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REPORT ON THE MACHINE TOOL INDUSTRY IN ROMANIA 1/

by

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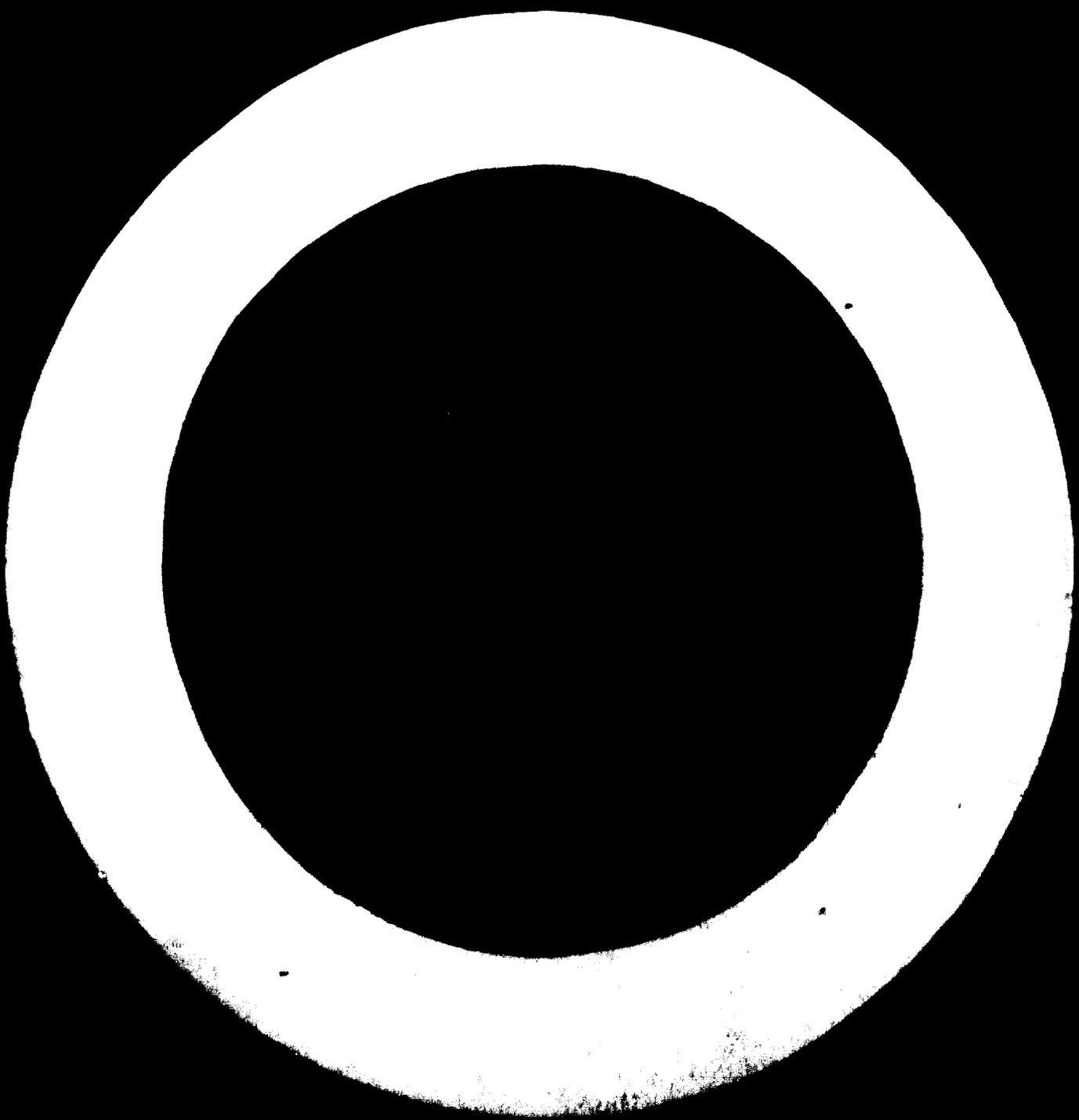
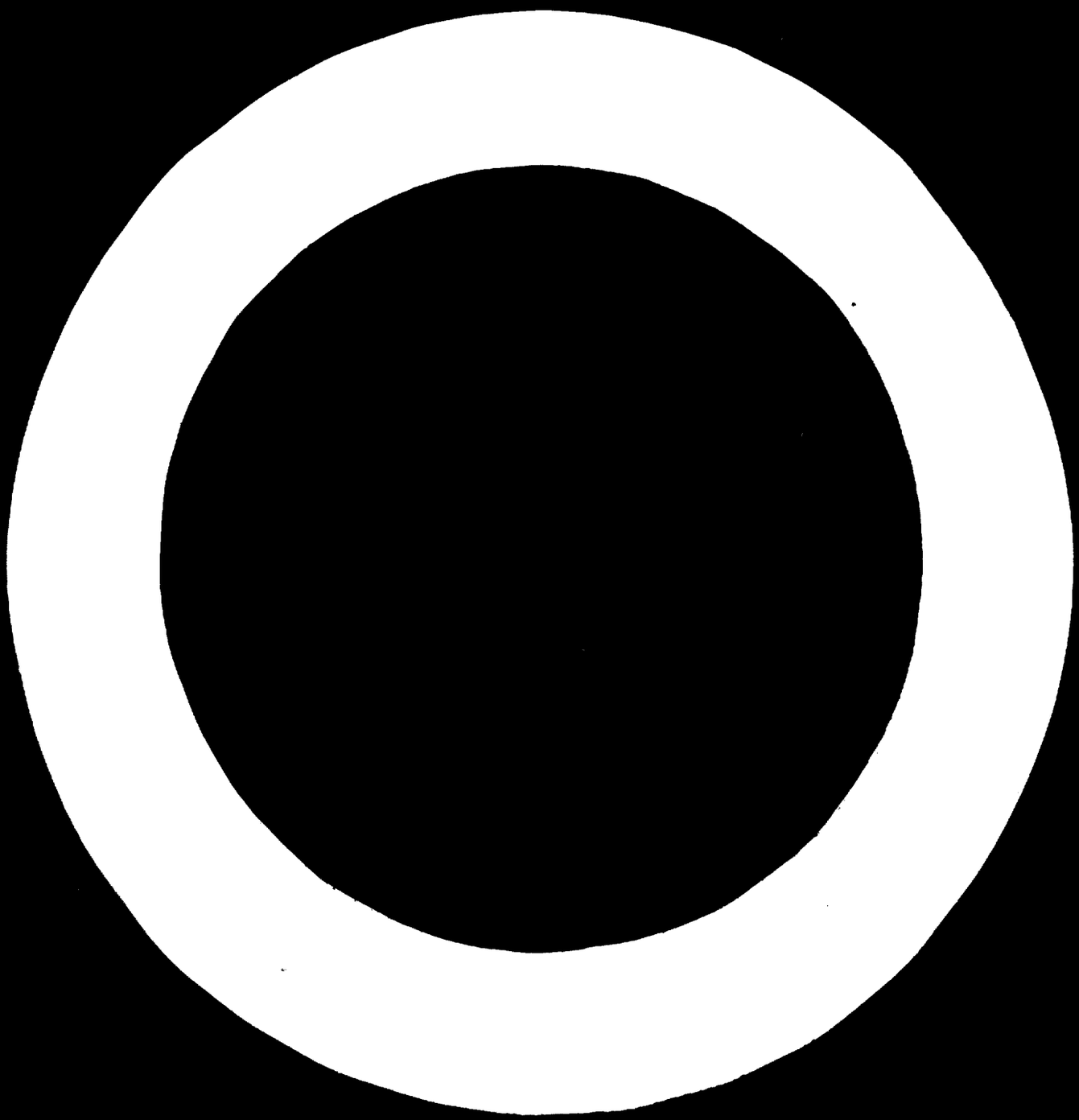




The continuous progress of the national economy and respectively of the machine building industry, lead on the first place to the development of the machine-tool building industry.

The production level in 1970 as to the 1965 was two times greater, material and physic.

As to the sort the performances in 1970 are 70 per cent greater than those in 1965.

The most important machine-tool works have contributed to the achievement of the manufacturing and set programme, as for instance:

- The machine-tool and aggregate factory-Bucharest, producing heavy machine tools: vertical turning and boring mills, boring and milling machines longitudinal portal milling machines external and universal cylindrical grinding machines, centreless grinding machines, aggregates and standard elements;

- Strunguri Arad works, manufacturing centre lathes, turret lathes and vertical turret lathes;

- Infrățirea - Oradea works, manufacturing vertical drilling machines, internal threading machines, radial drilling machines, planing machines, tool-shop milling machines pneumatic hammers;

- Mechanical Works - Sibiu, manufacturing, circular saws and power hacksaws, power-presses, hydraulic presses up to 160 tf, metal sheet working machines;

- Mechanical Works-Suceava, manufacturing drilling machines, grinders, beading and rolling machines, steel forming machines and pipe bending machines;

- Mechanical Works-Cugir, producing milling machines, gear cutting machines, internal grinding machines, plane grinding machines, mechanical broches, electromagnetic chuck-plates;

- Mechanical Works - Plopeni producing special machines for the manufacture of bearing balls, tool grinding machines, horizontal and vertical broaching machines, some hydraulic elements for machine-tools;

- 6 Martie Works - Zărnesti producing machine-tools accessories (universals with 3 and 4 blades, chucks, dividing heads etc.);

The main types of machines which have been introduced in lot production are:

- Vertical boring and turning mills ∅ 1250; ∅ 1600 and ∅ 3200 mm;
- Horizontal boring and milling machines ∅ 100; ∅ 125, ∅ 150;
- Internal grinding machines ∅ 80;
- Portal longitudinal milling machines (table width 660 - 1000 - 1600);
- Centreless grinding machines ∅ 200 mm;
- External and universal grinding machines ∅ 100 and 320 mm;
- Radial grinding machines ∅ 40 - 70;
- Aggregates;
- Standard units;
- Centre lathes ∅ 250 - 800 mm;
- Turret lathes ∅ 25 - 40 mm;

- Vertical drilling machines ∅ 13 - 40 mm;
- Threading machines M8 - 16 mm;
- Tool-shop universal milling machines 200 - 250 mm;
- Planing machines with inserted blade 450 ÷ 800 mm;
- Pneumatic hammers 63 - 160 tf;
- Inclinable bed automatic presses 64 ÷ 40 tf;
- Power-haw sacks 250 mm;
- Circular saws 710;

On base of licence have been assimilated

- Boring and milling machines from Cerutti, Italy;
- Vertical boring and turning mills from Morando, Italy;
- Longitudinal portal milling machines from Köllman-West, Germany;
- Internal grinding machines from Nova, Italy;
- Ball griding and filling machines from Giustina, Italy;
- Universal and external grinding machines from Fortuna, West Germany.

In this period has taken place not only a quantitative growth due to the production diversification and the assimilation of new types of machine-tools but also a qualitative growth concerning the accuracy and the automatization rate.

Consequently the new machines are to be equipped with a larger number of normal and special accessories enlarging their usability area.

Within the permanent development of machine-tool building, a special attention must be paid to the research and development activity, in which sense has been set up the Machine-Tool and Aggregate Research and Design Institute, Bucharest.

The main targets of the Institute are the achievement of new types of machine-tools and the permanent improvement of the previous assimilated machine-tools, to a corresponding technical level.

The Institute carries on an activity in close connexion with the design offices of the machine building works, as well as with other specialized institutes.

The first aim for the long-term period is to meet as much as possible the internal demands, by the continuous development of the industry in the Five-Year Plan 1971-1975.

The growth of the machine-tool building output should be 3.1 times in 1975 as to the 1970. In the first place are expected growths on:

	Growths $\frac{1975}{1970}$.
- Turret and automatic lathes	5.7
- Production and tool-shop milling machines	2.6
- Grinding and superfinishing machines	2.8
- Heavy machine-tools	2.4

The following important problems are in view:

- The extending of the specialization and outlining of the works in order to meet the industry demand;

- The widening of variant number and single-purpose machines, derived from the same basic family;

- The delivery of some machine-tools provided with special accessories, control equipment - programme control included in function of the customer demand.

In order to bring about the established rate of the production growth, the development of the existent units and the building of new ones are provided, such as:

- The new factory of machine-tools - Bacău, for portal milling machines and horizontal boring and milling machines;

- The new lathe factory - Tîrgoviste for normal lathes over 600 mm, turret lathes and automatic;

- The new foundry for machine-tool parts - Alba Iulia;

- The new factory for machine-tool accessories.

It is provided the assimilation of autolathes, grinding machines, tool-shop and production milling machines, facing lathes, cutting machines and the introduction of programme numerical control machines.

The assimilation numerical control machines develops on base of an assimilating priority programme, as well as the redesigning of the existent products which have to be equipped with programme control system.

Up to the present the problems referred mainly to the design of the mechanical part of the machines, and the control and dimension display equipments.

It is provided also the introduction of the numerical linear, contour and positioning programme control for some types of machines such as: centre lathes, turret lathes, vertical turning and boring lathes, milling machines, drilling machines.

Several products which present features are no more competitive with those of similar products on the world market, should be modernised and redesigned.

On the same time the growth of the availability of the products for the export demands should be in view.

The Romanian machine building industry production represents about 130 types of machine-tools, from which almost half for export.

From a valoric point of view the Romanian machine-tool present export is about 20 per cent from the whole value of the machine-tool production, following to reach 32-35 per cent in the next years. The machine-tool manufactured in Romania are delivered in more than 40 countries all over the world.

The development of the machine-tool production, in units and values, in different periods may be presented as follows:

	1965/1960	1970/1965	1975/1970
Values	200	245	338
Units	160	162	163

It results that the value of the machine-tool production, grows much faster than the production volume calculated in units, thus showing the constant effort to build high quality machine-tools, better equipped and consequently with a higher price.

Romania is interested in the extending of the international co-operation activities, having in view the mutual advantages, for both parts, for the following types of machines:

- Turret lathes
- Facing lathes
- Multi-spindle auto-lathes
- Production milling machines
- Jig boring machines
- Installation and full equipment for machine-tool programme control

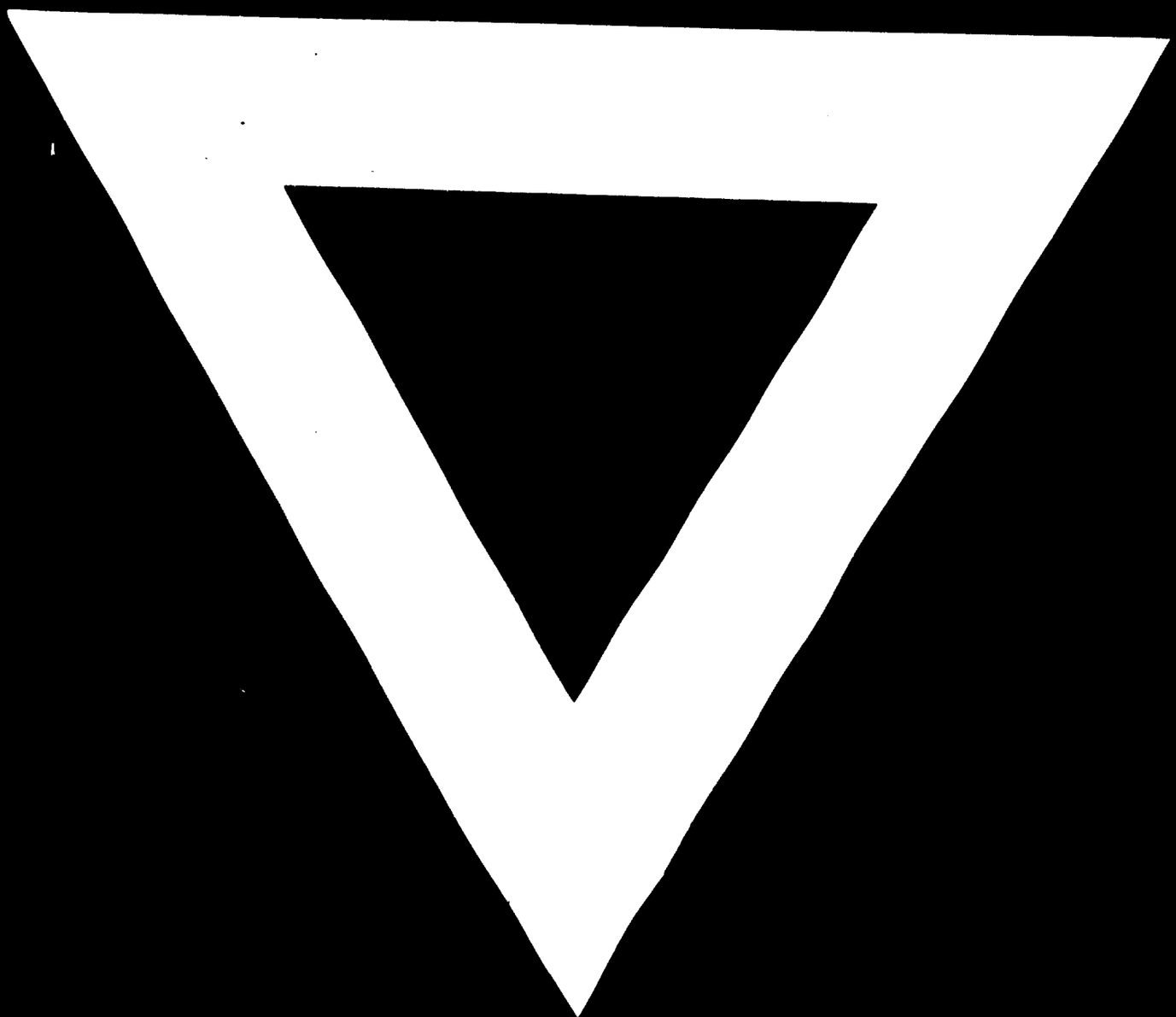
In the research and design field Romania is also interested in the co-operation with other countries for the achievement of a common established methodology regarding research problems such as: mutual exchange of results and their interpretation, especially for the following categories of measurements.

- Dynamic stability and vibrations
- Static rigidity
- Thermal deformation
- Noise
- Positioning accuracy (for numerical control machine-tools)
- Kinematic accuracy (for gear cutting machines), etc.

There are also possibilities to realize an effective change of detailed information in problems regarding the research and design of numerical control machines, machining centres, machine systems and completion of assemblies for these machines, as well as of the numerical control systems themselves. This change may constitute an important help for countries with less developed industries.

Any documentation and technical information from and to the countries interested in the problems of new building solutions for machine-tools, including bearing production, hydrostatic guides and screws, ball screws, roller slides, hydraulic motor feed mechanism, tool prepositioning devices, etc., will be of a great support in the industrial activity.

Having in view the continuous development of the Romanian machine building industry, the future production of machine-tools will take a higher rate, which will bring the socialist Republic of Romania between the world industrially developed countries.



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