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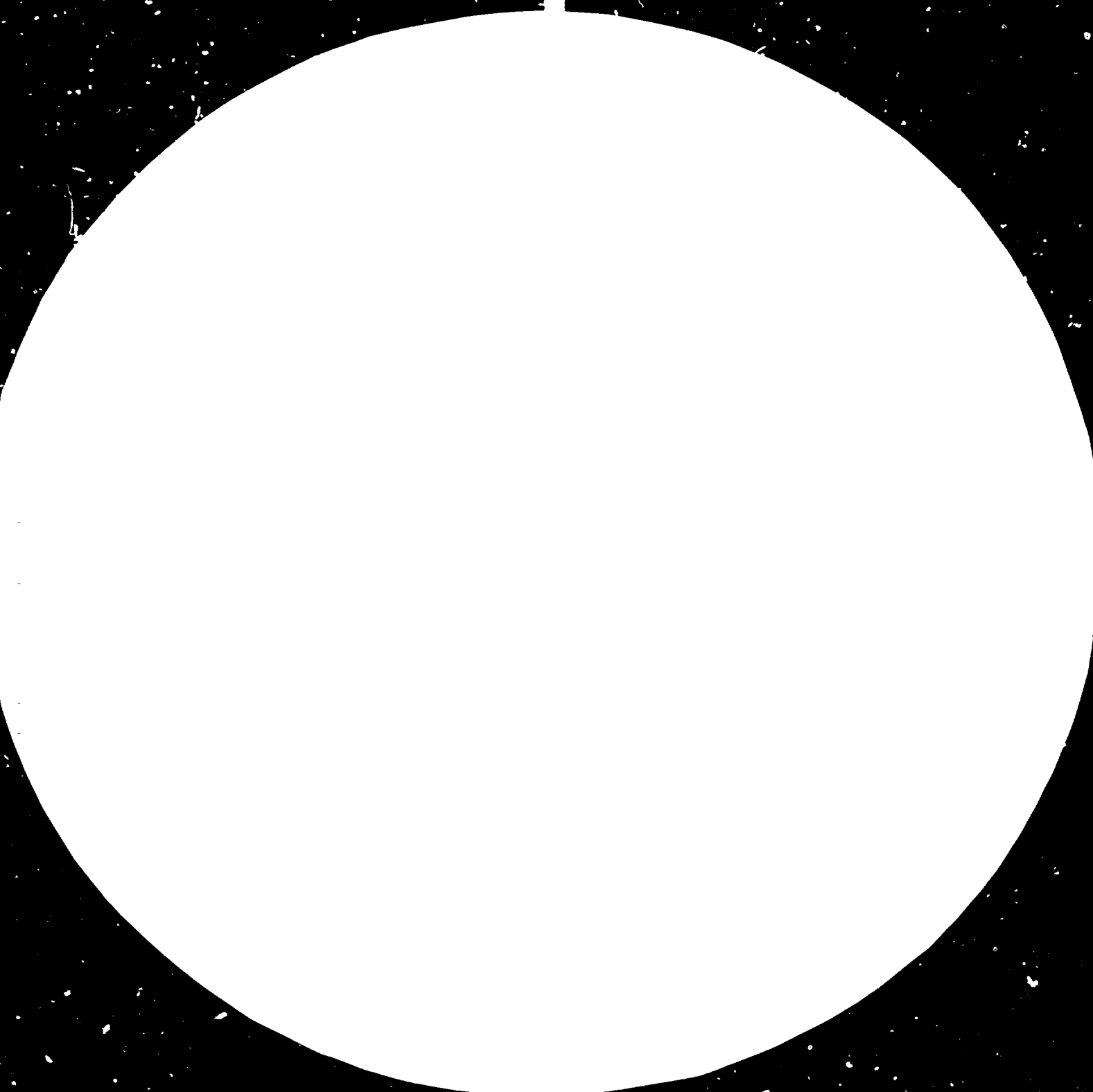
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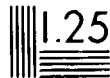
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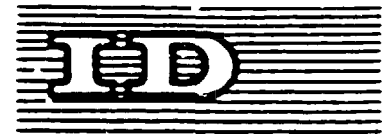
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A BRIEF ACCOUNT OF THE WOODWORKING INDUSTRY IN CHINA*

by

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Introduction - Present Situation

China is a developing country with a very large population. There is a huge demand for wood products and furniture but we have not yet found the forest resources to satisfy that demand. The most important task of the wood industry, therefore, is to organize the available resources - the wood, the labour force and the equipment - and to create thereby the largest quantity of products at the highest possible quality with the least amount of waste and for the greatest number of persons.

The woodworking industry in China is relatively young and far behind the industrialized countries around the world. But, because our industry is fast-developing we are making much progress and the gap is not so very large at present. We firmly believe that that we will someday soon be able to supply our people with the same quality of furniture as that obtainable anywhere else.

Forest Resources

China has a total forest area of 120 million hectares which is only 12.7 per cent of the entire territory. The timber stock volume is about 9.5 billion m³, or, equal to 10 m³ per capita.

The most important species to the industry are the Korean Pine, Spruce, Fir, Ash, Basswood, Birch, Chinese fir, and the Masson Pine, etc. The fastest growing species are the Paulownia and the Poplar. We also have forests rich in bamboo and rattan.

We import several species as well and these amount to about 10,000 m³ from the southeast of Asia (i.e. Lauan for plywood and sandelwood for traditional furniture).

Primary Wood Processing Industries

There are approximately 200 sawmills and 250 wood-based panel factories with a total employee count of about 100,000 persons in China. These enterprises are partly located in or near the forest areas and some are located within the cities. Excepting for a few

unusual ones, most are of medium size and have an annual capacity of 100 thousand m³ for sawn timber and 20 thousand tons of hardboard. Other factories are small-scale enterprises.

Most of our sawmills were constructed during the 1950's. The equipment is therefore quite old and so, as in most developing countries, we need urgently to modernize our facilities. By adopting new technical ideas, partial mechanization was introduced and some automated mills have been built. This, however, is only a start. New techniques like pneumatics, hydraulic devices, photoelectric measuring and transmitting facilities and pneumatic or electronic digital control units are slowly coming into use but these are also being realized only just now. A twin band-saw with automatic hydraulic positioning is being tested as well for trial operation. The use of log measurement by photoelectric units is a completely new idea to us and we're experimenting with this also at present.

By experimenting with and studying all of the new equipment available in this field we hope to be able to attain the highest quality products and the maximum utilization of our raw materials.

The wood-based panel industry in China was developed only a few years ago. The total output of wood-based panel in 1980 was the following:

Plywood	300,000 m ³
Hardboard	530,000 tons
Particleboard	60,000 m ³

Not so long ago there were only a few such mills and these were equipped with crude and simplistic tools. The total annual capacity was a mere 10,000 m³. Through improved technology, however, and the installation of newer machinery the production of plywood in 1980 has been increased to 300,000 m³. There are several medium sized mills with an annual capacity of 10 to 20 thousand m³ and then there are others with 5 thousand m³.

The adoption of the jet veneer drier manufactured in China rendered it possible to realize a partial continuous production line in

in the sections of peeling, reeling, drying and clipping. Certain technical innovations were introduced during the past thirty years, however manual operation still predominates.

The production of hardboard and particleboard began only in 1958. Shortage of synthetic resin adhesive at that time delayed the production of particleboard and emphasis was instead put on the production of wet process hardboard. In the course of this development, complete hardboard facilities from Sweden with an annual capacity of 18,000 tons and four units from Poland with an annual capacity of 15,000 tons each were imported and installed. Due to China's innovativeness, then, two complete fibreboard plants (defibrating and wet process) with a capacity of 2,000 and 10,000 tons respectively were designed and manufactured in the country and production began in 1964. Since that time more than 100 units have been produced and put into operation. These are now the principal fibreboard manufacturing facilities in China.

Although China imported in 1950 (or thereabout) a whole new plant for extruded particleboard from the Federal Republic of Germany, and at that same time were beginning the technological processes and equipment for flat pressed particleboard, the development of particleboard in general has lagged due to the shortage of synthetic resin adhesive. The production capacity in particleboard is therefore still minimal. The adhesive problem has been improved upon of recent and arrangements have been made for the trial production of particleboard facilities with an annual capacity of 10,000 m³. Of course, a modern-day particleboard facility in Federal Republic of Germany will have an annual capacity of 30,000 m³ and we have imported one of these in order to study its functioning more closely.

There are 2100 furniture plants and 270,000 persons working them in China. Most of these plants are scattered in villages and towns. Facing the immense demand from the domestic market alone, is viewed as quite a challenge by these workers of the furniture factories. Semi-mechanized and mechanized production were gradually developed from the level of craftsmen and so at present the national level

of mechanization, if an average were to be noted, one would discover anywhere from 40 to 60 per cent rise in the industry. The new techniques for woodworking could be considered the equipment and production lines such as infrared drying, photo-sensitive curing lacquer, double-edge banders, high frequency finger jointing lines and multi-stage routers. All of these are being developed and explored as reasonable alternatives to the problematic old-fashioned techniques now in use. The raw materials used for furniture production have also been developed from solid wood to the combination with wood-based panel, steel, aluminum alloy and plastic, etc. The portion of panel furniture is in this way greatly increasing in relation to the industry as a whole.

Institutional Infrastructure

China has and has had for many long years its own research and design institutes. The Institute of Wood Industry of the Chinese Academy of Forestry is, for example, a national comprehensive research centre of wood processing. The Forest Industry Design and Research Institute is also a national comprehensive design centre for the woodworking industries. They provide a reliable technical assistance to the development of the woodworking industry in the People's Republic of China. Beijing, Shanghai and Harbin have their own research institutes for the woodworking industry. There are 28 local furniture research institutes conduct their research on design, production and development of furniture respectively.

Labour

China has eight Colleges of Forestry in Beijing, Nanjing, Harbin and other places including faculties for wood processing. They encourage and provide scholarships for students and post-graduate students interested in the woodworking industries. There are 30 woodworking industry vocational schools for technical training of the youth and from these we get our best semi-skilled and skilled workers for the industry. In addition to these, the woodworking industries themselves also recruit and train young people and offer apprenticeships.

Summary

Through years of rehabilitation, construction and development, the woodworking industry in China has attained primary progress, formed an independent industrial department and constituted an important component of the national economy. However backward we appear in this respect we are making tremendous progress and soon we will catch up to the rest of the industrialized countries through advanced technologies, skilled labour and continued hard work.



