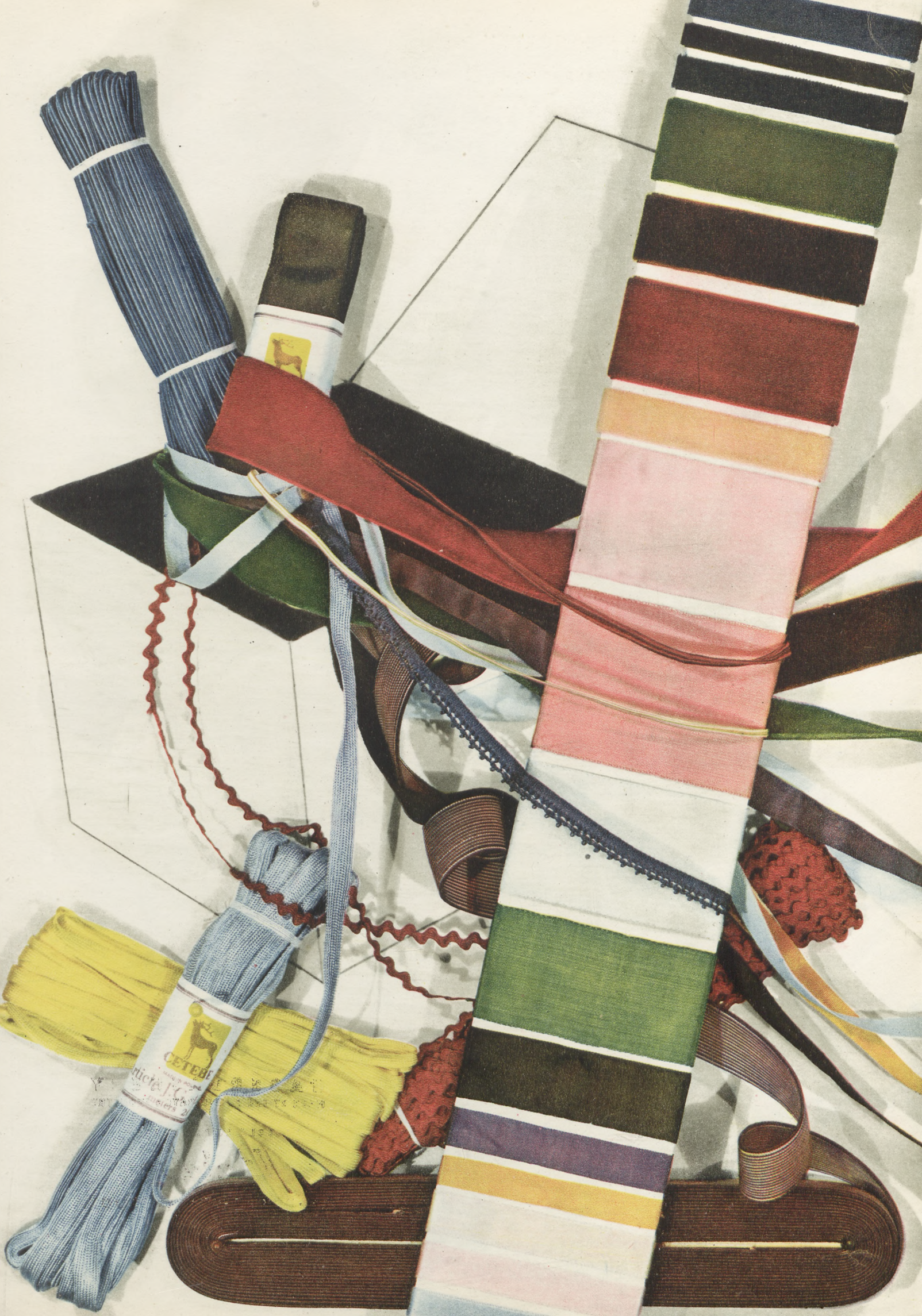
* * *

The Six-Year Plan, now in the course of being implemented, will result in further progress in rayon fabric production and will still further contribute to increasing their popularity in all parts of the globe, by:

(a) raising the quality standard of the goods, as the result of improved finishing process;
b) introducing crease-resisting fabrics.

Major stress laid, in the 6-Year Plan, on the erection of new mills with all modern appointments, on the improvement of quality and on widening the production range, will increase the prospects of meeting the growing home and foreign demand for products of the Polish rayon industry, enabling it to maintain the sound reputation already enjoyed by the Łódź cotton fabrics, Bielsko worsteds and Żyrardów linen fabrics.

Sole exporters: "CETEBE", Narutowicza 13, Łódź



HABERDASHERY

MADE BY THE POLISH RAYON INDUSTRY

SOLE EXPORTERS:

Cetebe

NARUTOWICZA 13, ŁÓDŹ

LEGUMINOUS PLANT SEEDS

The group of leguminous plants cultivated in Poland on a large scale includes:

Victoria and Folger breed yellow and green garden peas, common field peas, beans, cowpeas, vetches, fodder beans, common and sweet lupin, sainfoin, as well as white and Swedish clover and alfalfa.

These leguminous plants can be divided, according to the nature of soil they require, into two main categories:

(1) the category which requires lime and more compact soil and which includes peas, cowpeas, fodder vetches, beans, clovers and sainfoin;

(2) the category which requires a lighter soil, deficient in lime, and which includes lupins and sainfoin.

A less common plant, the cultivation of which is somewhat restricted, is esparcet which can only be successfully grown in soils based on calcareous deposits.

Leguminous plants can be divided, to indicate their use, into the following classes:

(1) Used in the form of seeds:

a) intended mainly for human consumption: peas and beans;

b) forage, in the form of bruised feeds: field pea, vetch, fodder bean, sweet lupin — this latter with a minimum lupinine and lupinidine content;

c) seed rendered suitable for animal feed by eliminating its bitter substances: common lupin.

(2) used as green fodder:
clovers, alfalfa, esparcet, fodder bean, vetch, cowpea and sweet lupin;

(3) used as green manure:
sainfoin, common lupin, cowpea, vetch, fodder bean, (used in pure form or as an additive).

Reference must also be made to the importance of common lupins as a feed used in piscicultural farms engaged in carp breeding. The fish, if properly fed on lupin, reveals a rapid rate of natural growth, thus increasing the financial return from the farms.

It will be evident from the above notes that there is a wide choice of leguminous plants to suit both soil conditions and individual farm requirements.

In view of the benefits accruing from cultivating these plants, their importance to farming cannot be overestimated. The main advantages are:

(1) the faculty of the plants to assimilate free nitrogen from the air, a fact which results in the supply to the soil of this essential element which is, at the same time, a most valuable nutrient for all plants;

(2) the majority of papilionatae efficiently shields the tilth, thus contributing to the improvement of the soil structure (vetches, field pea, red clover, fodder bean);

(3) such plants mobilise, being deep-rooted, the nutrients accumulated in the soil and inaccessible to other plants and, moreover, force a way through the compact layers of the soil (lupins), to the great advantage of plants subsequently occupying the soil;

(4) they ensure a heavier crop to plants which succeed them in the tilth;

(5) they produce a high yield of valuable green fodder or sillage, as well as green manure.

This is why the percentage ratio of tilth for leguminous plants increases in proportion to the intensification of husbandry.

The majority of European countries have had, since the Second World War, to face the problems of rehabilitation of crop and stock farming following the disastrous effects of war. The solution of this problem is closely linked with the increase in the production of green fodder and concentrates (grain).

It must be emphasised that the leguminosae represent, to a certain extent, the European equivalent of such concentrates as the residuals from the processing of soybeans, groundnuts and palm kernels.

The raw protein content in leguminous plants is as follows:

peas	approx.	19.4%
vetch	,,	22.9%
field pea	,,	21.1%
fodder bean	,,	22.1%
white lupin	,,	26.1%
blue lupin	,,	26.3%
yellow lupin	,,	34.4%

What immense value the cultivation of leguminous plants is to farming will be apparent from this table. The following computation of the per-hectare yield of green substance and proteins is still more convincing:

	Per-hectare crop of green substance in quintals	Protein yield per hectare in quintals
alfalfa, according to conditions	from 180 to 480	from 3·60 to 9·20
red clover, according to conditions . . .	from 120 to 240	from 3·60 to 9·20
white clover, according to conditions .	from 80 to 200	from 1·60 to 4·00
Swedish clover, according to conditions	from 120 to 240	from 1·56 to 3·12
esparcet, according to conditions . . .	from 60 to 300	from 1·20 to 6·00
sainfoin, according to conditions	from 80 to 150	from 1·40 to 2·70
peas, according to conditions	from 120 to 240	from 2·28 to 4·56
field pea, according to conditions . . .	from 120 to 240	from 3·00 to 4·50
vetch, according to conditions	from 160 to 240	from 2·24 to 3·36

LEGUMINOUS PLANT SEEDS
HIBNERA 5, WARSAW.

EXPORTED BY
ROLIMPEX

Poland was renowned, prior to the Second World War, in the markets of the United Kingdom, Germany, Czechoslovakia, U.S.A. and other countries as an exporter of leguminous plant seeds.

The all-round assistance given by the government of People's Poland to farming, particularly to seed farming, has been responsible for its rapid recovery from the effects of war, as well as for the fact that, in addition to meeting home demand, it has been possible to resume the export of leguminous seeds.

It is generally appreciated that plants grown in a rougher climate give good results in the milder climates, and this accounts for the fact that Polish-grown seeds are in great demand by West-European customers who, on the basis of years of experience, esteem both the quality of the seedstock and the ultimate yield.

Seed-stock at present being exported from Poland includes winterhardy white clover, esparcet, field pea, vetches, lupins and sainfoin — a range finding a ready sale on account of superior quality.

All seed-stock is, prior to shipment, adequately cleaned, due consideration being given to the uniformity of individual consignments. These functions are performed in cleaning establishments having all modern appointments. No consignment is submitted for final release for export unless it has passed an examination for purity and germination energy at one of the State Seed Control Stations organised for this purpose, and unless the seed has been certified as sound by the State Plant Protection Station.

Final release control is carried out by the Central Standards Inspectorate which has to satisfy itself that both the quality of the seed-stock and the method of packing are of the proper standard and in compliance with the terms of the contract concluded with the foreign customer. This fully ensures that the importer will be supplied with goods of the quality agreed upon.

Polish 1951 export standards were as follows:

	Purity	Germination energy
white clover . . .	97%	90%
esparcet, unshelled	97%	80%
field pea	95%	95%
vetch	95%	95%
sainfoin	95%	80%
common lupin . .	94%	95%
sweet lupin	94%	85%

Seeds are exported in standard new sacks, sealed by the State Plant Protection Station, and each consignment carries an international certificate of analysis confirming quality.

The sole rights to export seed stock from Poland have been entrusted to "ROLIMPEX", Exporters and Importers of Agricultural Products, Concentrated Feeds and Sugar, 5, Hibnera, Warsaw I.

Telephones: 72982 and 70789. Telegrams: "Rolimpex"-Warsaw.

THE EXPORT OF FODDER YEAST

Poland exports dried fodder yeast — a valuable farmstock feed.

Fodder yeast has been produced in Poland only since the Second World War, the strongly developed sugar industry providing substantial quantities of a high-grade residual — molasses to the yeast factories.

The first consignments of fodder yeast were exported from Poland in 1948/49, and this trade has since shown satisfactory development. Polish fodder yeast succeeded, within a comparatively short time, in reaching a number of markets, both in Europe and overseas, and as a result of its high quality, has been greatly appreciated by foreign customers.

Taking 100 as the export index for 1949, the index for 1950 amounted to 162, and for 1951 — to 393; it is anticipated that the index for 1952 will amount to 555.

The systematic increase in the export of this commodity indicates not only an increment in production, but also a growing demand in foreign markets for Polish fodder yeast.

A new large yeast plant, with up-to-date equipment and intended to double Poland's yeast output, will be put into operation in the current year.

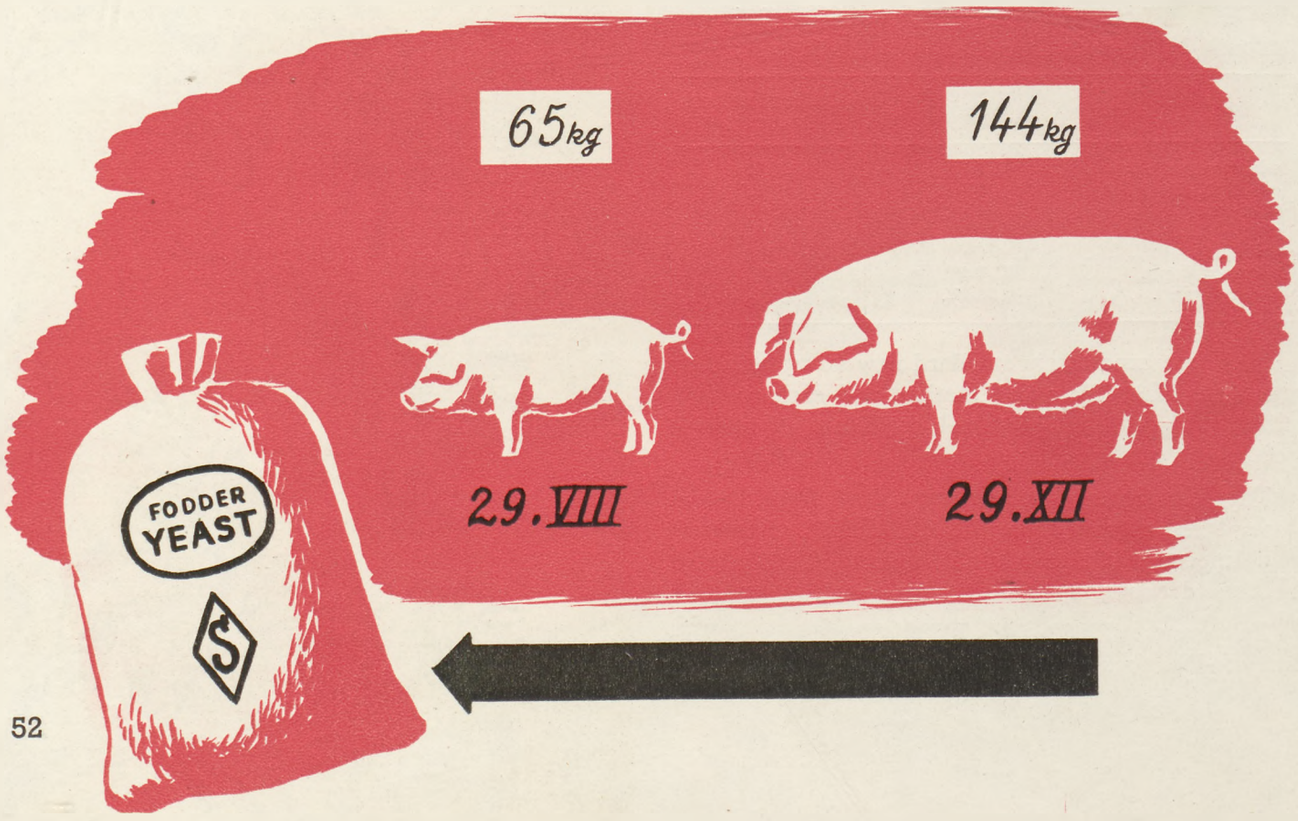
Polish fodder yeast supplied to foreign markets is conspicuous for its high quality. Production is based exclusively on sugar-beet molasses and on Torula breed yeast, which impart to the product a uniform light-cream colour and a pleasant mushroom-like flavour and aroma.

Both the aroma and flavour of fodder yeast added in appropriate doses to other feeding stuffs make it possible to feed the animals on fodders to which they are normally resistant. It must be emphasised that fodder yeast made from such other raw materials as potato mash, distillery residuals or residual sulphite liquor yields a product with divergent and inferior organoleptic properties.

Another distinctive feature of Polish fodder yeast is its absolutely uniform quality, irrespective of the factory in which it is produced. This success has been achieved by the close co-operation of Polish scientists with the technical staff and management of this branch of industry. Mutual exchange of experience between individual factories and work emulation among the staff ensure meticulous accuracy in manufacture and high quality in the product, as well as prompt deliveries.

Polish fodder yeast is remarkable for nutrient value, as a result of the high protein content, abounding in all amino-acids essential to the animal organism, and also for high vitamin B content.

Farm animals fed on a diet containing yeast show a rapid rate of growth; they are healthy and robust and put on weight



Protein content per kilogram of feed (in grams)

in potato pulp	—	4 gm
in mangolds	—	9 gm
in rapeseed cakes	—	300-400 gm
in fodder yeast	—	450-500 gm

The high protein content, in a comparatively small volume, enables fodder yeast to be used as an additive to other feeding stuffs.

The nutritive value of fodder yeast, compared with that of other feeding stuffs, is revealed in the following schedule:

mangolds	—	87% of assimilable substances
potato pulp	—	95% ,, ,, ,,
fodder yeast	—	100% ,, ,, ,,

Chemical analysis of dried fodder yeast

proteins, in the dry substance	—	45% minimum
digestible proteins	—	37% minimum
protein assimilability	—	78% (ratio of assimilable protein to the total protein content)
phosphorus content, in the dry substance	—	3% minimum
ash	—	10% maximum
water	—	8.5% maximum
admissible percentage of sand	—	0.0002% — traces
living cells	—	not permissible
Vitamin B1	—	10 to 60 microgrammes/gm
Vitamin B2	—	12 to 50 microgrammes/gm

Yeast as a fodder is invaluable for livestock breeding, for all farm animals without exception. It is particularly widely used for feeding pigs and poultry, as well as calves and dairy cows.

Animals fed on a diet containing yeast show a rapid rate of growth and development and acquire a good appearance; they are healthy and robust and put on weight. The fleece of fur-coated animals takes on a silky gloss. Yeast also stimulates laying among poultry and improves the flavour of flesh.

The daily ration of fodder yeast recommended is as follows:

cows	—	1000 - 2000 gm each
horses	—	5000 - 1000 gm each
pigs	—	100 - 600 gm each
sheep	—	300 gm each
calves	—	200 - 300 gm each
poultry	—	5 - 10% concentrated mixture.

Fodder yeast earmarked for export is packed in four-fold paper bags with bituminised lining which, in view of the high absorbent properties of this product, ensures safe transport and warehousing. It is recommended that fodder yeast be kept in a dry and cool place.

The goods are, when ready for export, subjected to laboratory tests by the Polish standardisation authorities who have to satisfy themselves as to the quality standard and as to the compliance of the goods with the terms of the contract.

The export of dried fodder yeast is in the hands of "Dalspo", Filtrowa 61, Warsaw.

TOYS FOR GROUP ENTERTAINMENT

Toys are, for the child, an "article of first utility", since they not only serve to entertain the child but also to educate and liberate latent creative forces, as well as to satisfy child's craving for active employment. The shape, design, dimensions and colour of the toy should be suited to the child's psychology and state of physical development. Toys hold the child's attention, stimulate its interest and contribute to its mental development. The child actually works in the act of play, becomes appreciative of the value of things and accustomed to maintaining order. These remarks apply particularly to toys intended for group entertainment, since such toys help to develop the child's imagination and encourage the custom of companionship.

Polish toys are simple, neat and realistic — they closely resemble "the real thing"; in design these toys ensure perfect safety, the materials used in their manufacture comply fully with all requirements of hygiene; the toys can easily be maintained in good repair by cleaning, washing and occasional minor adjustment.

The output of the Polish toy industry shows a steady increase, and the quality of its products has, as a result of sustained improvements, reached a high level. Ample raw material resources — notably timber — mechanisation of production processes, proper regional location of factories and the appointment of a special advisory institution to provide the toy industry with suitable specimen patterns, are factors contributing to the rapid progress made by this industry.

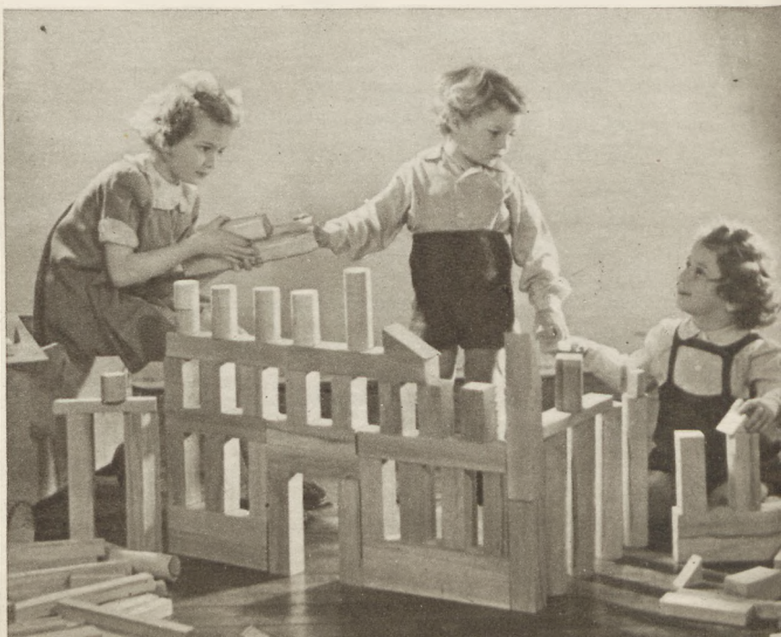
The toy production centres are, for the most part, localised in districts abounding in timber and where the traditions of folk art and the natural skill and enthusiasm for artistic handicraft have survived among the population.

The Institute for Toy Industry Research and Design, embracing artists, engineers, manufacturers and pedagogues, whose joint efforts are responsible for a number of novel and engaging models, is of material assistance to the toy industry.

The production programme of this industry covers a broad range of items, some of which, intended for group entertainment, are here referred to.

TOY RAILWAY. Every set comprises an engine and a number of carriages or trucks, complete with signals and level crossing gates. Dimensions: height of locomotive — 33 cm, engine wheel diameter — 12 cm, train length — 150 cm, signals — 85 cm.

Attention is drawn to the fact that the design and scale to which these toys are made conform strictly with the original prototypes. The most attractive feature is, however, their size which is far in excess of that of the usual type of rolling stock, whether designed for running on rails or for railless propulsion, offered as a rule by the trade. They are of sufficiently ample dimensions to enable a whole group of children to participate in the game — some attending to the gates at level crossings, others working the signals, yet others acting as station master or guard. The rest of the child-



ren provide the motive power. The carriages have ample seating accommodation for even the largest doll, so that the problem of passengers is happily solved.

Other kinds of toys suitable for group entertainment — and there is certainly no greater fun than playing together with other children — include items such as TRACTORS with trailers, FIRE ENGINES, LORRIES and FARM WAGONS. These toys are made to the following dimensions: fire engine: length — 80 cm, height — 31 cm, wheel diameter — 10 cm; lorry: length — 70 cm, height — 35 cm; farm wagon — length 70 cm, height — 35 cm, wheel diameter — 12 cm.

Every one of these toys has various individual uses, as well as offering opportunities for play in conjunction with other toys. The farm wagon is of light, yet sturdy design, so that it enables a child to give a ride to other children, without undue tractive effort and without danger in case of possible mishaps. Fire engines are most realistic in operation — the ladders can be mechanically extended and controlled. Lorries provide great fun and, as experience has shown, by far the greater enjoyment is in loading and unloading them and in securing and removing the tarpaulin.

Special attention is drawn to our set of wooden BLOCKS, varying considerably in size and in the number of pieces per set, as compared with similar articles usually marketed. The blocks are packed on wheels, in cases measuring 40 × 80 × 60 cm. Each case contains 180 blocks, geometrical in shape, together with such other building accessories as pillars, windows, roofing etc., so that the child can construct real "marvels of architecture", as for instance a palace which can be freely entered by children, without the risk of injury — a point to which the designer has paid particular attention.

TOOL KITS for young engineers. These sets, like the wooden blocks, are intended for children of from 6 years upwards, and designed not merely as toys, but also as a means of developing in the child rudimentary technical skill. The kit, contained in a neat portable cabinet, consists of 20 items, including hammer, saw, pliers, plane, file, gimlet, vices and a variety of other tools, all made of high-grade steel. All tools are an exact replica of tools used by craftsmen, from which they differ in size and weight only.

The export of Polish toys is in the hands of "VARIMEX", Wilcza, 50/52, Warsaw.

BALTONA
SHIPCHANDLERS

"BALTONA", Shipchandlers, supply stores for ships calling at Polish ports. The enterprise was founded in 1946 and is unique in Polish ports.

The BALTONA head office is at Gdynia, and there are branch offices in Gdynia, Gdańsk, Szczecin and Świnoujście, as well as minor branches in Ustka, Kołobrzeg and Darłowo. BALTONA has well-stocked stores in all ports and special model shops in the major ports of Gdynia, Gdańsk and Szczecin, displaying the range of goods carried — a range extremely wide and diversified.

The range of goods handled by BALTONA is divided into the following main groups: provision stores, deck and engine stores and stewards' stores. There is, also, apart from these three main sections, a souvenir and fancy goods department.

The BALTONA provisioning department is run by eminent specialists in such products. Stocks are held of both Polish and imported goods, the latter being warehoused in bonded stores.

The home products section includes staple food products, such as meat, poultry, fish, fats, dairy produce, flour, sugar, vegetables, fruit etc. All supplies are obtained from production enterprises catering for export trade: they are standardised and subject to expert examination which reaches at least the average international export standards. BALTONA's stock includes, in addition to fresh products, a variety of Polish-made canned products, such as meat, vegetables and fruit, highly appreciated by customers. Foreign ships have already had an opportunity of convincing themselves of the high quality standard of Polish food products. Much care is taken by BALTONA in compiling the list of stocks and qualities in order to meet the requirements of the most exacting customers.

Attention is, moreover, drawn to the company's stocks of export quality alcoholic liquors.

The foreign products section imports goods from all parts of the world, the list of products handled including practically all world-famed brands.

The deck and engine stores department supplies ships with fuel oil, lubricants, materials for ship's maintenance, as well as minor spares for standardised ships equipment. BALTONA is the agent of firms manufacturing marine paints, lubricants, gaskets, etc. of which it carries consignment stocks. The range of technical articles includes, besides paints, lubricants and gaskets, such items as electric lamps and lighting fixtures, bolts, nuts, nails, rods, wire, steel sheets, wire and hair brushes, fitter's tools and kit, steel and manilla

ropes, tarpaulins, lamps, glassware, acids, chemicals etc. The list of goods comprises, in fact, some thousands of items. Ships will find in the BALTONA stores all technical materials and accessories requisite for their voyages. BALTONA officials employed in the technical service fully realise that technical accessories ordered by ships are, in view of the ship's short stay in port, invariably urgent, and they are therefore anxious to provide for customers efficient service and prompt attention.

The stewards' stores department is no less well stocked with all kinds of goods to ensure the comfort of passengers and crew during the voyage. Woollen blankets, bed and table linen, glass and chinaware and cooking utensils are always held in stock in a wide assortment and have been carefully selected to meet the individual requirements of crews of various nationalities.

The souvenir and fancy goods department supplies crews with such minor articles of personal use and souvenirs as amberware, folk embroideries, regional dolls, mascots, pipes and the famous Bohemian Jablonec cut glass and pearl jewellery, in addition to safety razor

SHIP'S PROVISION STORES • FOOD PRODUCTS — FRESH AND CANNED • TRANSIT FOOD STORES • DECK AND ENGINE STORES • LUBRICANTS AND PAINTS • AGENTS FOR THE POLISH TEXTILE, PORCELAIN AND CUT GLASS INDUSTRIES • DAY AND NIGHT SERVICE AT ALL PORT BRANCHES •

PRICES AT WORLD MARKET LEVEL

PAYMENT ACCEPTED IN ALL CURRENCIES

blades, tooth-brushes, Eau de Cologne, face creams and perfumery. These are but a few items from the extensive range of commodities available in this department.

Prices of all goods are maintained at world market level and, in the case of goods of Polish origin, are even slightly below world market prices. All goods are supplied in unlimited quantities and are not subject to any restrictions.

BALTONA clerks attend on all ships immediately on their berthing in port, and supplies are dealt with promptly and in an efficient manner. Dock departments are open day and night. A fleet of motor vehicles is available — cars for the use of masters and crew, and lorries for carrying supplies to the ships. The steadily widening circle of customers is proof of the quality standard of goods supplied by BALTONA, as well as of the reliable, efficient and rapid service. Vessels of the regular shipping lines almost invariably draw their supplies through BALTONA, whereas tramps calling at Polish ports avail themselves, either as the result of their own experience, or of the reputation enjoyed by BALTONA in shipping circles, more and more frequently of the company's services.

LIST OF POLISH CENTRAL ORGANISATIONS FOR FOREIGN TRADE

Telegrams	Name of organisation and scope of activity	Postal address
ANIMEX Warszawa	"ANIMEX", NATIONAL ENTERPRISE (Independent Liability). Exporters and Importers of Animal Products, Fish and Fish Products	"Animex" Warszawa, Puławska 14
BALTONA Gdynia	"BALTONA", NATIONAL ENTERPRISE (Independent Liability) Shipchandlers	"Baltona" Gdynia, Pułaskiego 6
CEBILOZ Warszawa	"CEBILOZ", NATIONAL ENTERPRISE (Independent Liability). Exporters and Importers of Antifriction Bearings	"Cebiloz" Warszawa, Krak. Przedmieście 47/51
CENTROHARTWIG Warszawa	C. HARTWIG Ltd. International Forwarding Agents	C. Hartwig Warszawa, Hibnera 3
CENTROMOR Warszawa	CENTRALA MORSKA, NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Ships and Ship's Equipment	Centrala Morska Warszawa, Mokotowska 49
CENTROZAP Katowice	"CENTROZAP", NATIONAL ENTERPRISE (Independent Liability) Importers of Plant and Equipment for the Mining and Metallurgical Industries	"Centrozap" Katowice, Plebiscytowa 36
CETEBE Łódź	"CETEBE", NATIONAL ENTERPRISE (Independent Liability). Exporters and Importers of Textiles	"Cetebe" Łódź, Narutowicza 13
CIECH Warszawa	"CIECH" Ltd., GENERAL EXPORT AND IMPORT AGENCY FOR CHEMICALS	"Ciech" Warszawa, Jasna 10
DALOS Warszawa	"DAL" Ltd., INTERNATIONAL TRADING COMPANY Barter and Reexport Transactions	"Dal" Warszawa, Nowy Świat 40
DALSPO Warszawa	"DALSPO", NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Foods, Fats and Edible Forest Products	"Dalspo" Warszawa, Filtrowa 61
DEKABIMEX Warszawa	"DOM KSIĄŻKI", NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Books	"Dom Książki" Warszawa, Nowy Świat 50
ELEKTRIM Warszawa	"ELEKTRIM" Ltd., POLISH FOREIGN TRADE COMPANY FOR ELECTRICAL EQUIPMENT	"Elektrim" Warszawa, Sienna 32
HAZAPAGED Warszawa	"PAGED", NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Timber and Products of the Woodworking Industry	"Paged" Warszawa, Bracka 4
IMEXFILM Warszawa	FILM POLSKI, NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Films	"Film Polski" Służba Zagranicznego Obrotu Filmów Warszawa, Marszałkowska 56
IMPEXMETAL Katowice	"IMPEXMETAL", NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Metals and Products of the Metallurgical Industry	"Impexmetal" Katowice, Wita Stwosza 7

Telegrams	Name of organisation and scope of activity	Postal address
METALEX Warszawa	"METALEXPORT", NATIONAL ENTERPRISE (Independent Liability) Exporters of Machinery, Metal Manufactures and Electric Materials. Importers of rolling stock	"Metalexport" Warszawa, Mokotowska 49
MINEX Warszawa	"MINEX", NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Minerals, Cement, Glass and Ceramics	"Minex" Warszawa, Kredytowa 4
MOTORIM Warszawa	"MOTOIMPORT", NATIONAL ENTERPRISE (Independent Liability) Importers of motor vehicles, agricultural machinery and aeronautical equipment	"Motoimport" Warszawa, Mazowiecka 13
PAPEXPORT Warszawa	"PAPEXPORT", NATIONAL ENTERPRISE (Independent Liability) Paper Exporters and Importers	"Papexport" Warszawa, Wspólna 50
PETROL Warszawa	CENTRALA PRODUKTÓW NAFTOWYCH, NATIONAL ENTERPRISE (Independent Liability) Export and Import of Crude Oil and Oil Products	Centrala Produktów Naftowych Warszawa, Rakowiecka 39
POLCARGO Gdynia	"POLCARGO", NATIONAL ENTERPRISE (Independent Liability) Cargo Experts and Supervisors	"Polcargo" Gdynia, Pułaskiego 6
POLIMEX Warszawa	"POLIMEX" Ltd., POLISH COMPANY FOR MACHINE IMPORTS	"Polimex" Warszawa, Czackiego 7/9
ROLIMPEX Warszawa	"ROLIMPEX", NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Agricultural Products, Concentrated Fodder and Sugar	"Rolimpex" Warszawa, Hibnera 5
RUCH Warszawa	"RUCH", NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Newspapers and Periodicals	"Ruch" Warszawa, Koszykowa 31
SKORIMPEX Łódź	"SKORIMPEX", NATIONAL ENTERPRISE (Independent Liability) Exporters and Importers of Raw Materials and Supplies for, and Products of the Leather Industry	"Skorimpex" Łódź, Piotrkowska 260
TABULATOR Warszawa	"TABULATOR" Ltd. Exporters and Importers of Office Machines and Equipment	"Tabulator" Warszawa, Szpitalna 8
TEXTILIMPORT Łódź	"TEXTILIMPORT", NATIONAL ENTERPRISE (Independent Liability) Importers of Raw Materials and Supplies for the Textile Industry	"Textilimport" Łódź, 22 Lipca 8
VARIMEX Warszawa	"VARIMEX" Ltd., POLISH COMPANY FOR FOREIGN TRADE Exporters of products of Decorative Art and Handicrafts. Christmas-tree ornaments, Household and Toilet Brushes, Artists' Brushes, Buttons, Rubber Goods, Pianos and Gramophone Records, Amberware, Postage Stamps	"Varimex" Warszawa, Wilcza 50/52
WĘGLOKOKS Katowice	CENTRALA ZBYTU WĘGLA, NATIONAL ENTERPRISE (Independent Liability) Coal Exporters	Centrala Zbytu Węgla Katowice, Kościuszki 30