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SUBJECT: The Wood Pulp Industry of Japan

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The United States Political Adviser has the honor to enclose four copies of Report No. 56 dated September 15, 1946, entitled "The Wood Pulp Industry in Japan", which was prepared by the Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers. The report is prefaced by an adequate summary.

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# THE WOOD PULP INDUSTRY OF JAPAN

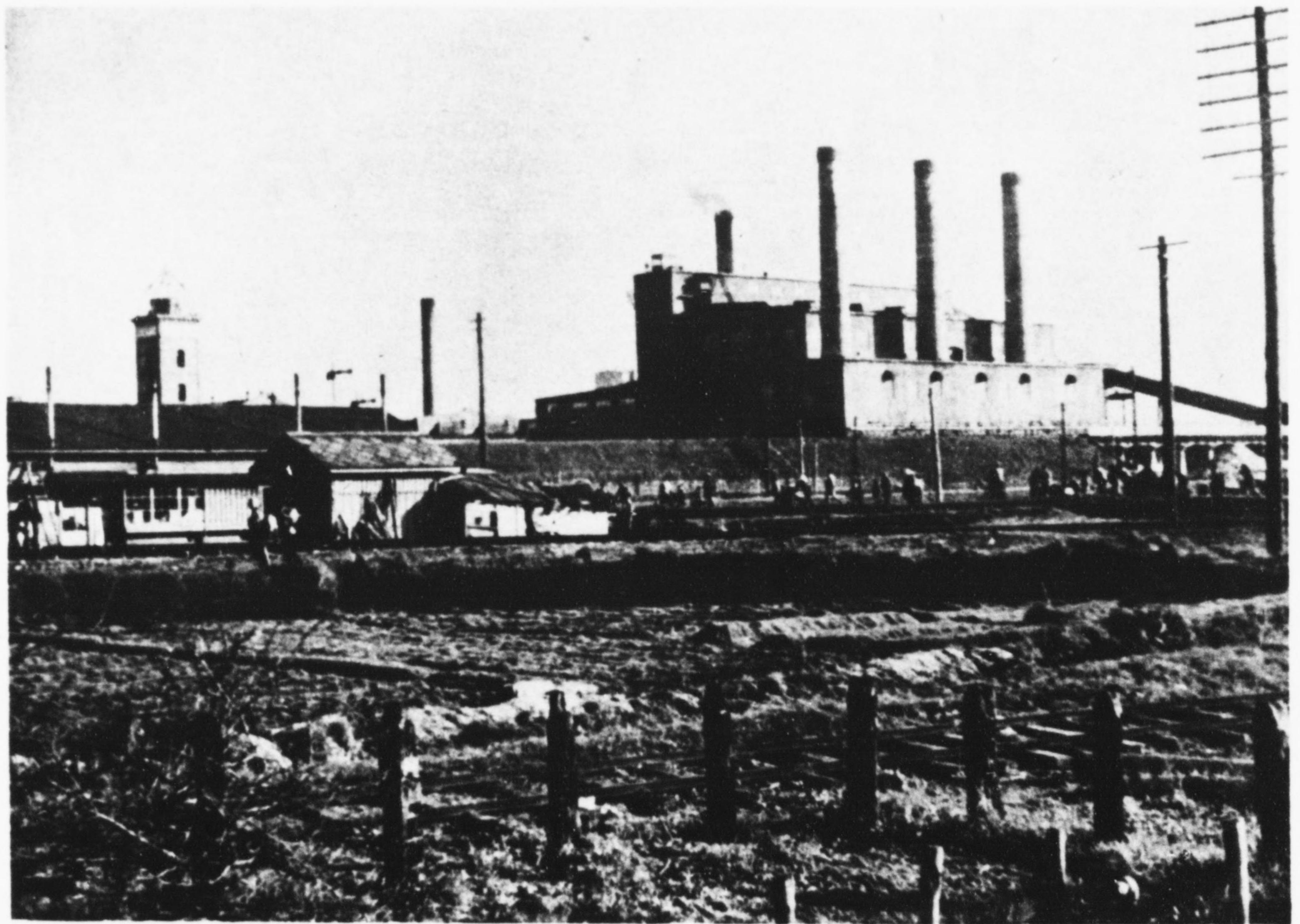
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GENERAL HEADQUARTERS  
 SUPREME COMMANDER FOR THE ALLIED POWERS  
 NATURAL RESOURCES SECTION  
 REPORT NO 56

TOKYO 1946





NEWSPRINT MILL OF OJI PAPER MANUFACTURING COMPANY, TOMAKOMAI, HOKKAIDO



REPORT NUMBER 56

15 September 1946

THE WOOD PULP INDUSTRY OF JAPAN

GENERAL HEADQUARTERS  
SUPREME COMMANDER FOR THE ALLIED POWERS  
Natural Resources Section



NATURAL RESOURCES SECTION  
 REPORT NUMBER 56  
 15 September 1946

THE WOOD PULP INDUSTRY OF JAPAN

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Plate 1 Location of Paper Mills in Japan

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NATURAL RESOURCES SECTION  
REPORT NUMBER 56  
15 September 1946

THE WOOD PULP INDUSTRY OF JAPAN

SUMMARY

1. About 90 wood pulp mills are in Japan Proper. Eight mills are classified as manufacturers of rayon pulp and the remainder produce paper pulp of the groundwood, sulfite, kraft, and soda types. Production of all types of pulp reached a maximum in 1941 of 1,408,000 short tons, of which 77 percent was paper pulp and 23 percent was rayon pulp grade. Production of all types of pulp in 1945 was only about 18 percent of 1941 production. The chief reasons for current low production are shortages of coal, chemicals, and wood.

2. Approximately 45 percent of the domestic wood pulp for the seven years to 1945 was produced in Karafuto. The loss of these facilities was especially severe with respect to chemical paper pulp of the sulfite and kraft types. The shortage of chemical pulps, in addition to the loss of sources of desirable pulpwood, is reflected in the decreased quality of pulp and paper. Sulfite pulp is the only chemical paper pulp formerly made in large volume in Japan, but 65 percent of the 1930-1940 production of this pulp was made in Karafuto. Nearly all of the kraft pulp was made in Karafuto during the same period, but by 1945 about 30 percent of the rated productive capacity for kraft was located in Japan Proper. The shortage of kraft pulp is a handicap to industries which require cement-type bags and strong industrial papers. Most of the capacity for the production of rayon pulp and mechanical pulp was established in Japan Proper. Soda pulp was produced in Japan Proper and Formosa. Mills producing this pulp are numerous but they are small, inefficient, and of low capacity.

3. The rayon pulp industry expanded rapidly from 1932 until 1941 but as production did not meet demands, Japan depended heavily on the importation of rayon pulp. Domestic production expanded from an estimated 4,000 short tons in 1932 to more than 325,000 tons in 1941. Production in 1945 was only 11,400 short tons, or about five percent of the rated productive capacity of the remaining rayon pulp mills.



NATURAL RESOURCES SECTION  
REPORT NUMBER 56  
15 September 1946

THE WOOD PULP INDUSTRY OF JAPAN a/

PULP PRODUCTION AND REQUIREMENTS

A. Introduction

1. The manufacture of pulp for paper, which had been a household industry in Japan for centuries, attained commercial significance for the first time from the demands of World War I. Originally pulp was made from the inner bark of kozo, mitsumata, or gampi, and this supplied the raw material for the production of the handmade paper which has enjoyed a prominent place in Japanese culture. The development in the Eighties of methods of utilizing wood fiber for paper and the introduction of foreign-style paper to Japan resulted in the development of a domestic pulp industry which, in 1940, was the largest in the Orient and which placed Japan among the leading pulp and paper producing nations of the world.

2. Early pulp mills were located chiefly on Honshu, but because of the abundant supply of desirable coniferous woods in northern lands, much of the new production capacity moved to Hokkaido and Karafuto. Owing to the ever-increasing demands of the paper industry a considerable portion of requirements was met by importation, but by expanding pulp producing facilities Japan attained virtual self-sufficiency in paper pulp by 1938. In the Thirties the rayon industry emerged as another large consumer of pulp and its needs were at first imported because Japan had neither the capacity nor the industrial technique to produce quality rayon pulp. Soon after 1933 domestic production was developed and exhibited a phenomenal growth until 1941.

3. Many types of fibrous materials are suitable for the manufacture of paper, but the most important from the standpoint of abundance and economy of preparation is wood. Other fibers which are often desirable for special purposes include cotton, hemp, flax, straw, and the inner bark of branches of certain plants of the mulberry family. Each type of raw material requires a certain treatment to prepare it for use. The process of separating the fibers is known as pulping. For types of paper which do not require strength or permanence, fiber prepared by grinding wood is the chief component, for printing and certain wrapping papers, where moderate strength and bright color is in demand, bleached sulfite

a/ This report was prepared by Mr Robert Seidl, Scientific Consultant, Forestry Division



pulp is used; for cement and fertilizer bags or strong industrial papers, a pulp prepared by the kraft method is almost indispensable; for certain special wrapping or electrical insulating papers, hemp is useful; for superior quality writing papers, cotton rag is considered a premium material; for box or container boards, straw or waste paper is used because of the availability and low cost; for the production of rayon, one criterion is the purity of the cellulose or the degree of removal of non-cellulosic materials from the wood pulp fibre, and nearly all of the pulp consumer for rayon has been of the sulfite type. Because of the versatility of sulfite pulp and of the availability in Japan of the lime and sulfur raw materials, the sulfite process has far exceeded other chemical processes in importance. Because of the abundance of power, the mechanical process is also important in Japan.

4. The kraft and soda pulp industries were not established until about 1938, and development was perhaps hindered by difficulties in obtaining required chemicals, particularly caustic soda. Straw is used chiefly in paper boards and is processed by cooking with lime. Waste paper is usually converted into paper boards without special chemical treatment.

### B. Consumption of Pulpwood

1. The consumption of pulpwood by locality during recent years is shown in Figure 1. The chief wood species used for pulp in Japan are spruce (yozomatsu), fir (todomatsu), red pine (akamatsu), black pine (kuroomatsu), cryptomeria (sugi), and beech (bume). Over one-half of the total pulpwood used in Japan during the ten years up to 1945 had Karafuto as its source; a considerable volume of this wood was shipped to Honshu and Kyushu for pulping. The loss of Karafuto, therefore, has resulted in a severe shortage of pulpwood.

2. Further details relative to pulpwood supply and requirements are found in NRS Report No. 28 entitled "An Estimate of the Pulpwood Situation in Japan".

### C. Production of Pulp

1. The production of all types of wood pulp and the magnitude of imports are illustrated in Figure 2 and Table 1. Although the overall dependency on imports has not averaged over 21 percent of the total for the years 1930 to 1940, an individual consideration of paper pulp and rayon pulp reveals the past dependency upon imports of rayon pulp and near self-sufficiency in paper pulp. These facts are illustrated in Figures 3 and 4. Production of wood pulp in Japan by locality is shown in Figure 5.

2. The loss of Karafuto is greater from a consideration of pulp types than is indicated from the over-all loss of tonnage, because



production in Karafuto was preponderantly of the important chemical pulps, notably sulfite and kraft. This is typified by the breakdown of pulp production by types for Japan Proper, Karafuto, Korea, and Formosa for the year 1941, given in Figure 6. The rise and decline of production of chemical pulp, mechanical pulp, and rayon pulp in Japan since 1930 are shown in Figure 7. In the peak production year of 1941, a production of 1,407,993 short tons consisted of 619,132 tons of chemical paper pulp, 462,402 tons of mechanical pulp, and 326,459 tons of rayon pulp. Production of pulp for 1945 was only 255,657 tons, or about 18 percent of the 1941 production. Principal reasons for low production are shortages of coal, chemicals, and wood. Bomb damage was not an important factor, since most of the large pulp mills are located away from the heavily-bombed areas. Monthly production of pulp is shown in Figure 8. Actual production of pulp during 1945 for all pulp mills in Japan was about 25 percent of the present rated productive capacity of remaining mills. Data on production of pulp by types for 1945 and productive capacities are given in Table 2.

D Requirements for Pulp

1. Requirements of rayon pulp for the production of rayon are

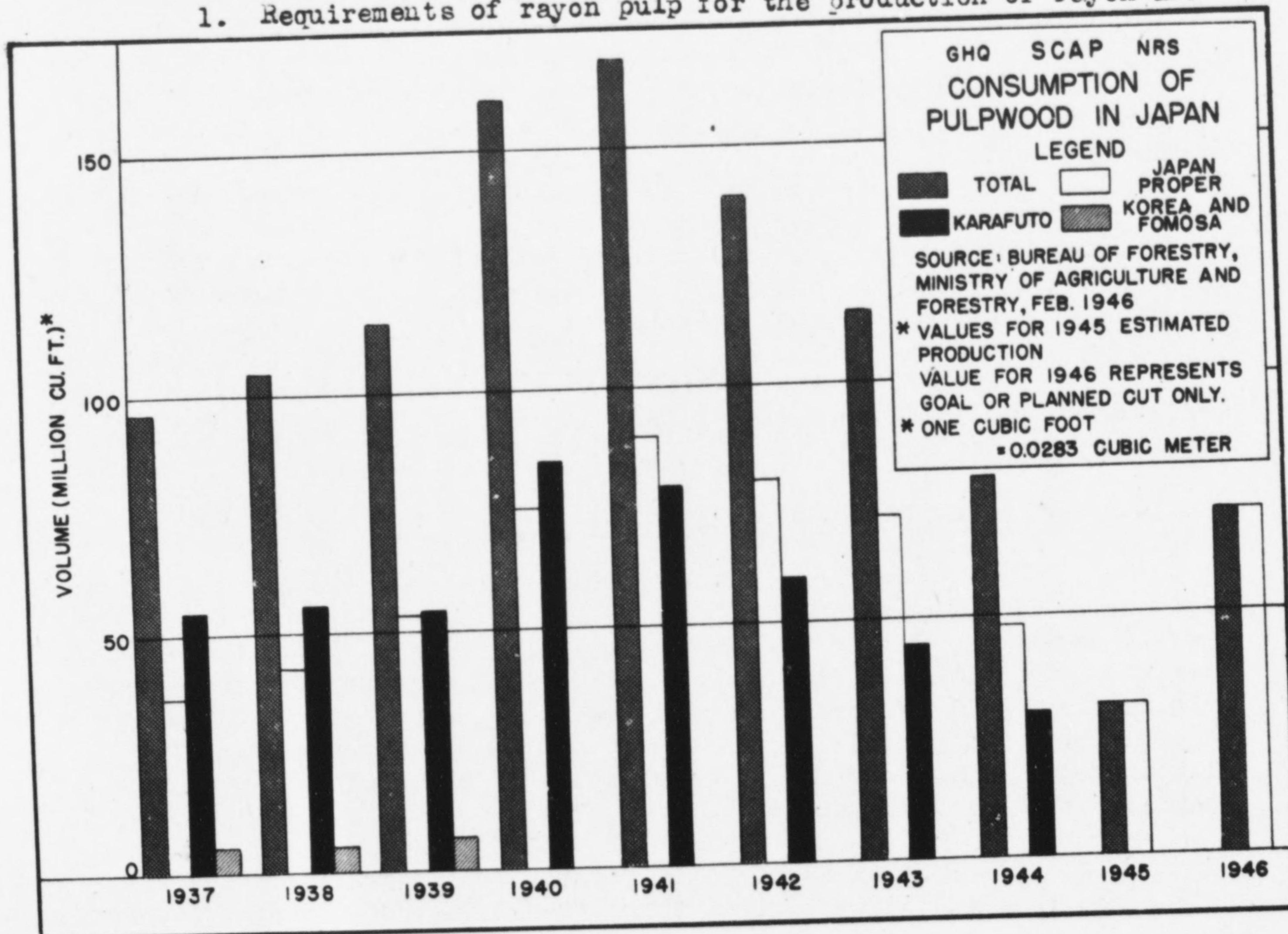


Figure 1



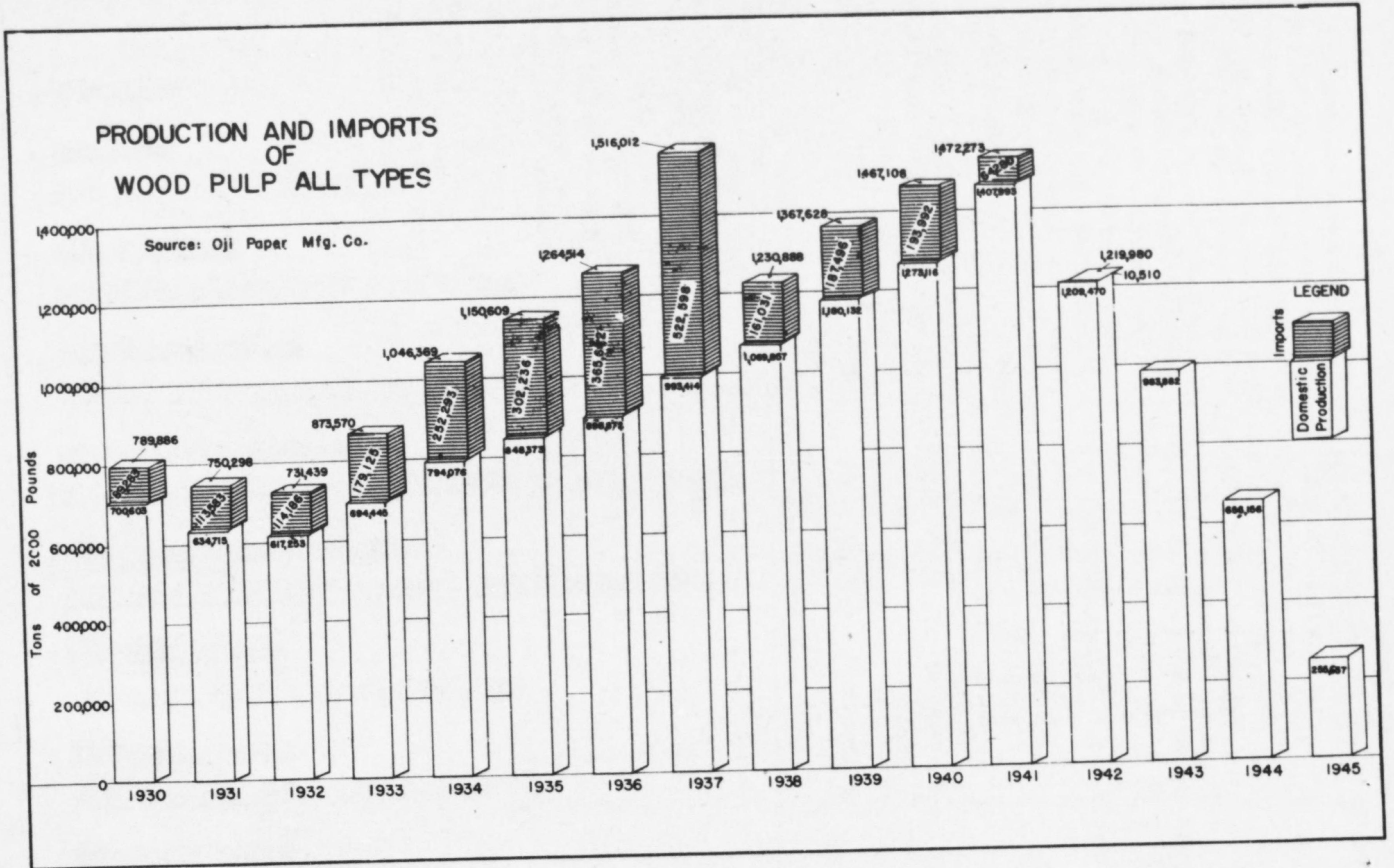


Figure 2



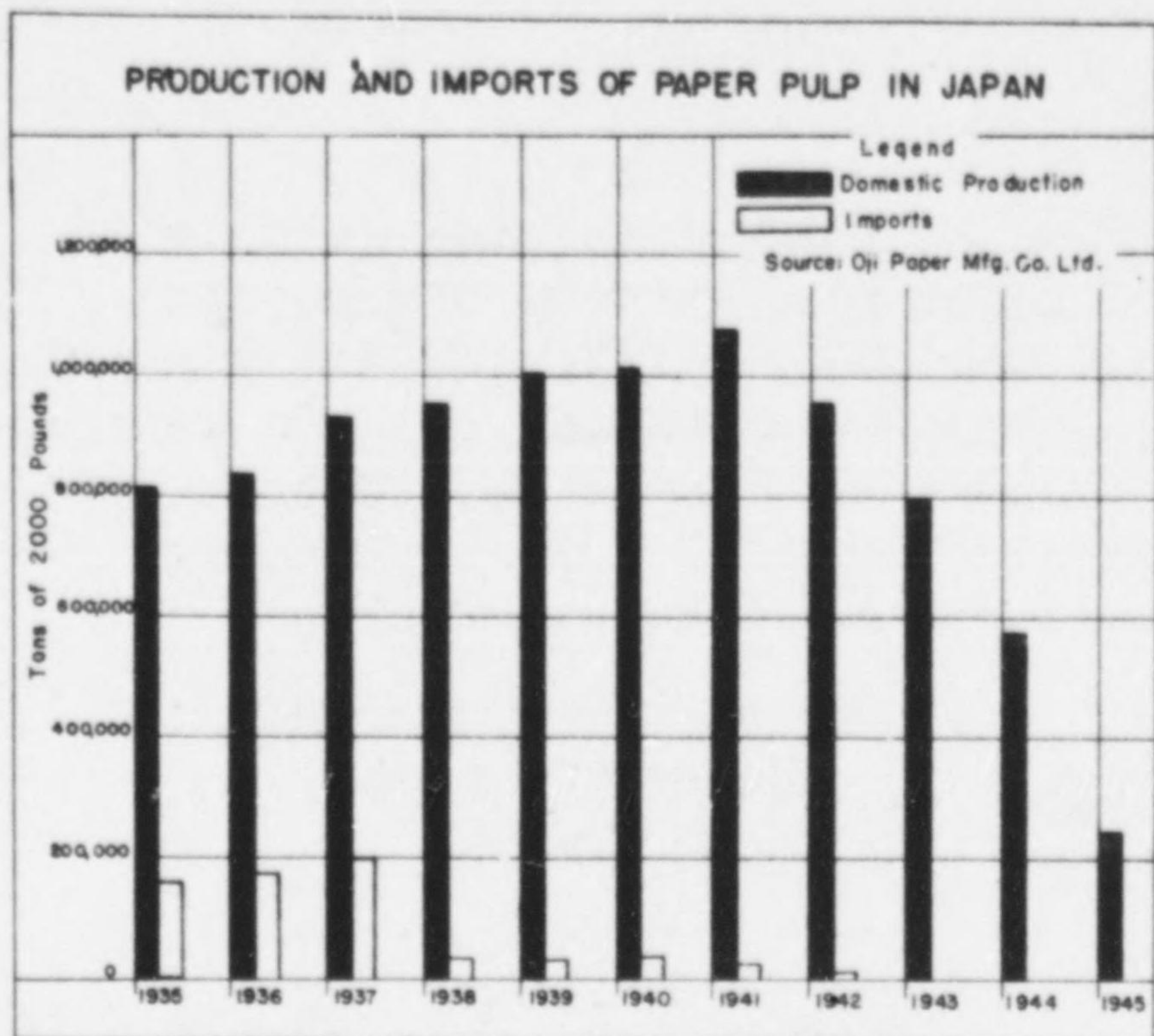


Figure 3

1,211,321 short tons of wood pulp were used in the production of 1,668,765 short tons of paper and paperboard, which is a proportion of about 0.73 tons of wood pulp per ton of paper and paperboard. On this basis, assuming a per capita consumption of paper at the approximate recent prewar level of about 30 pounds per annum, and assuming a population in Japan of about 80,000,000, wood pulp requirements of the paper industry would be nearly 880,000 short tons per annum.

about 1.17 short tons per ton of viscose rayon, and about 1.4 tons of pulp per ton of cupra-ammonium rayon ("Bemberg silk").

2. Because of the numerous fibrous raw materials used in the production of paper and paper board, no simple factor is available for use in calculating the wood pulp requirements for total paper production. As an illustration, however, the fibrous materials consumed by the paper industry and the resultant paper production by types for 1941 are shown in Figure 9. For that year,

PULP TYPES AND METHODS OF MANUFACTURE

A. Preparation of Wood for Pulping

1. The manufacture of pulp originates in the forest with the cutting and collection of wood. The proper trees are felled, the limbs removed, and the trunks cut to standard length and skidded or transported to a railhead, port, or road for transportation to the mill. Typical pulpwood sizes are from four to twenty inches in diameter and from four to twelve feet in length. The greatest woods operations take place in the fall. An adequate supply of pulpwood is stockpiled in the millyard to assure a steady source of raw material to the pulp mill in the event of seasonal decrease or other reduction in the receipt of logs. In warmer climates care must be exercised to prevent loss of

about 1.17 short tons per ton of viscose rayon, and about 1.4 tons of pulp per ton of cupra-ammonium rayon ("Bemberg silk").

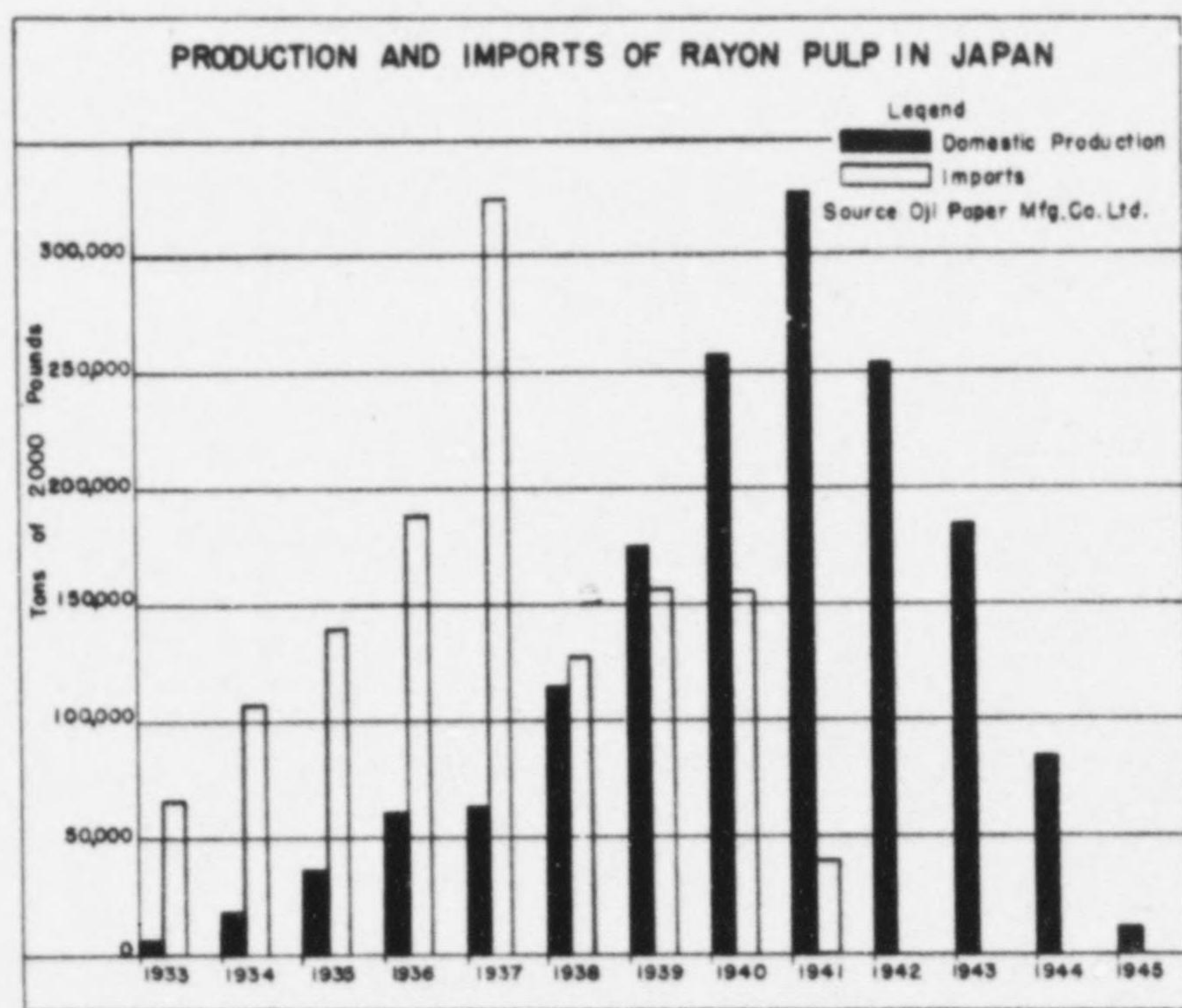


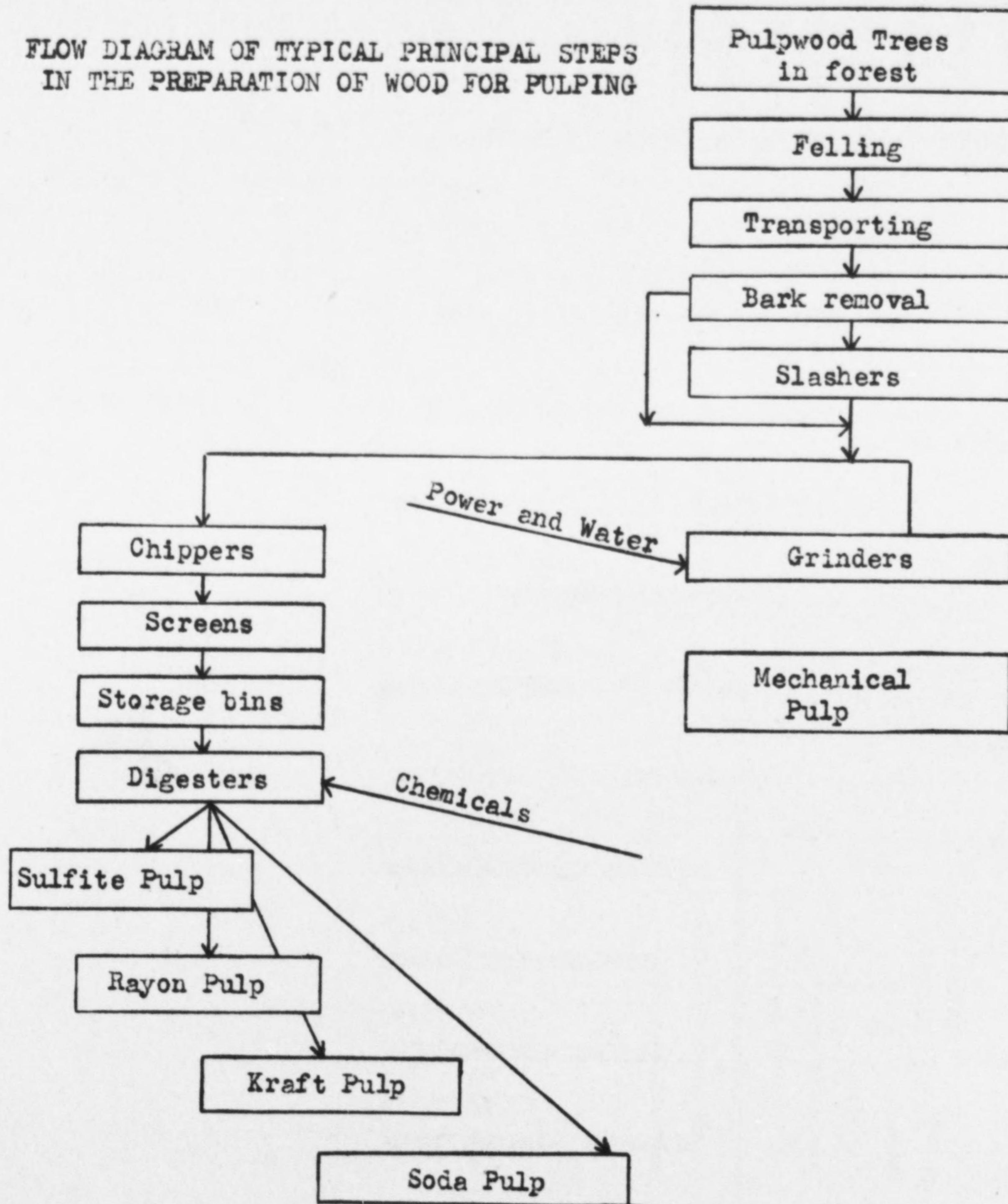
Figure 4



wood and damage to pulp quality by wood rot.

2. The bark of pulpwood is chiefly removed by hand methods in Japan, although some of the large mills have drum barking equipment. Logs are slashed to shorter length after peeling and the largest logs reduced in size by a splitting device. Wood for chemical pulp is reduced to chip form by revolving knives; the chips are screened and conveyed to bins for storage until needed to charge the chemical pulp digesters. Wood for mechanical pulp is conveyed directly to the grinders.

FLOW DIAGRAM OF TYPICAL PRINCIPAL STEPS IN THE PREPARATION OF WOOD FOR PULPING





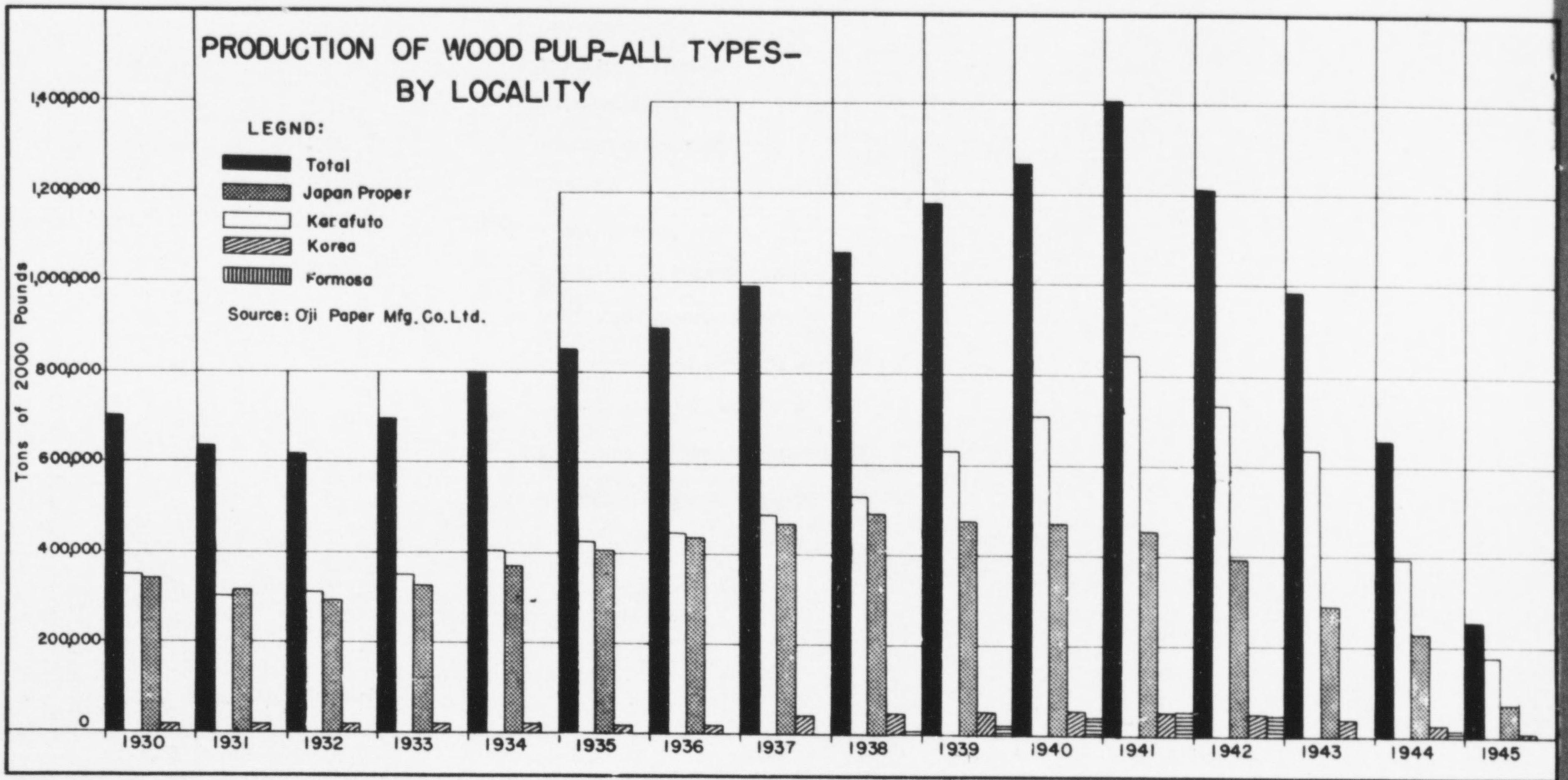


Figure 5



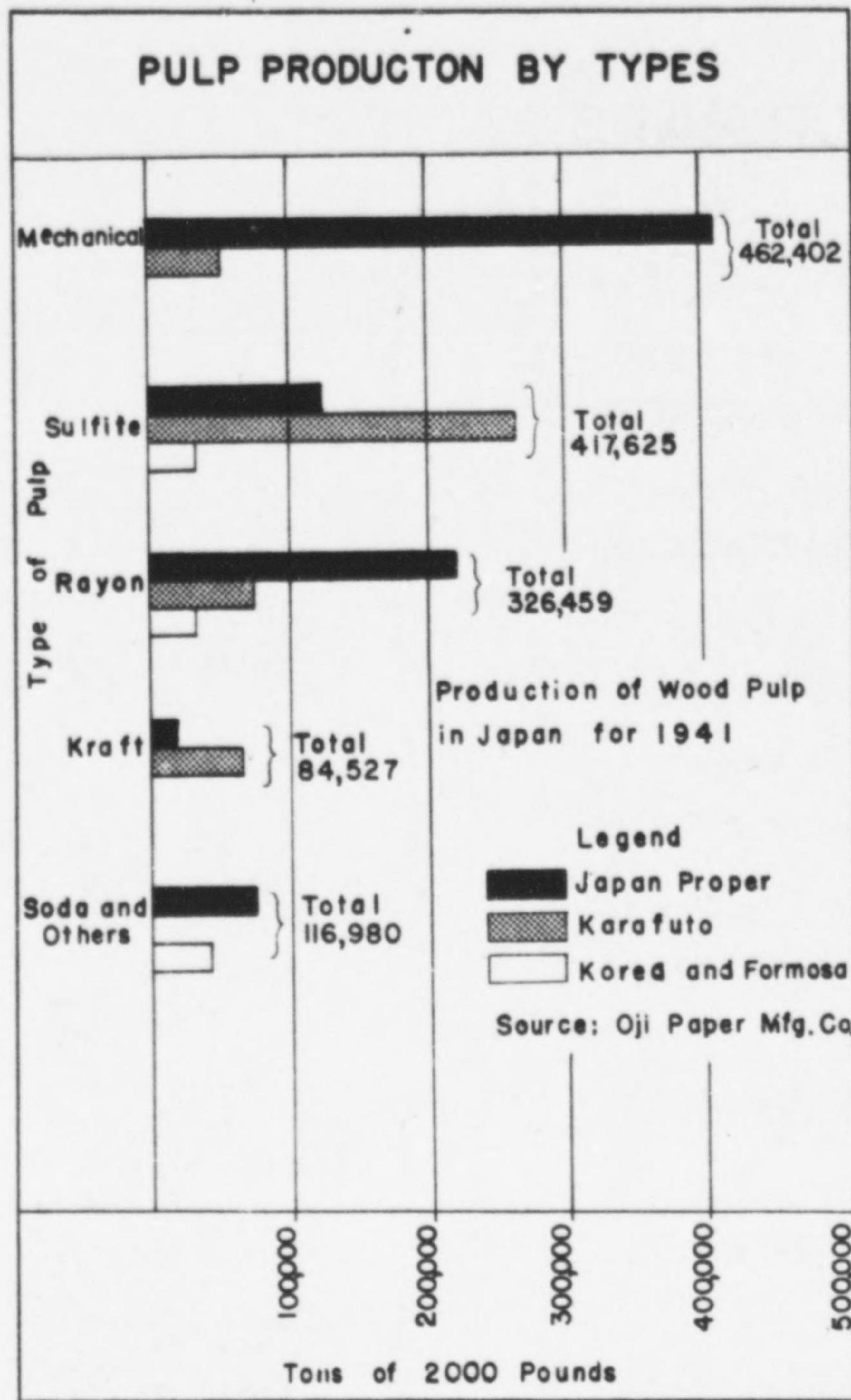


Figure 6

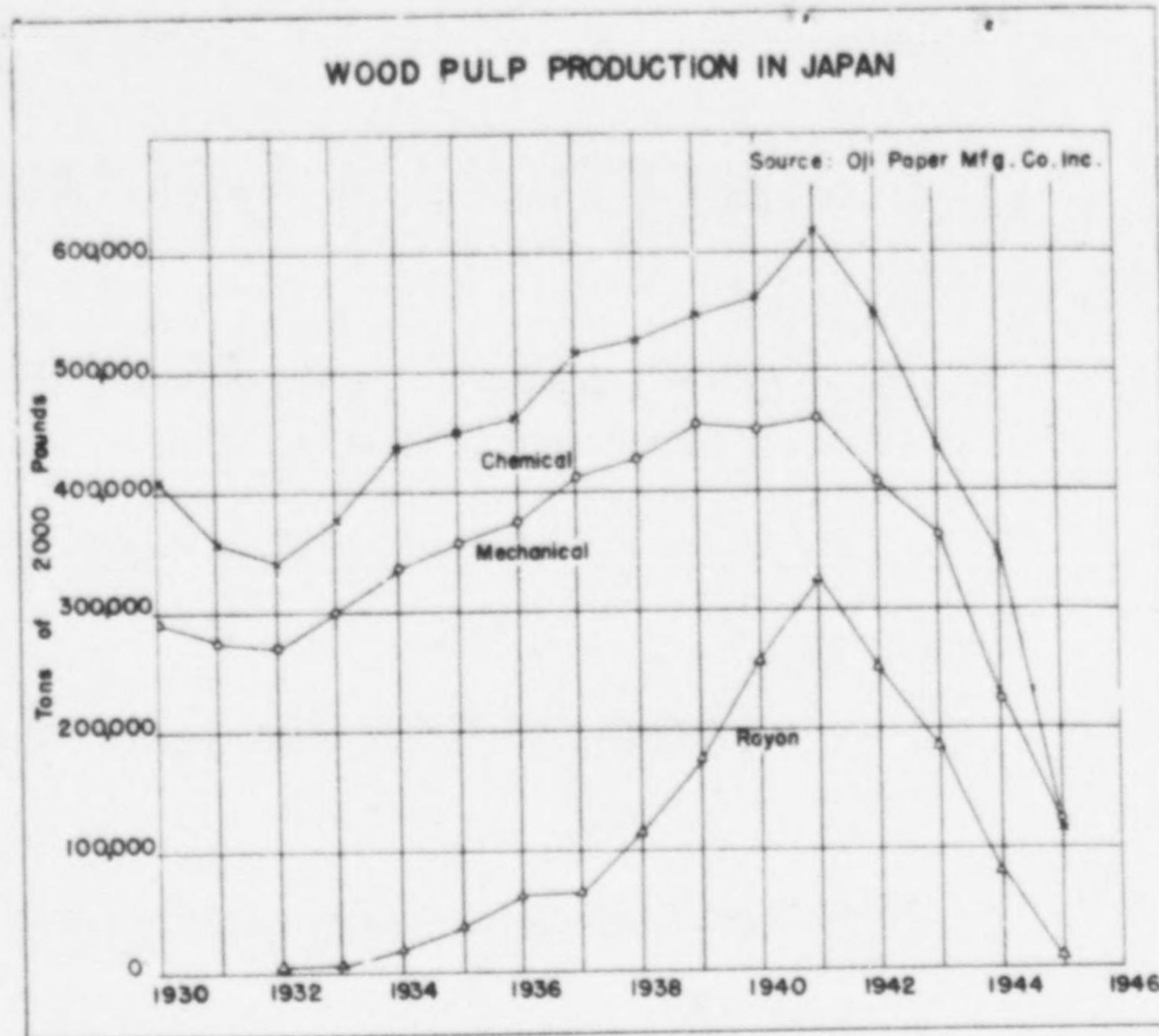


Figure 7

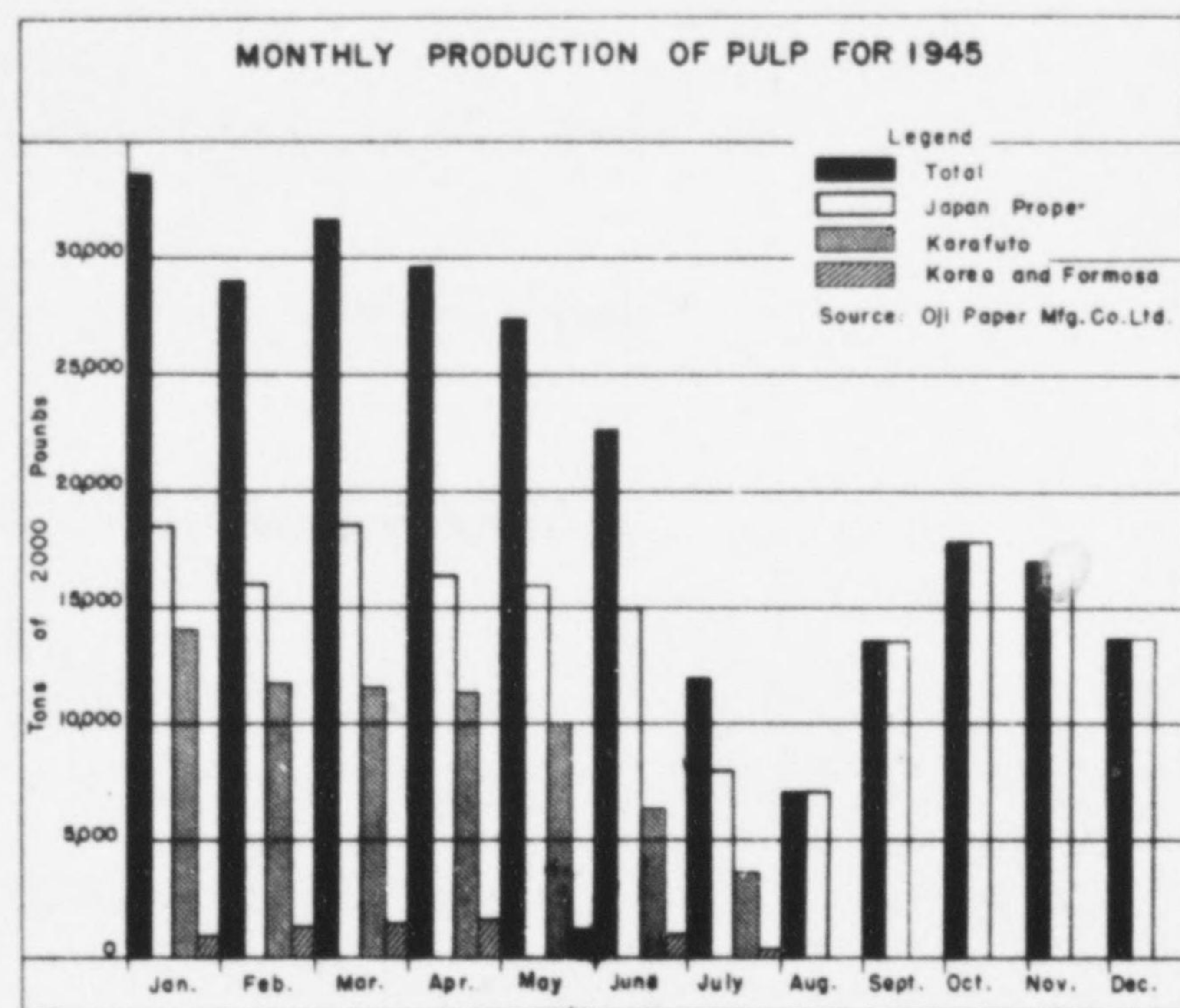


Figure 8

B. Mechanical Pulp

1. Of all common methods of converting wood to paper pulp the most economical from the standpoint of wood conservation, as well as cost, is the mechanical process. In this process wood is simply reduced to a fibrous condition by the action of a special large grindstone. Chemically, the wood is practically unaltered. The pulp produced is neither particularly strong nor of good quality, since the fiber has been damaged by the action of the stone, and contains components of wood which reduce the resistance of the fiber to the action of time, light, and chemicals. Mechanical pulp in admixture with unbleached sulfite pulp is used widely in Japan for paper where permanence is not required, such as newsprint, school books, printing, and wrapping.

2. Wood requirements for the manufacture of groundwood are more exacting than for some chemical processes. The species available



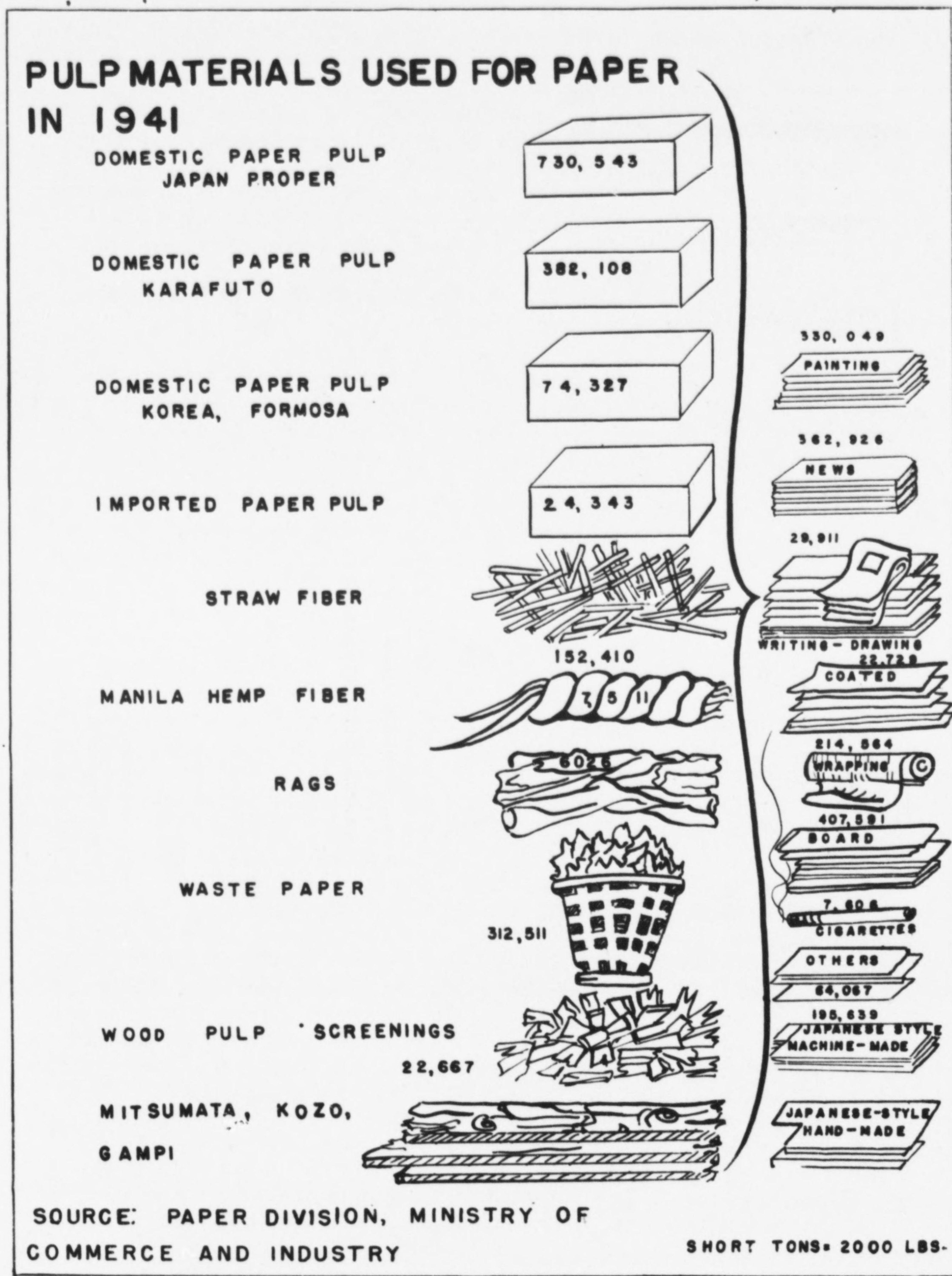


Figure 9



in Japan which are most suitable for grinding are the spruce and fir (yezomatsu and todomatsu) of Hokkaido. In the southern regions, where spruce and fir are not available, red and black pines (akamatsu and kuro-matsu) are used. Pulp produced by the grinding of pine is lower in strength, darker in color, and generally requires longer drainage time for water removal in the manufacture of paper. The latter fact has resulted in an appreciable decrease in paper machine operating speeds and consequently in the use of high-speed machinery generally employed in newsprint manufacture. Little or no hardwood is used in the production of groundwood, owing to high power requirements and to characteristics of the pulp. It is expected that experimentation on the production of hardwood groundwood will be stimulated by severe shortages of the more desirable wood species.

3. The use of groundwood pulp in paper in as large a proportion as possible is to be encouraged in Japan where wood economy is of prime importance and power is reasonably abundant. Approximate raw material requirements per ton of air-dry pulp are illustrated in Figure 10.

4. The production of mechanical pulp in Japan for 1930 to 1945 is shown in Figure 11 and Table 3. Average annual production for 1930 to 1940 was about 360,000 short tons, representing about 44 percent of the total production of all types of paper pulp made during this period. A peak production of 462,420 tons was reached in 1941. Nearly 88 percent of the groundwood production of recent prewar years was centered in Japan Proper. Since the loss of pulp sources in Karafuto was confined largely to chemical pulps, the result has been a substantial increase in the position of groundwood pulp in comparison with other pulp types. The proportion of groundwood to chemical pulp may be considered as an overall evaluation of the quality of papers produced, and the increased proportion of groundwood capacity is likely to be reflected in the production of inferior papers.

5. Thirty-five mills are classified as producers of groundwood pulp. The total rated capacity of these mills, disregarding bomb damage, is estimated to be about 500,000 short tons per annum. By far the largest mill is the Tomakomai mill of the Oji Paper Mfg Co, Ltd, which has a rated capacity of 191,000 short tons of groundwood per annum. Two mills have a capacity of more than 30,000 tons per annum, 9 mills from 10,000 to 30,000 tons per annum, and 24 mills fewer than 10,000 tons per annum. Three mills are situated in Hokkaido, 28 mills in Honshu, and 4 in Kyushu. About 70 percent of the remaining rated capacity for the production of groundwood pulp is held by the Oji Paper Mfg Co, Ltd. Table 4 is a directory of groundwood pulp mills as of January 1946.

#### C. Sulfite Pulp

1. Wood is reduced to chip form and conveyed to large pressure vessels, known as digester, for conversion to chemical pulp. In the



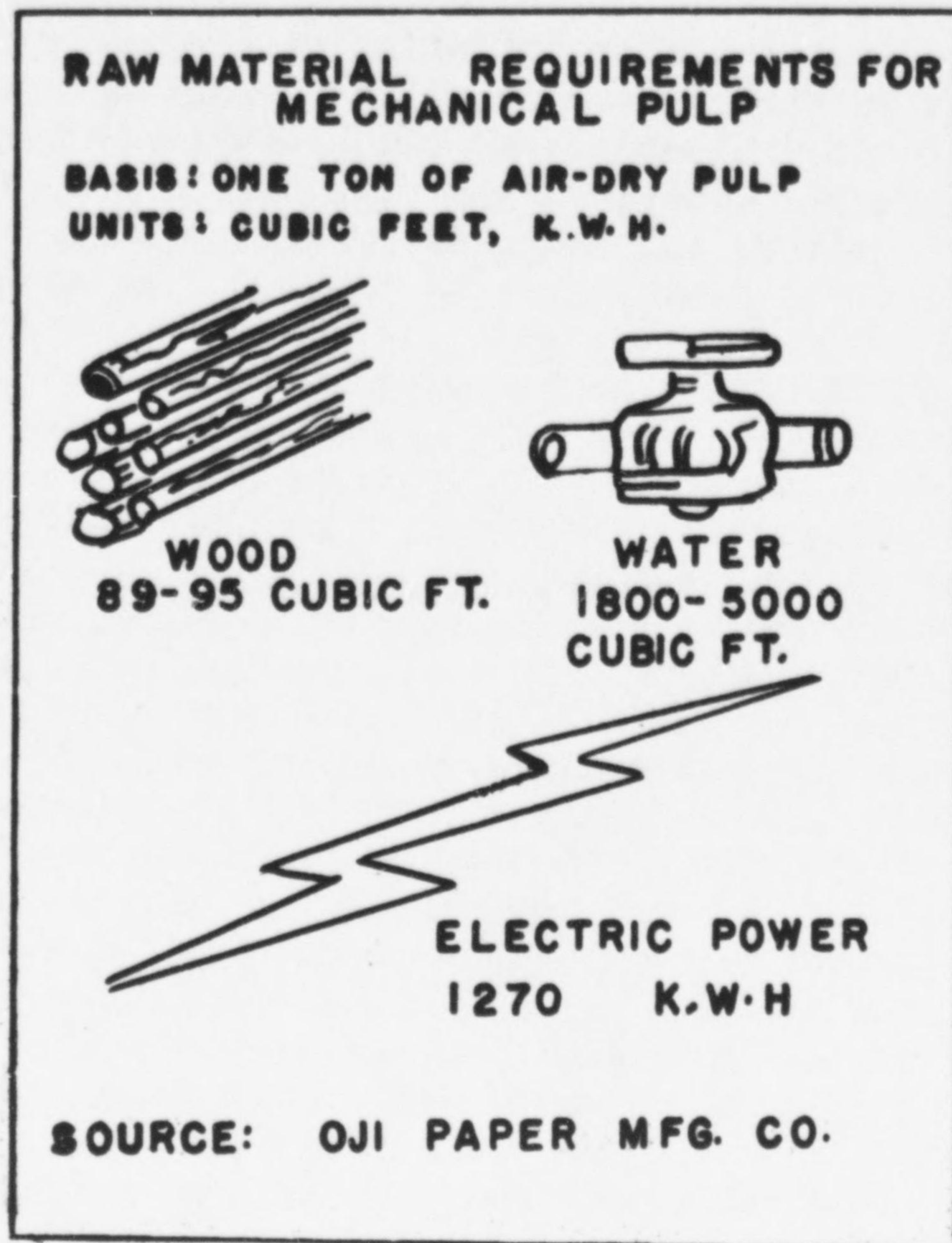


Figure 10

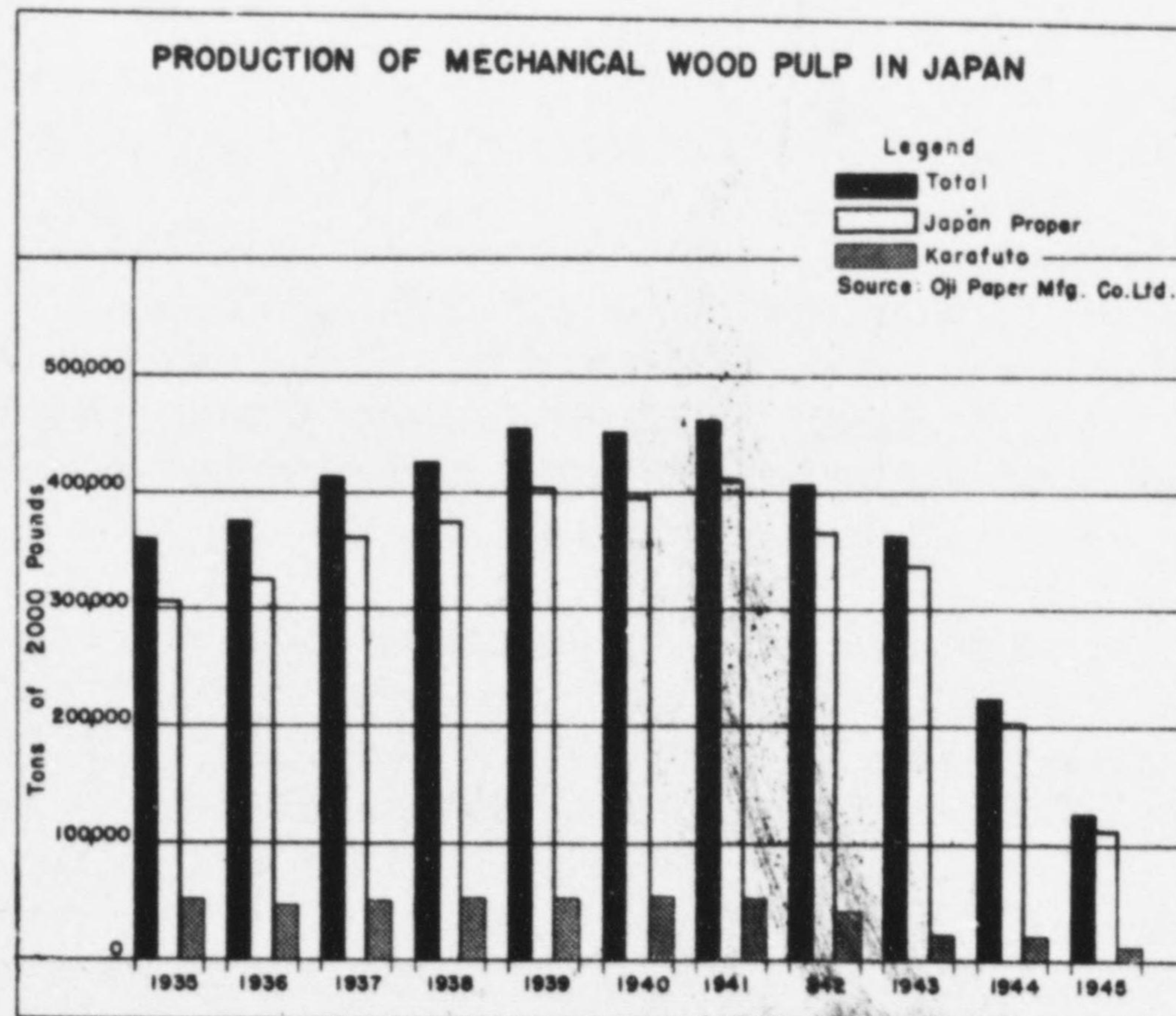


Figure 11



sulfite process, chips are cooked with an acid liquor containing bisulfite of lime as the chief component. Digestion of the wood is carried out at elevated pressure and temperature for a period from 8 to 10 hours. Most of the noncellulosic constituents of wood are removed by this treatment, resulting in the loss of over one-half of the original weight of the wood.

2. As sulfite pulp is the only chemical pulp produced in large volume for use in paper in Japan, it is in great demand by the paper industry. It is an important total or partial constituent of such papers as newsprint, printing, bond, document, blueprint, wrapper, and paper bag. Before the war much sulfite pulp was bleached and used in high quality papers, but, because of the lack of bleaching powder caused by the shortage of salt, the production of bleached sulfite is now small.

3. Spruce and fir (yezomatsu and todomatsu) are considered superior for sulfite pulping. Because of the availability of these woods and of the raw materials, lime and sulfur, large sulfite pulping facilities were developed in Karafuto and Hokkaido. Sulfite pulp is also produced from red and black pines (akamatsu and kuromatsu) of Honshu and Kyushu, although the sulfite process is not generally considered to be well-suited for pulping pine wood. In order to cook pine successfully in Japan and to minimize difficulties caused by resin in the wood, drastic cooking conditions are used. The pulp obtained is inferior in strength and brightness to that obtained from spruce, and the yield of pulp per unit of wood is lower.

4. The average production of sulfite paper pulp from 1930 to 1940 was about 390,000 short tons (Figure 12 and Table 5). This represents about 48 percent of the total paper pulp for the same period. Much of the prewar production of sulfite pulp was concentrated in five mills of the Oji Paper Mfg Co in Karafuto. The dependency upon Karafuto for this type of pulp is shown in Figure 12. Over 65 percent of the total domestic production of sulfite pulp during 1930 to 1940 was centered in Karafuto; about five percent was produced in Korea. The total rated capacity of remaining mills, disregarding bomb damage, is 145,760 short tons per annum. This amount is about 20 percent of the total paper pulp capacity. It is evident that the loss of Karafuto as a source of pulp is particularly severe to consumers of sulfite paper pulp in Japan.

5. Nine pulp mills are classified as producers of sulfite paper pulp, but a certain amount of this type of pulp is also supplied by rayon pulp mills. The largest mill (Tomakomai, Hokkaido) has a capacity of 45,360 short tons a year. Four mills have a capacity of from 10,000 to 30,000 tons per annum, and four mills are rated at less than 10,000 short tons per annum. Three mills are situated in Hokkaido, three in Honshu, and three in Kyushu. About 63 percent of the total remaining capacity (disregarding bomb damage) for the production of sulfite paper pulp is held by the Oji Paper Manufacturing Company, Ltd.



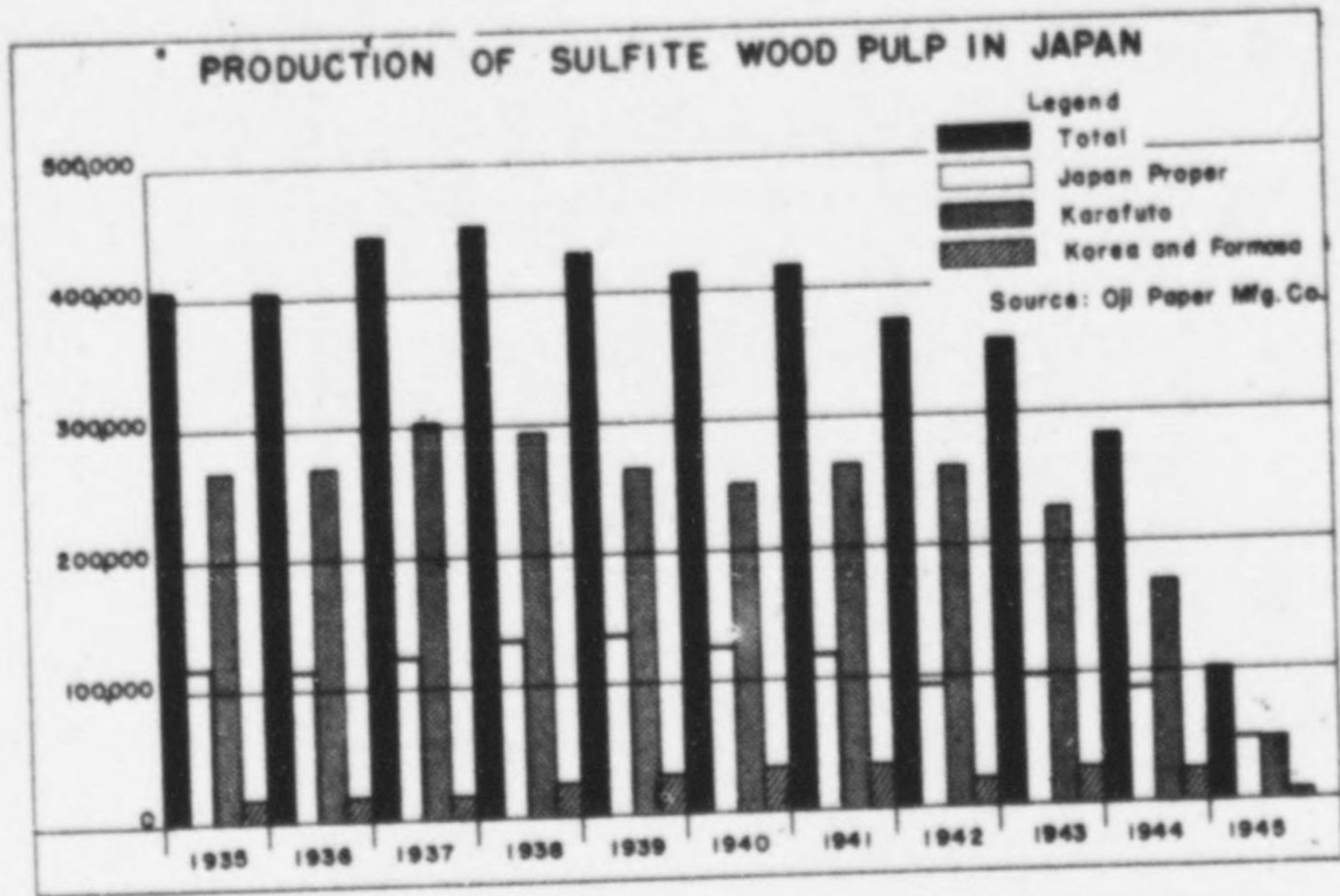


Figure 12

Mills classified as producers of sulfite pulp are listed in Table 6.

D. Rayon Pulp

1. Wood is the chief source of cellulose for the rayon industry in Japan. Nearly all rayon pulp is produced by the sulfite process with certain modifications in the process as it is used to produce paper pulp. Purification treatments to increase the alpha-cellulosic content of sulfite

pulp to the approximate 88 percent required for viscose rayon manufacture include chlorination, alkali treatment, and bleaching.

2. The rapid growth of the rayon industry of Japan in the years preceding the war resulted in a heavy demand for rayon pulp. Although the production of rayon pulp was expanded at a much greater rate than any other type of pulp, domestic production did not keep pace with demand, and Japan depended heavily on imports of this product. The growth of domestic production and the amount of pulp obtained by importation are shown graphically in Figure 4. Data on production by locality and imports are given in Figure 13 and Table 7. Domestic production reached a peak in 1941 with the manufacture of 325,000 short tons, and imports of rayon pulp reached a high of 325,000 tons in 1937.

3. Consumption of cellulose by the rayon yarn and staple fiber industries of Japan is illustrated by Figure 14 and Table 8. Total consumption of cellulose for this purpose, which in 1930 was less than 30,000 short tons, increased to a peak of nearly 400,000 tons in 1937. Although consumption of domestic pulp increased considerably each year through 1941, the dominant source was by importation until about 1938, after which consumption of domestic pulp exceeded that obtained by importation. Stimulus to the development of facilities for domestic production arose from the inability of the Japanese to obtain sufficient quantities of rayon pulp by importation in the years immediately preceding 1941. Nearly all of the rayon pulp consumed after 1941 was produced in Japan. Small amounts of cotton were consumed by the rayon

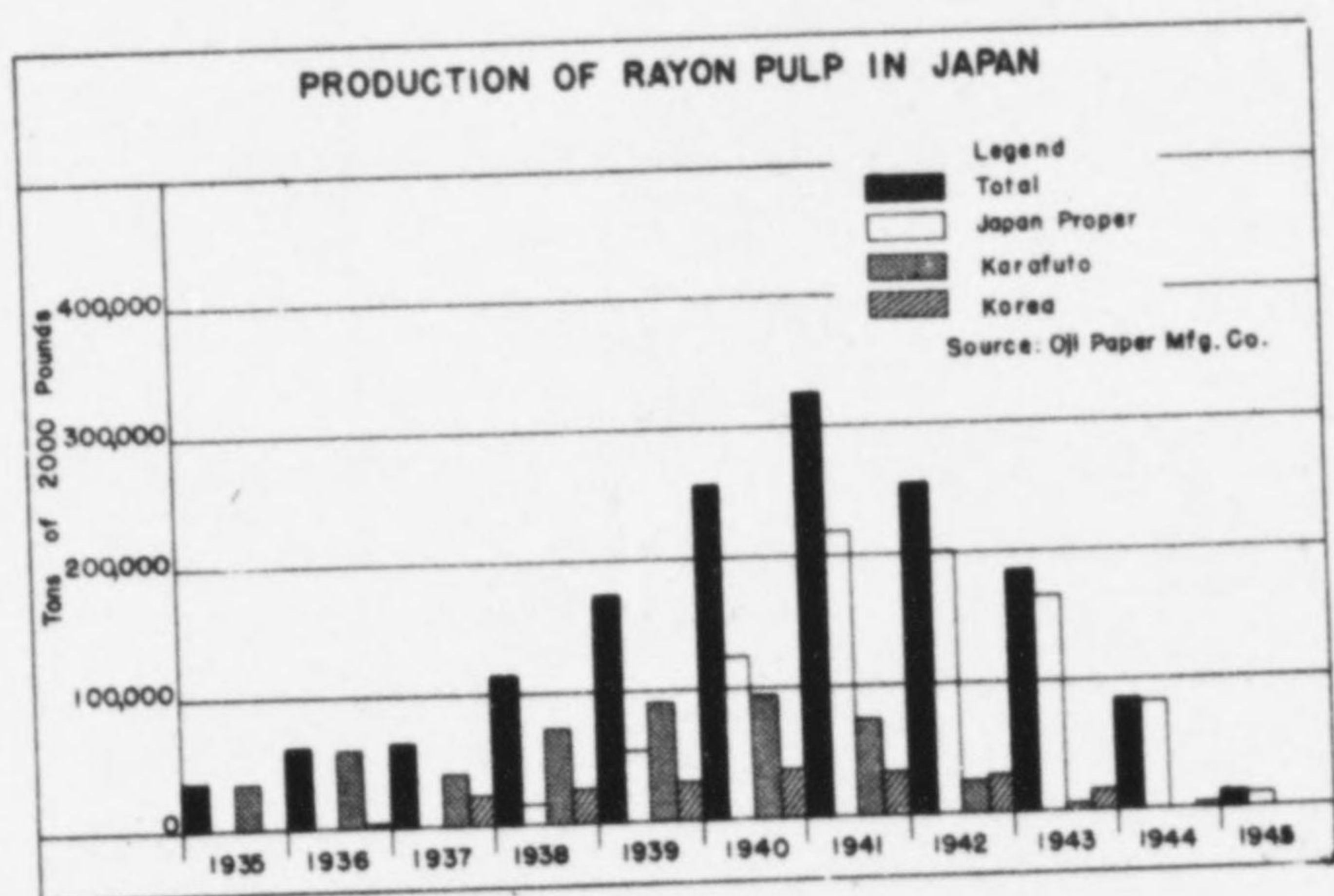


Figure 13



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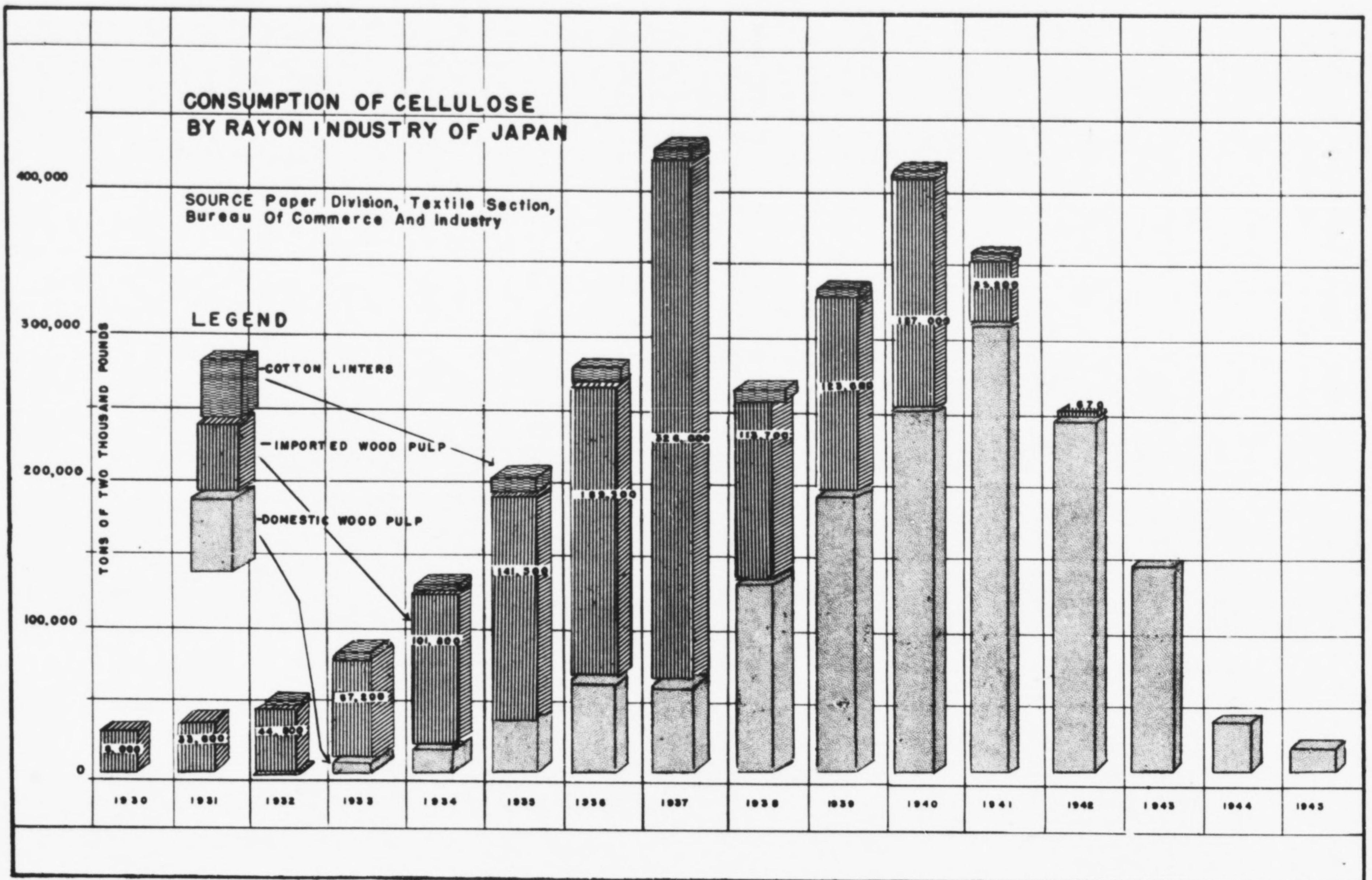


Figure 14





Figure 15

industry, but consumption did not exceed seven percent of the total cellulose used in any year. Cotton, because of its high alpha-cellulosic content, was considered especially desirable in the manufacture of cupra-ammonium rayon, or "Bemberg silk", which is produced by one factory in Kyushu. For the same reason, cotton linters or cotton rags were also used in the manufacture of cellulosic derivatives, such as cellulosic nitrate plastics, explosives, lacquer, coatings, films, artificial leather, rocket propellants, and dynamite. The technique in some cases was to produce a tissue paper from alpha-cellulosic pulp and cut this paper into pieces of uniform size to promote uniform nitration. Wartime effort on the part of the Japanese resulted in the development of techniques of purification of wood pulp to a degree considered suitable for

cupra-ammonium rayon, plastics, and explosives, although perhaps inferior to cotton cellulose at the present stage of development,

4. The wood species used for the production of rayon pulp usually depends on the locality of the mill, although in past years considerable quantities of wood for pulping were shipped from Karafuto to mills on Honshu and Kyushu. Spruce and fir (yezomatsu and todomatsu) are the chief species used in Hokkaido, and mills in Honshu and Kyushu use chiefly red pine (akamatsu), black pine (kuromatsu), and beech (buna). Although little or no hardwoods are used in the production of paper pulp in Japan, the use of up to 40 percent beech is considered desirable in the manufacture of rayon pulp by certain mills. Of all types of pulp, rayon or high-alpha pulps require the greatest volume of wood per ton of pulp, and also the greatest consumption of chemicals. Approximate wood, chemical, coal, power, and water requirements based on one ton of air-dry rayon pulp are given in Figure 15. Rayon pulp produced in Japan was generally considered inferior and of less uniform quality than pulps obtained by importation. During prewar years, imported pulp was usually employed to produce high grade rayon for the export market, while the domestic production was used to supply Japan's home needs for rayon yarn and staple fiber.



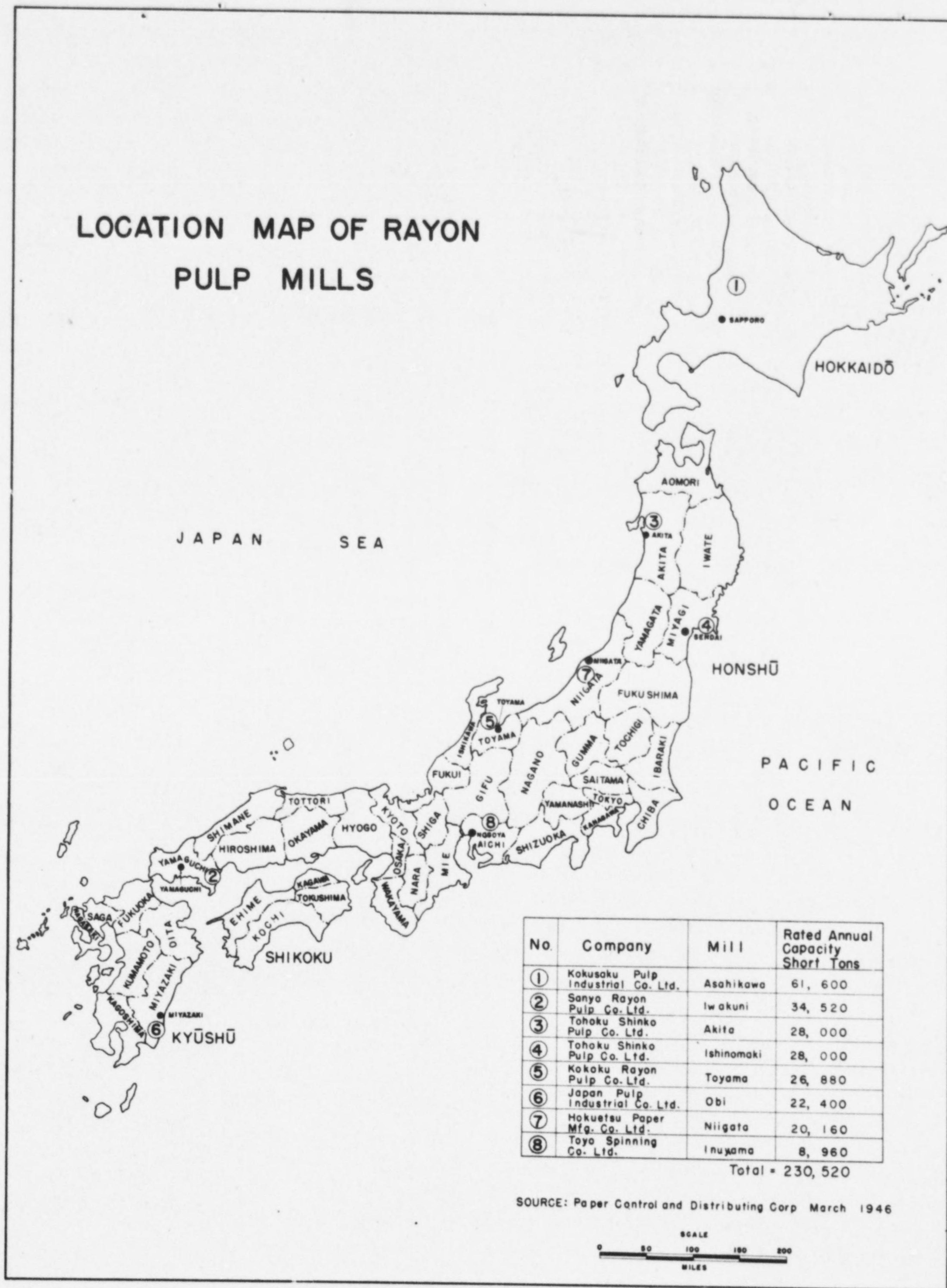


Figure 16



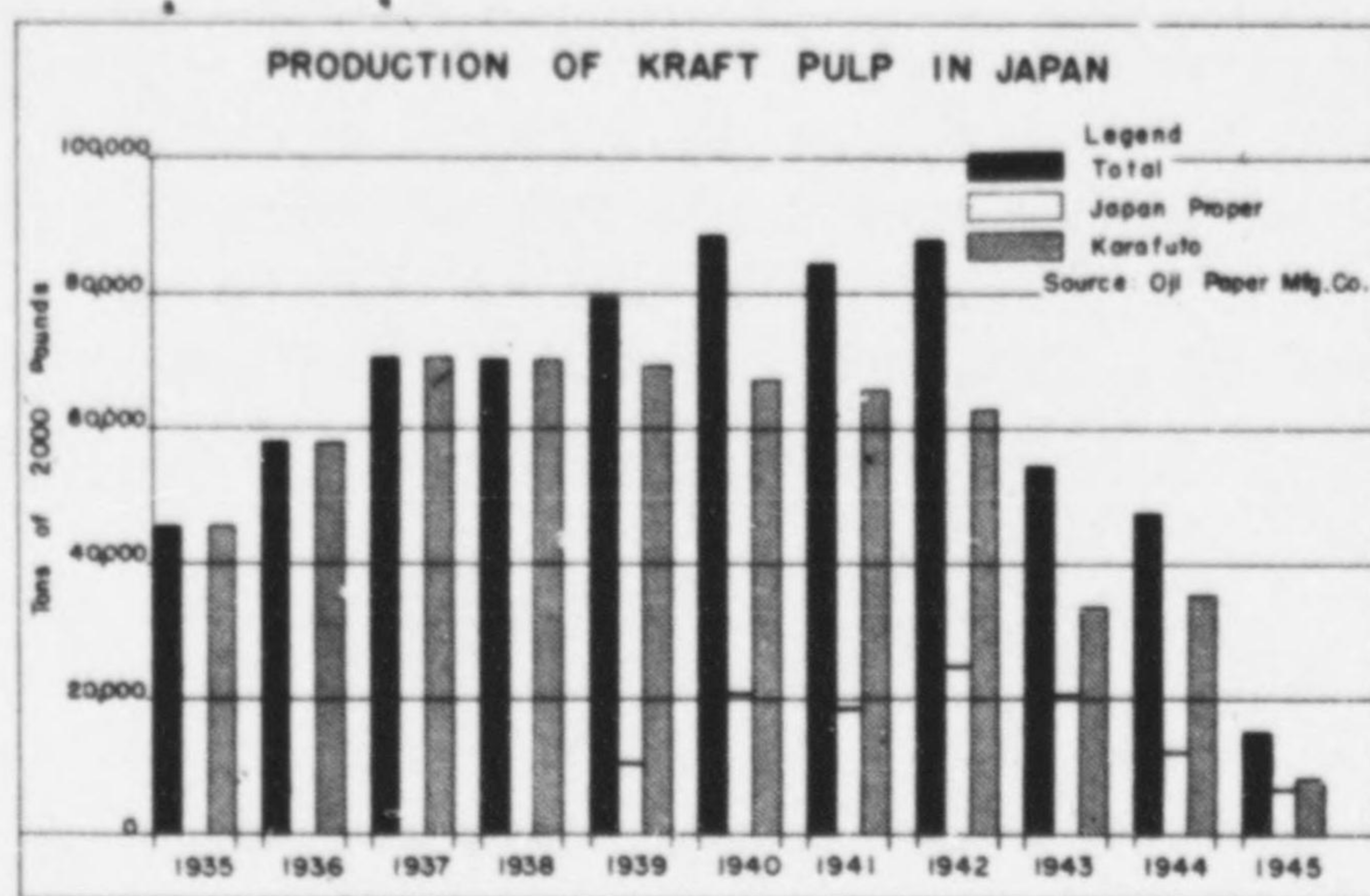


Figure 17

5. Domestic production of rayon pulp in Japan began in Karafuto as recently as 1932. Small amounts of pulp were obtained from Korea after 1936, but production in Japan Proper did not begin until about 1938. In 1941 Karafuto and Korea contributed less than one-third of the total. The extremely rapid growth of this industry in Japan Proper is thus illustrated. From a consideration of the strong situation of rayon pulp facilities in Japan Proper, the present reduced capacity of the rayon industry, and the shortage of caustic soda for rayon manufacture, the remaining equipment capacity for rayon pulp manufacture appears to be in excess of the capacity of rayon plants to consume pulp. Assuming no imports of wood pulp, rayon pulp mills may be in a position to furnish the pulp requirements of the rayon industry and in addition to supply a certain tonnage of bleached or unbleached sulfite pulp to the paper industry.

6. Pulp mills producing rayon pulp are in general among the largest and most modern in Japan. Eight pulp mills in Japan Proper are classified as producers of rayon pulp. The location, rated annual capacity, and certain production data are given in Figure 16. Aggregate capacity after reconversion or repair of bomb damage is about 230,000 short tons per annum. A peak production of 219,000 short tons in Japan Proper was achieved in 1941. Production for 1945 in Japan Proper was only 10,900 tons, or about five percent of remaining capacity. The scarcity of caustic soda for both pulp and rayon manufacture is the chief cause of the low production in 1945.

#### E. Sulfate Pulp

1. Sulfate or kraft pulp is prepared by cooking wood chips with a liquor containing sodium sulfide and caustic soda as the active ingredients. The chief chemical raw materials used are salt cake (sodium sulfate) and quick-lime. The process is actually a modification of the soda process, but because non-cellulosic materials are removed from wood with less degradation of the fiber, a stronger pulp results. Kraft pulps are desirable for important papers such as are used for wrappers, containers, and cement bags where strength is of prime importance. The wood species commonly used in Japan for the production of kraft pulp are red pine (akamatsu), black pine (kurumatsu), spruce (yezomatsu), and fir (todomatsu). Nearly any wood, however, can be successfully pulped by the kraft process.



2. The kraft process was adopted in Japan at a time when rapid expansion of the wood pulp industry was taking place in Karafuto, with the result that the modern kraft pulp industry was centered in that peninsula. Before 1939 all of the domestic kraft pulp had Karafuto as its source. No kraft pulp was produced in Korea or Formosa. The average production of kraft paper pulp in Karafuto and therefore in Japan for the years 1930 through 1938 was about 48,500 short tons (Figure 17, Table 9), or about six percent of the total paper pulp production for the same period. Imports of kraft pulp during this period averaged about 26,266 short tons per annum. For purposes of comparison, about 45 percent of the total pulp produced in the United States in 1943 was kraft. Production of kraft in Japan Proper expanded from fewer than 11,000 short tons in 1939 to about 25,000 tons in the peak production year of 1942. At the end of the war in 1945 the rated production capacity of all Japan was 138,340 short tons per annum, but the capacity of remaining mills in Japan Proper is 53,220 tons. The loss of over 60 percent of the kraft pulp capacity, coupled with the loss of imports, is of serious consequence to the kraft paper industry and to industries which require products such as paper containers or multiwalled bags. Table 10 lists the pulp mills classified as producers of kraft pulp.

#### F. Soda Pulp

1. Soda pulp is prepared by cooking wood chips in a digester at elevated temperature and pressure using a solution of caustic soda, which dissolves the ligneous matter of wood to leave a residue of cellulose fiber. In addition to its use in the pulping of wood, the soda process in Japan has also been applied to the digestion of straw, grass, bamboo, koza, mitsumata, bagasse, and other fibrous materials. Nearly any kind of wood is used for soda pulp in Japan, the most important factor apparently being availability. Most of the soda pulp produced in Japan is low in strength, poor in color, and non-uniform, and it is consumed in small amounts in a multitude of papers where strength and quality are not too important. Such papers include toilet tissue, box boards, certain writing papers, and Japanese-style papers, including the hand-made variety. Although well-prepared soda pulp has special characteristics which make it suitable for use in certain papers, the tendency in Japan appears to be to consume the pulp wherever it can be tolerated, rather than because of its special properties.

2. During the past eight years, soda pulp was produced chiefly in Japan Proper and Formosa, with a small production in Korea. No soda pulp was produced in Hokkaido or in Karafuto. With one exception, all soda mills are located in the central and southern half of Honshu, in Kyushu, and Shikoku. Because of the small and dispersed nature of the industry, no data are available on production prior to 1938. Total production of soda pulp increased from about 3,000 short tons in 1938 to a high of about 117,000 short tons in 1941; in the latter year, the production was about 11 percent of the total production of paper pulp.



About one-third of the 1941 production was centered in Formosa. Soda pulp mills total about 50; thus, in Japan Proper in the highest production year, the average annual production per mill was only about 1,500 short tons. The largest mill has a rated annual capacity of 5,380 short tons.

3. The production of soda pulp is at a virtual standstill now because of the shortage of caustic soda. The process as practiced in Japan is wasteful of caustic soda because the size of the mills is so small that recovery of chemical is not feasible. However, given sufficient chemical, these mills are able to contribute to relief of the fiber shortage by pulping straw, grass, bamboo, or other materials which normally would not be used by larger pulp mills. Data on the production of soda pulp are set out in Table 11.

G. Location of Paper Mills

1. The location of the paper mills in Japan is shown on Plate 1.



**TABLE 1. - PRODUCTION AND IMPORTS OF WOOD PULP, ALL TYPES  
(Short tons)**

Year	Domestic Production				Total	Imports
	Japan Proper	Karafuto	Korea	Formosa		
1930	343,725	340,950	15,928	ND	700,603	89,283
1931	301,412	316,400	16,903	ND	634,715	113,583
1932	309,845	290,409	16,999	ND	617,253	114,186
1933	351,805	324,629	18,011	ND	694,445	179,125
1934	402,553	371,343	20,180	ND	794,076	252,293
1935	426,313	403,170	18,890	ND	848,373	302,236
1936	442,928	435,964	19,980	ND	898,872	365,642
1937	485,625	465,449	42,340	ND	993,414	522,598
1938	529,175	489,777	45,229	5,676	1,069,857	161,031
1939	632,605	476,457	48,875	22,195	1,180,132	187,496
1940	706,007	470,738	56,733	39,625	1,273,116	193,992
1941	844,684	456,561	52,786	53,962	1,407,993	64,280
1942	730,535	387,829	47,224	43,882	1,209,470	10,510
1943	635,773	288,780	36,573	22,756	983,882	ND
1944	397,203	223,965	23,464	11,524	656,156	ND
1945	178,098	69,531	6,052	1,976	255,657	ND

ND: No data available  
Source: Oji Paper Mfg Co, Ltd

**TABLE 2. - PULP PRODUCTION FOR 1945**

Type of Pulp	Rated Productive Capacity (Jan. 1946)		1945 Production	
	% of total	Short Tons	Short Tons	% of Capacity
Mechanical	52	499,900	125,907	25
Sulfite	15	145,760	101,348	70
Rayon	24	230,600	11,422	5
Kraft	5	53,200	15,225	29
Soda	4	40,000 g/	1,755	4
<b>TOTAL</b>	<b>100</b>	<b>969,460</b>	<b>255,657</b>	

g/ Estimate  
Source: Oji Paper Mfg Co, Ltd

**TABLE 3. - PRODUCTION OF MECHANICAL PULP  
(Short Tons)**

Year	Japan Proper	Karafuto	Korea	Formosa	Total Mechanical	Japan Proper %	Total Paper Pulp	Total Mechanical %
1930	243,195	47,988	ND	ND	291,183	83.5	700,603	41.6
1931	236,232	39,836	ND	ND	276,068	85.5	634,715	43.5
1932	238,908	31,847	ND	ND	270,755	88.2	613,221	44.2
1933	259,239	40,914	ND	ND	300,153	86.4	627,837	43.6
1934	268,886	48,830	ND	ND	337,716	85.5	774,857	43.6
1935	307,378	52,176	ND	ND	359,554	85.5	810,926	44.3
1936	327,303	46,835	ND	ND	374,138	87.5	837,038	44.7
1937	361,400	51,511	ND	ND	412,911	87.5	929,245	44.4
1938	374,151	52,562	ND	ND	426,713	87.7	954,102	44.7
1939	403,305	52,625	ND	ND	455,930	86.5	1,004,212	45.4
1940	326,364	55,409	ND	ND	452,273	87.8	1,014,594	44.6
1941	410,347	52,055	ND	ND	462,402	88.7	1,081,534	42.7
1942	366,280	41,838	ND	236	408,354	89.7	955,483	42.7
1943	338,425	21,147	1,452	1,399	362,723	93.3	798,427	45.4
1944	202,374	19,097	1,131	2,352	224,954	89.9	572,123	39.3
1945	111,603	13,654	0	650	125,907	88.6	244,235	51.5

ND: No data available  
Source: Oji Paper Mfg, Co, Ltd



TABLE 4. - DIRECTORY OF GROUND WOOD PULP MILLS IN JAPAN PROPER

District or Prefecture	Company	Mill	Rated Production Capacity Short tons per year
Hokkaido	Oji Paper Mfg Co	Tomakomai	191,520
Hokkaido	Oji Paper Mfg Co	Kushiro	26,810
Hokkaido	Kokusaku Pulp Ind Co Ltd	Yufutsu	3,120
Teichigi	Takasaki Board Paper Co Ltd	Nikko	5,540
Saitama	Hokuetsu Paper Mfg Co Ltd	Toda	1,310
Tokyo	Japan Paper Mfg Co Ltd	Akabane	5,040
Tokyo	Mitsubishi Paper Mfg Co Ltd	Nakagawa	3,120
Tokyo	Oji Paper Mfg Co Ltd	Jujo	7,660
Niigata	Hokuetsu Paper Mfg Co Ltd	Niigata (1)	43,340
Toyama	Oji Paper Mfg Co Ltd	Fushiki	22,280
Fukui	Tsuda Pulp Laboratory	Fukui	500
Nagano	Kondo Pulp Works	Miyata	1,310
Nagano	Toshin Paper Mfg Co Ltd	Shiraita	2,270
Shizuoka	Shizuoka Groundwood Pulp Co	Iwabuchi	730
Shizuoka	Shinsei Fiber Ind Co Ltd	Yoshinaga	5,750
Shizuoka	Daiishwa Paper Mfg Co Ltd	Suzukawa	5,140
Shizuoka	Tokai Jigyo Co Ltd	Shimada (1)	19,050
Shizuoka	Tokai Jigyo Co Ltd	Shimada (2)	13,410
Shizuoka	Fuji Lumber Ind Co Ltd	Fujine and Takaoka	11,590
Shizuoka	Oji Paper Mfg Co Ltd	Fuji No 2	7,960
Shizuoka	Oji Paper Mfg Co Ltd	Fuji No 3	15,320
Gifu	Kyowa Kensai Ind Co Ltd	Yena	ND
Gifu	Takayama Pulp Works	Takayama	2,020
Gifu	Kondo Pulp Works	Oi	1,710
Gifu	Oji Paper Mfg Co Ltd	Hakatsu	28,220
Shiga	Kyoei Board Paper Co Ltd	Otsu	2,120
Shiga	Tsuda Pulp Research Lab	Tsuda	500
Kyoto	Toyo Fiber Ind Co Ltd	Kyoto	4,110
Osaka	Mitsubishi Paper Co Ltd	Naniwa	9,480
Hyogo	Hyogo Paper Mfg Co Ltd	Sonoda	2,200
Hyogo	Oji Paper Mfg Co Ltd	Kanzaki	7,360
Fukuoka	Japan Rubber Co Ltd	Fukuoka	2,120
Nagasaki	Kyushu Pulp Ind Co Ltd	Isehaya	2,000
Kumamoto	Oji Paper Mfg Co Ltd	Yatsushiro	27,420
Kumamoto	Oji Paper Mfg Co Ltd	Sakamoto	17,540
TOTAL			499,900

ND No data available  
Source: Paper Control and Distribution Corp, Feb 1946

TABLE 5. - PRODUCTION OF SULFITE PULP (Short Tons)

Year	Locality				Total Sulfite	Japan Proper	Total Paper Pulp	Total Sulfite
	Japan Proper	Karafuto	Korea	Formosa				
1930	100,530	261,152	15,926	ND	377,610	26.6	700,603	53.8
1931	65,110	242,909	16,903	ND	324,992	20.0	674,715	51.2
1932	70,937	218,930	16,999	ND	306,866	23.1	613,221	50.0
1933	92,566	232,146	18,011	ND	342,723	27.0	687,837	49.3
1934	113,667	258,592	20,180	ND	392,439	28.9	774,857	50.7
1935	118,935	268,181	18,890	ND	406,006	29.3	810,926	50.0
1936	115,625	270,245	18,994	ND	404,864	28.5	837,038	48.4
1937	124,165	302,033	18,977	ND	445,175	27.9	929,245	47.9
1938	135,756	293,068	18,943	5,676	453,443	29.9	954,102	47.5
1939	138,014	263,518	17,455	12,377	431,364	31.4	1,004,212	42.9
1940	128,561	251,497	17,826	15,680	413,564	31.1	1,014,594	40.8
1941	120,516	264,317	17,208	15,584	417,625	28.9	1,081,534	38.6
1942	92,574	259,948	12,702	8,281	373,505	24.8	955,483	39.1
1943	100,325	228,463	19,378	8,786	356,952	28.1	798,427	44.7
1944	88,190	169,355	20,036	4,331	281,912	31.3	572,123	49.3
1945	47,901	47,428	5,532	487	101,348	47.3	244,235	41.5

ND: No data available  
Source: Oji Paper Mfg Co Ltd



**TABLE 6. - PRODUCERS OF SULFITE PULP  
(As of January 1946)**

District or Prefecture	Company	Mill	Rated Production Capacity Short Tons/year
Hokkaido	Oji Paper Mfg Co, Ltd	Tomakomai	45,360
Hokkaido	Oji Paper Mfg Co, Ltd	Kushiro	9,580
Hokkaido	Kokusaku Pulp Ind Co, Ltd	Yufutsu	15,120
Niigata	Hokusei Paper Mfg Co, Ltd	Niigata (1)	27,220
Shizuoka	Oji Paper Mfg Co, Ltd	Fuji No 3	14,110
Gifu	Oji Paper Mfg Co, Ltd	Nakatsu	7,660
Fukuoka	Takachiho Paper Mfg Co, Ltd	Fukuoka	12,100
Kumamoto	Oji Paper Mfg Co, Ltd	Yatsushiro	7,860
Kumamoto	Oji Paper Mfg Co, Ltd	Sakamoto	6,750
<b>TOTAL</b>			<b>145,760</b>

Source: Paper Control and Distribution Corp, Feb 1946

**TABLE 7. - RAYON WOOD PULP IN JAPAN  
(Short tons)**

Year	Production			Imports	Total Production Plus Imports
	Japan Proper	Karafuto and Korea	Total		
1930	None	None	None	28,000	28,000
1931	None	None	None	33,600	33,600
1932	None	4,032	4,032	44,800	48,832
1933	None	6,608	6,608	67,200	73,808
1934	None	19,219	19,219	100,800	120,019
1935	None	37,447	37,447	141,477	178,924
1936	None	61,834	61,834	189,401	251,235
1937	None	64,169	64,169	325,385	389,554
1938	16,169	99,586	115,755	127,772	243,527
1939	54,980	120,920	175,920	157,555	333,475
1940	125,338	133,184	258,522	156,814	415,336
1941	219,585	106,874	326,459	39,937	366,396
1942	201,749	52,238	253,987	660	254,647
1943	164,806	20,649	185,455	0	185,455
1944	81,736	2,297	84,033	0	84,033
1945	10,902	520	11,422	0	11,422

Sources: Oji Paper Mfg Co, Ltd

**TABLE 8. - CELLULOSE CONSUMPTION BY RAYON INDUSTRY IN JAPAN  
(Short tons)**

Year	WOOD PULP			Cotton Linters Imported	Total wood Plus Cotton
	Domestic	Imported	Total		
1930	16	28,000	28,016	ND	28,016
1931	155	33,600	33,755	570	34,325
1932	2,590	44,800	47,390	3,130	50,520
1933	9,470	67,200	76,670	4,400	81,070
1934	19,580	101,800	121,380	5,670	127,050
1935	39,100	141,500	180,600	7,350	187,950
1936	56,300	189,500	245,800	8,450	254,250
1937	62,800	326,000	388,800	8,420	397,220
1938	123,200	113,700	236,900	8,240	245,140
1939	181,000	123,600	304,600	6,690	311,290
1940	230,000	157,000	387,000	5,880	392,880
1941	287,000	39,200	326,200	6,560	332,760
1942	225,000	670	225,670	2,390	228,060
1943	127,000	0	127,000	0	127,000
1944	54,700	0	54,700	0	54,700
1945	15,700	0	15,700	0	15,700

ND: No data available

Source: Paper Division, Textile Section, Bureau of Commerce & Industry



**TABLE 9. - PRODUCTION OF KRAFT PULP (Short tons)**

Year	Locality		Total Kraft	Japan Proper %	Total Paper Pulp	Total Kraft %
	Japan Proper	Karafuto				
1930	None	31,810	31,810	0	700,603	4.5
1931	None	33,655	33,655	0	634,715	5.3
1932	None	35,600	35,600	0	613,221	5.8
1933	None	44,961	44,961	0	687,837	6.5
1934	None	44,702	44,702	0	774,857	5.8
1935	None	45,366	45,366	0	810,926	5.6
1936	None	58,036	58,036	0	837,038	5.9
1937	None	71,099	71,099	0	929,245	7.6
1938	None	70,847	70,847	0	954,102	7.4
1939	10,578	69,258	79,836	13.2	1,004,212	7.9
1940	20,853	67,677	88,530	23.6	1,014,594	8.7
1941	18,791	65,736	84,527	22.2	1,081,534	7.8
1942	25,043	62,870	87,913	28.5	955,483	9.2
1943	20,496	33,964	54,460	37.6	798,427	6.8
1944	12,118	35,513	47,631	25.5	572,123	8.3
1945	6,776	8,449	15,225	44.5	244,235	6.2

N/ No Kraft pulp produced in Korea or Formosa  
Source: Oji Paper Mfg Co Ltd

**TABLE 10. - KRAFT PULP MILLS IN JAPAN PROPER**

District or Prefecture	Company	Mill	Rated Production Capacity Short tons / yr
Hokkaido	Kokusaku Pulp Ind Co Ltd	Aeshikawa	20,160
Tochigi	Takasaki Board Paper Co, Ltd	Nikko	10,080
Saitama	Hokusei Paper Mfg Co, Ltd	Toda	4,030
Shizuoka	Dai-nihon Paper Mfg Co, Ltd	Susukawa	12,100
Wakayama	Tomogawa Paper Mills	Shingu	6,450
TOTAL			53,220

**TABLE 11. - PRODUCTION OF SODA PULP (Short tons)**

Year	Japan Proper	Formosa	Korea	Total	% Total Paper Pulp
1938	3,099	ND	ND	3,099	0.3
1939	25,728	9,818	1,536	37,082	3.7
1940	34,391	23,958	1,878	60,227	5.9
1941	75,445	38,378	3,157	116,980	10.8
1942	44,889	35,365	5,457	85,711	9.0
1943	11,721	12,571	ND	24,292	3.0
1944	12,785	4,841	ND	17,626	3.1
1945	916	839	ND	1,755	0.7

Note: The Netsu Mill of the Oji Paper Mfg Co is under considera for conversion to the production of Kraft pulp and paper. Plans indicate a productive capacity of about 30,000 short tons per year.  
Source: Paper Control and Distribution Corp Feb 1946

ND: No data available  
Source: Oji Paper Mfg Co Ltd

**TABLE 12. - RAW MATERIAL REQUIREMENTS FOR PULP MANUFACTURE IN JAPAN**

	Rayon Pulp	Sulfite Pulp		Kraft	Mechanical
		Bleached	Unbleached		
Pulpwood, cubic feet					
Hokkaido:					
Fir	181	175	158	ND	87
Spruce	198	191	172	ND	96
Japan Proper:					
Beech	157	152	ND	ND	ND
Pine	170	165	148	136	77
Cryptomeria	149	131	163	153	90
Hemlock	ND	145	131	ND	73
Fir	173	169	152	ND	ND
Chemicals, Short tons:					
Sulfur	0.130	0.126	0.120	0	0
Limestone	0.168	0.163	0.155	0	0
Chlorine	0.013	0	0	0	0
bleaching powder	0.050	0.120	0	0	0
Caustic soda	0.025	0	0	0.020	0
Sodium sulfate	0	0	0	0.120	0
Lime	0	0	0	0.270	0
Coal, short tons:	1.27	1.16	1.05	0.65	0
Electric power, KWH	600	500	395	360	1,270
Water, cubic feet	20,000	11,000	7,000	6,500	1,700-4,700

ND: No data available  
Note: Bleaching powder calculated at 32 percent available chlorine, coal at 6,000 calories per kilogram  
Source: Oji Paper Mfg Co



TABLE 13. - DIRECTORY OF PAPER COMPANIES AND MILLS

No	District or Prefecture	Company	Mill	Type of Paper	Annual Rated Productive Capacity $\frac{a}{b}$ (short tons) $\frac{c}{d}$	Paper Machine $\frac{e}{f}$			
						No	Fourdrinier (Width in in)	No	Cylinder $\frac{g}{h}$ (Width in in)
1	Hokkaido	Kokusaku Pulp Ind Co, Ltd	Yufutsu	Foreign	9,996	1	138	0	0
2	"	"	Asahikawa	"	13,308	2	134	1	79
3	"	Japan Wagami Ind Co, Ltd	Sapporo	Japanese	1,218	0	0	2	51
4	"	"	Asahikawa	"	624	0	0	1	52
5	"	"	Otaru	"	756	0	0	1	62
6	"	Hokkai Paper Mfg Co Ltd	"	"	1,752	0	0	1	48
7	"	"	Sapporo	"	1,668	0	0	1	61
8	"	"	Hakodate	"	900	0	0	1	57
9	"	Oji Paper Mfg Co Ltd	Tomakomai	Foreign	151,200	7	142	0	48
10	"	"	Kushiro	"	25,704	2	100	0	60
11	"	"	Ebetsu $\frac{d}{e}$	"	0	1	98	0	0
12	Aomori	Japan Wagami Ind Co, Ltd	Aomori	Japanese	312	3	108	0	0
13	Iwate	Tokyo Paper Mfg Co, Ltd	Misusawa	"	780	0	0	0	0
14	Miyagi	Satowa Paper Mfg Co, Ltd	Sendai	"	924	0	0	1	36
15	Yamagata	Nisshin Ind Co Ltd	Yamagata	Board	5,520	0	0	1	43
16	Fukushima	Daito Paper Mfg Co, Ltd	Shirakawa	Japanese	624	0	0	1	50
17	"	Toehin Paper Mfg Co, Ltd	Taira	"	852	0	0	1	60
18	Ibaraki	Tokyo Paper Mfg Co, Ltd	Mito	"	624	0	0	1	50
19	"	Yashima Paper Mfg Co, Ltd	Shimodate	"	588	0	0	1	50
20	Gunma	Takasaki Board Paper Co, Ltd	Takasaki	"	5,076	0	0	2	76
21	"	Kokoku Rayon Pulp Co, $\frac{d}{e}$	Maebashi	"	0	0	0	0	74
22	Tochigi	Takasaki Board Paper Co Ltd $\frac{e}{f}$	Nikko	Board	16,632	1	114	1	110
23	"	Daito Paper Mfg Co, Ltd $\frac{e}{f}$	Utsunomiya	Japanese	0	0	0	1	108
24	Saitama	Teikoku Paper Mfg Co, Ltd	Saitama	"	1,296	0	0	1	66
25	Chiba	Tokyo Sekisenshi Kogyo Co, Ltd	Honsha	"	480	0	0	1	45
26	"	Hokuetsu Paper Mfg Co, Ltd	Ichikawa	Foreign	5,292	1	86	0	38
27	Tokyo	Odawara Paper Mfg Co, Ltd	Tokyo	Japanese & Foreign	3,996	1	58	1	45
28	"	Satowa Paper Mfg Co, Ltd $\frac{e}{f}$	"	Japanese	0	0	0	1	36
29	"	Nisshin Ind Co, Ltd	Senju No 2	Board	1,248	0	0	1	86
30	"	"	Ayase	"	0	0	0	1	50
31	"	Daito Paper Mfg Co, Ltd	Tokyo	Japanese	1,164	0	0	1	0
32	"	Taihei Paper Mfg Co, Ltd	Oji	Japanese & Board	1,392	0	0	1	60
33	"	Takasaki Board Paper Co, Ltd	Senju	Board	3,348	0	0	1	50
34	"	Tajima Oyo Kagaku Co, Ltd	Honsha	"	9,588	0	0	3	88
35	"	Terma Paper Mfg Co, Ltd $\frac{e}{f}$	Akabane	Foreign	ND	0	0	0	54
36	"	Nikken Kogyo Co, Ltd	Senju	Board	7,560	0	0	1	0
37	"	Nippon Eisei Zairyo Mfg Co, Ltd	Nichisei	Foreign	84	0	0	1	50
38	"	Japan Paper Ind Co, Ltd	Kameari	Foreign & Board	29,916	1	120	1	86
39	"	Japan Paper Mfg Co, Ltd	Honsha	Japanese & Foreign	21,660	1	112	0	36
40	"	Marusan Paper Mfg Co, Ltd	"	Board	4,536	1	103	0	98
41	"	Mitsubishi Paper Mfg Co, Ltd	Nakagawa	Foreign	21,924	1	86	1	0
42	"	Bengo Shiki Co, Ltd	Katsushika	Board	3,000	1	107	0	0
43	"	Nippon Kako Seishi Co Ltd	Iwabuchi	Foreign & Japanese	1,596	0	115	0	0
44	"	Oji Paper Mfg Co, Ltd	Jujo	Foreign	43,548	3	78	0	0
45	"	"	Edogawa	"	13,608	1	100	0	0
46	"	"	Senju	Foreign, Japanese & Board	0	2	112	0	0
47	"	Govt Printing Bureau Mill $\frac{e}{f}$	Oji	Foreign & Japanese	0	0	166	0	0
48	Kanagawa	Odawara Paper Mfg Co, Ltd	Odawara	Japanese	1,788	0	108	0	0
49	"	Togawara Paper Mfg Co, Ltd	Yoshihama	Foreign & Japanese	1,128	1	39	1	60
50	"	Asia Paper Mfg Co, Ltd	Futako	Japanese	660	0	0	1	38
51	"	Yashima Paper Mfg Co, Ltd	Kawasaki	"	1,032	0	0	1	40
52	"	Govt Printing Bureau Mill	Sakawa	Foreign & Japanese	4,111	4	47	2	36
53	Niigata	Shiryo Paper Mfg Co, Ltd $\frac{e}{f}$	No 1	Japanese	0	1	74	0	45
						0	0	1	54
								1	0
								1	49



TABLE 13. - DIRECTORY OF PAPER COMPANIES AND MILLS (CONT'D)

No	District or Prefecture	Company	Mill	Type of Paper	Annual Rated Productive Capacity a/(short tons) b/	Paper Machine a/			
						No	Fourdrinier (Width in in)	No	Cylinder c/ (Width in in)
54	Niigata	Shinyo Paper Mfg Co, Ltd a/	No 2	Japanese	0	0	0	1	34
55	"	Niigata Paper Mfg Co, Ltd	Honsha	"	2,496	0	0	2	58
56	"	Hokutsu Paper Mfg Co, Ltd	Niigata	Board & Japanese	34,728	1	108	1	48
						1	85	1	78
						1	98	0	66
						1	144	0	0
57	"	Hokpetsu Paper Mfg Co, Ltd	Nagaoka	Fiber Board	0	0	0	0	0
58	Toiyama	Oji Paper Mfg Co, Ltd	Pushiki	Foreign	7,560	1	88	0	0
						1	100	0	0
59	"	Kokoku Rayon Pulp Co, Ltd	Toiyama	Board	2,040	0	0	1	67
60	"	Showa Paper Ind Co, Ltd	Takaoka	Japanese	1,116	0	0	2	35
						0	0	1	36
61	"	Tateyama Paper Mfg Co, Ltd	Honsha	Board	11,856	0	0	1	76
62	"	Chubu Paper Mfg Co, Ltd	Takaoka	Japanese	648	0	0	1	44.8
63	"	"	Nakata	"	36	0	0	1	36
64	Ishikawa	Asahi Paper Mfg Co, Ltd	Kanazawa	"	996	0	0	1	42
65	"	Kaga Paper Mfg Co, Ltd	Honsha	Foreign & Board	9,036	1	74	1	72
66	"	Chubu Paper Mfg Co, Ltd	Kanazawa	Japanese	984	0	0	1	50
67	"	"	Kita-yusue	"	348	0	0	1	38
68	"	"	Nantouya	"	204	0	0	1	32
69	"	Pushiki Lumber Ind Co, Ltd d/	Ishikawa	Board	0	0	0	0	0
70	Fukui	Takano Paper Mfg Co, Ltd	Fukui	Foreign	912	0	0	1	45
71	"	Chubu Paper Mfg Co, Ltd	Okamoto	Japanese	324	0	0	1	33
72	"	"	Tanoya	"	204	0	0	1	28-3/4
73	"	Mishino Paper Mills Ltd	No 1	"	1,512	0	0	1	19
74	"	"	No 2	Japanese & Foreign	6,804	2	74	1	50
75	"	Hokuriku Paper Mfg Co, Ltd	Goko	Japanese	636	0	0	2	30
76	"	"	Otaki	"	168	0	0	1	30
77	"	"	Wakasa	"	1,500	0	0	1	53
						0	0	1	45
78	"	Govt Printing Bureau Mill	Takefu	Foreign & Japanese	0	0	0	0	0
79	Nagano	Toshin Paper Mfg Co, Ltd	Matsumoto	Board	3,024	0	0	1	73-3/4
80	Shizuoka	Abekawa Kogyo Co, Ltd	Shiraita Honsha	Japanese & Foreign	3,432	0	0	1	76
						0	0	1	52
						0	0	1	22
81	"	Tokai Jigyo Co, Ltd	Shimada	"	1,248	0	0	1	54
82	"	Osaka Central Paper Mfg Co	Hidarifuji	Japanese	588	0	0	1	36.8
83	"	Kokoku Rayon Pulp Co, Ltd	Fuji No 1	"	1,188	0	0	1	57
						0	0	1	21
84	"	"	Fuji No 2	"	312	0	0	1	45
85	"	"	Fuji Imaisumi	"	624	0	0	1	29
						0	0	1	38
86	"	"	Fuji Hina	"	624	0	0	1	41
87	"	"	Mame	"	348	0	0	1	45
88	"	Koyo Paper Mfg Co, Ltd	Okitsu	"	684	0	0	1	36
						0	0	1	38
89	"	"	Imaisumi	Board	4,536	0	0	1	82
90	"	Yasu Paper Mfg Co, Ltd	Yasu	Japanese	564	0	0	1	38
91	"	Satowa Paper Mfg Co, Ltd	Fuji	"	2,124	0	0	1	55
						0	0	1	66
92	"	Sano Paper Mfg Co, Ltd a/	Honsha	"	0	0	0	1	66
						0	0	1	40
						0	0	2	36
						0	0	1	52
93	"	"	Susono	"	1,200	0	0	1	65
						0	0	1	30
94	"	Shizuoka Paper Mfg Co, Ltd	Yoshinaga	"	372	0	0	1	33
95	"	"	Okitsu	"	2,100	0	0	2	70
96	"	"	Shizuoka	"	0	0	0	1	50
97	"	"	Fujie	"	1,860	0	0	1	50
						0	0	1	63-1/4
98	"	Daichi Paper Mfg Co, Ltd	No 1	"	780	0	0	1	65
99	"	"	No 2	"	2,472	0	0	2	65
						0	0	1	40
100	"	Daido Paper Mfg Co, Ltd	Imaisumi	"	1,596	0	0	1	34
						0	0	1	52
101	"	"	Takigawa	"	312	0	0	1	30
102	"	Daishowa Paper Mfg Co, Ltd	Shizukawa	Foreign	14,664	1	88	0	0
						2	120	0	0
103	"	"	Yoshinaga	Foreign, Japanese & Board	17,808	1	86	1	45
						0	0	2	65
						0	0	1	70
						0	0	1	75
104	"	"	Imaisumi	Japanese	2,004	0	0	2	65
105	"	"	Shinbashi	"	372	0	0	1	28
106	"	"	Gakunan	"	1,872	0	0	1	40
						0	0	1	62
107	"	Taihei Paper Mfg Co, Ltd	Fuji	"	1,680	0	0	1	58
108	"	Takano Paper Mfg Co, Ltd	Mishima	Foreign	756	0	0	1	85



TABLE 13. - DIRECTORY OF PAPER COMPANIES AND MILLS (CONT'D)

No	District or Prefecture	Company	Mill	Type of Paper	Annual Rated Productive Capacity $\frac{a}{b}$ (short tons) $\frac{c}{d}$	Paper Machine $\frac{e}{f}$			
						No	Fourdrinier (Width in in)	No	Cylinder $\frac{g}{h}$ (Width in in)
109	Shizuoka	Tenna Paper Mfg Co, Ltd	Tenna	Board	4,428	0	0	1	50
110	"	Toyo Paper Mfg Co, Ltd	Tagonoura	Foreign	1,716	0	0	1	42
111	"	Tokyo Paper Mfg Co, Ltd	Fuji	Board	8,160	0	0	1	62
112	"	Tokushu Paper Mfg Co, Ltd	Honsha	"	6,404	0	0	2	72
						1	58	1	65
						0	0	1	50
						0	0	1	37
						0	0	1	24-1/2
						0	0	1	53
113	"	Tomoegawa Paper Mfg Co, Ltd $\frac{g}{h}$	Shimizu	Foreign	0	1	64	0	68
114	"	" " "	Mochimune	"	9,672	1	75	0	0
						1	88	1	47
						1	76	1	60
						1	40	0	0
						1	2200 m/m	0	0
115	"	" " "	No 1	Japanese	0	0	0	1	33
116	"	" " "	No 2	"	0	0	0	1	39
117	"	Nisshin Spinning Co, Ltd	Hanamatsu	"	1,116	0	0	1	65
118	"	Kobayashi Kahei Co	No 2	"	216	0	0	1	30
119	"	Nippon Mitsumata Ind Co, Ltd	Fujimiya	"	429	0	0	1	46
						0	0	1	30
120	"	" " "	Okitsu	"	372	0	0	1	39
121	"	" " "	Shizuoka No 1	"	0	0	0	1	52
122	"	Fukutomi Paper Mfg Co, Ltd $\frac{g}{h}$	Takigawa	Foreign & Board	5,748	1	44-1/2	1	73
123	"	" " "	Harada	Japanese	528	0	0	1	42
124	"	" " "	Takaoka	"	684	0	0	1	48
125	"	Fujikawa Paper Mfg Co, Ltd	Honsha	Japanese & Foreign	5,208	1	52	2	92
						1	50	1	14
126	"	Asahi Paper Mfg Co, Ltd	Iriyamae Ja	Japanese	816	1	89-1/2	0	0
127	"	" " "	Iwabuchi	"	540	0	0	1	53
128	"	" " "	Honsha	Foreign	7,560	1	94	0	0
129	"	Yamada Paper Ind Co, Ltd	Okitsu	Japanese	372	2	60	0	0
130	"	Heiwa Paper Mfg Co, Ltd	Honsha	"	396	0	0	1	40
131	"	Fukuko Paper Mfg Co, Ltd	"	"	624	0	0	1	50
132	"	Fuji Photo Film Co, Ltd	Imaisumi	Foreign & Japanese	3,000	1	57	1	51
133	"	Fuji Paper Mfg Ind Co, Ltd	Yeno	Japanese & Foreign	2,028	0	0	1	72
134	"	" " "	Yoshinaga	Japanese	984	0	0	1	60
135	"	Mishima Paper Mfg Co, Ltd	Harada	Foreign	2,268	1	76	0	0
136	"	Oji Paper Mfg Co, Ltd	Fuji	Foreign & Board	27,060	1	73	0	0
						1	92	1	88
						1	88	1	76
137	"	" " "	Iwabuchi	"	1,512	2	74	0	110
138	"	Yaehima Paper Mfg Co, Ltd	Okitsu	Japanese	936	0	0	1	0
139	Aichi	Abekawa Ind Co, Ltd	Nagoya	Foreign	3,024	0	0	1	42
140	"	" " "	Oharu	Board paper	10,128	0	0	1	108
141	"	Chubu Paper Mfg Co, Ltd	Katahara	Japanese	84	0	0	1	72
142	"	Nippon Eisei Zairyo Mfg Co, Ltd $\frac{g}{h}$	Kiyosu	"	0	0	0	1	13
143	"	Showa Paper Ind Co, Ltd	Nagoya No 1	"	0	0	0	2	46
144	Gifu	Osaka Board Paper Co, Ltd $\frac{g}{h}$	Gifu	Japanese & Board	348	0	0	1	32
						0	0	0	0
145	"	Kyowa Kansai Kogyo Co, Ltd	Yeno	Board	1,512	0	0	1	55
146	"	Showa Paper Ind Co, Ltd $\frac{g}{h}$	Shimei	Japanese	0	0	0	1	35
147	"	" " "	Atsumi	"	360	0	0	1	36
148	"	" " "	Takano	"	0	0	0	0	0
149	"	" " "	No 1	"	0	0	0	1	44-1/2
150	"	" " "	Takayama	"	684	0	0	1	35
151	"	" " "	Gifu	"	864	0	0	2	32
152	"	Tokushu Paper Mfg Co, Ltd $\frac{g}{h}$	Gifu	Foreign	0	1	42	1	40
153	"	Nippon Eisei Zairyo Mfg Co, Ltd	Mino-machi	Japanese	360	0	0	1	67
154	"	" " "	Maeno	"	252	0	0	1	60
155	"	" " "	Shimomaki	"	264	0	0	1	36
156	"	Zenkoku Kogyo $\frac{g}{h}$	Gifu	"	0	0	0	1	48
157	"	Yamada Paper Mfg Co, Ltd	Iwase	"	888	0	0	1	67
158	"	" " "	Takano	"	672	0	0	1	60
159	"	Oji Paper Mfg Co, Ltd	Nakatsu	Foreign	17,388	1	100-1/2	0	58
						1	102-1/2	0	0
						1	100	0	0
						1	108	0	0
160	Shiga	Kyoei Board Paper Co, Ltd	Honsha	Board	8,160	0	0	2	73
161	Kyoto	Osaka Central Paper Mfg Co, Ltd	Kyoto	Japanese	156	0	0	1	42
162	Osaka	Osaka Central Paper Mfg Co, Ltd	Osaka	"	3,336	0	0	1	90
163	"	Kanegabuchi Ind Co, Ltd	Torigai	Foreign	1,812	1	76	0	93
164	"	Hokkoku Paper Mfg Co, Ltd	Johoku	Board & Foreign	2,592	0	0	2	0
						0	0	2	48



TABLE 13. - DIRECTORY OF PAPER COMPANIES AND MILLS (CONT'D)

No	District or Prefecture	Company	Mill	Type of Paper	Annual Rated Productive Capacity g/ (short tons) b/	Paper Machine a/			
						No	Fourdriner (Width in in)	No	Cylinder g/ (Width in in)
165	Osaka	Horimuki Ind Co, Ltd	Otokosato	Japanese	672	0	0	1	53
166	"	Mishima-Paper Mfg Co, Ltd	Suita	Foreign	600	1	75	0	0
167	"	Mitsubishi Paper Mfg Co g/	Naniwa	Board	16,620	0	0	1	107
168	"	Yodogawa Paper Mfg Co, Ltd	Imafuku	"	9,828	0	0	2	76
169	"	Rengo Shiki Co, Ltd	Yodogawa	"	11,184	0	0	1	70
170	"	" " " "	"	"	"	0	0	1	74
171	"	Oji Paper Mfg Co, Ltd g/	Chifune	Foreign	0	0	0	1	112
172	"	" " " "	Yodogawa	"	3,480	0	0	1	60
173	"	" " " "	Miyakojima	"	4,536	0	0	1	73
174	"	Japan Asbestos Packing Research Lab	No 1	Japanese	384	0	0	2	73
175	"	" " " "	No 2	"	168	0	0	1	74-1/2
176	"	Asahi Kasei Ind Co, Ltd	Wakayama	Japanese & Foreign	1,692	0	0	1	93
177	Hyogo	Oji Paper Mfg Co, Ltd	Kumano	Foreign	384	2	80	0	48
178	"	Osaka Central Paper Mfg Co, Ltd	Sumoto	Japanese	564	0	0	1	32
179	"	Kyowa Kensei Ind Co, Ltd	Beppu No 1	Board	3,624	0	0	1	52
180	"	Dainippon Celluloid Co, Ltd	Aboshi	Foreign	1,584	1	74	0	0
181	"	Hyogo Paper Mfg Co, Ltd g/	Kobe	Japanese	0	0	0	1	72
182	"	" " " "	Ichikawa	"	1,218	0	0	1	75
183	"	" " " "	Teranoe	Board	3,024	0	0	1	60
184	"	Kansai Paper Ind Co, Ltd g/	Sonoda	"	5,280	0	0	1	76
185	"	Mitsubishi Paper Mfg Co, Ltd	Takasago	Foreign	19,980	3	220 cm	1	75
186	"	Oji Paper Mfg Co, Ltd g/	Kansaki	Japanese, Foreign & Board	0	0	0	0	80
187	Okayama	Okayama Paper Mfg Co, Ltd	Honsha	Board	11,856	0	0	1	0
188	"	Taiyo Paper Mfg Co, Ltd	Katayama	Japanese	780	0	0	1	90
189	"	West Japan Paper Mfg Co, Ltd	Tsuyama	"	1,584	0	0	1	53
190	"	" " " "	Mimasaka	"	624	0	0	1	36
191	"	Osaka Board Paper Co, Ltd g/	Hiroshima	Board	0	0	0	1	19
192	"	West Japan Paper Mfg Co, Ltd g/	"	Japanese	0	0	0	1	66-1/2
193	"	Fukuyama Paper Mfg Co, Ltd	Honsha	"	8,388	0	0	1	29-1/2
194	Tottori	Government Printing Bureau Mill	Saidaiji	Foreign & Japanese	4,666	0	0	1	48-1/2
195	"	Asahi Paper Mfg Co, Ltd	Tottori	Japanese & Foreign	4,711	1	78	1	0
196	"	Taiyo Paper Mfg Co, Ltd	Hogi	Japanese	1,308	0	0	1	88
197	Shimane	West Japan Paper Mfg Co, Ltd	Iwami	"	1,032	0	0	1	55
198	Yamaguchi	Zenkoku Gogyokai	Shimane	"	1,788	0	0	2	76
199	"	Taiyo Paper Mfg Co, Ltd	Nishi-ichi	"	624	0	0	1	62
200	Kagawa	Japan Paper Ind Co, Ltd	Geibo	Japanese & Foreign	22,452	1	128	1	63
201	"	Shonan Paper Mfg Co, Ltd g/	No 1	Japanese	2,904	0	0	1	72
202	"	Taiyo Paper Mfg Co, Ltd	Takamatsu No 1	"	1,752	0	0	1	52
203	"	" " " "	" No 2	"	624	0	0	1	72
204	"	Tokime Ind Co, Ltd g/	No 1	"	3,300	0	0	1	34
205	"	" " " "	No 2	"	792	0	0	2	37
206	"	" " " "	Tsuda No 1	"	2,100	0	0	1	60
207	"	Marutaka Paper Mfg Co, Ltd	No 1	"	2,508	0	0	1	72
208	"	" " " "	No 2	"	1,488	0	0	2	88
209	Tokushima	Manabe Ind Co, Ltd g/	Takamatsu	"	888	0	0	1	42
210	"	Shima Paper Mfg Co, Ltd	Tokushima	"	4,128	0	0	1	43
211	"	Tokushima Godo Co, Ltd	Tamiya	"	1,272	0	0	1	75
212	"	" " " "	Yaso	"	1,896	0	0	1	37
213	"	Manabe Ind Co, Ltd	Komatsujima	"	1,620	0	0	1	89



TABLE 13. - DIRECTORY OF PAPER COMPANIES AND MILLS (CONT'D)

No	District or Prefecture	Company	Mill	Type of Paper	Annual Rated Productive Capacity a/ (short tons) b/	Paper Machine a/			
						No	Fourdrinier (Width in in)	No	Cylinder c/ (Width in in)
213	Shime	Iyo Paper Mfg Co, Ltd	Saijo	Japanese	2,328	0	0	2	54
214	"	" " "	Muramatsu	"	504	0	0	1	64
215	"	Zenkoku Nogyokai	Yawatahama	"	1,044	0	0	1	41
216	"	Onishi Paper Mfg Co, Ltd	Mishima No 1	"	996	0	0	2	54
217	"	" " "	Mishima No 2	"	600	0	0	1	46
218	"	" " "	"	"	"	"	"	1	34
219	"	" " "	Mishima No 3	"	696	0	0	1	40
220	"	" " "	Mishima No 5	"	228	0	0	1	40
221	"	" " "	Samukawa No 1	"	204	0	0	1	41
222	"	" " "	Samukawa No 2	"	312	0	0	1	23
223	"	" " "	Kawanoye	"	336	0	0	1	33
224	"	Shima Paper Mfg Co, Ltd	Iyo	"	408	0	0	1	39
225	"	Daio Paper Mfg Co, Ltd	Mishima	"	2,160	0	0	1	47
226	"	" " "	"	"	"	"	"	2	50
227	"	Toy Paper Mfg Co, Ltd	Kaniwake	"	744	0	0	1	43
228	"	Marui Paper Mfg Co, Ltd	Samukawa	"	276	0	0	1	41
229	"	" " "	Matsuyama	"	1,356	1	88	1	72
230	"	" " "	No 1	"	3,288	0	0	2	40
231	"	" " "	No 4	"	"	"	"	1	50
232	"	Maruzumi Paper Mfg Co, Ltd	Honsha	"	372	0	0	1	60
233	"	Ageta Paper Mfg Co, Ltd	Ino	"	480	0	0	1	31
234	"	" " "	Kochi	"	1,584	0	0	1	43
235	"	" " "	Asahi	"	"	"	"	2	50-1/2
236	"	" " "	Kokubu No 2	"	540	0	0	1	37-1/4
237	"	Kochi Paper Mfg Co, Ltd	Kochi	"	996	0	0	1	48
238	"	" " "	"	"	"	"	"	1	48
239	"	" " "	Ino	"	"	"	"	1	41
240	"	" " "	"	"	"	"	"	1	30-1/2
241	"	" " "	"	"	"	"	"	1	62
242	"	" " "	"	"	"	"	"	1	48
243	"	" " "	"	"	"	"	"	1	37
244	"	" " "	"	"	"	"	"	1	32-1/2
245	"	" " "	"	"	"	"	"	1	37
246	"	" " "	"	"	"	"	"	1	23
247	"	" " "	Takaoka	"	696	0	0	1	43
248	"	" " "	"	"	"	"	"	1	36
249	Kanagabuchi	Kanagabuchi Ind Co, Ltd	Tosa	"	1,044	1	51	2	38
250	"	Takachiho Paper Mfg Co, Ltd	"	"	1,308	0	0	1	72
251	"	" " "	No 1	"	"	"	"	1	37
252	"	" " "	No 2	"	624	0	0	2	39
253	"	" " "	No 5	"	384	0	0	1	21
254	"	" " "	"	"	900	0	0	1	24
255	"	Tosagami Co, Ltd	Honsha	"	960	0	0	1	69
256	"	Mippon Sanshi Ind Co, Ltd	Ino	"	"	"	"	1	36
257	"	Japan Paper Ind Co, Ltd	Kochi	"	252	0	0	1	41
258	"	" " "	Ino	"	432	0	0	1	44
259	"	" " "	"	"	2,004	0	0	1	73
260	"	" " "	"	"	"	"	"	1	66
261	"	" " "	Honsha	Foreign	1,020	0	0	1	21
262	Fukuoka	Takachiho Paper Mfg Co, Ltd	Chikugo	Japanese	1,212	0	0	2	68
263	"	Toa Paper Ind Co, Ltd	Mitsutomo	"	"	"	"	1	48
264	"	" " "	Tadami	"	708	0	0	1	61-3/8
265	"	" " "	Baba	"	312	0	0	1	60
266	"	" " "	Tsunoye	"	216	0	0	1	41
267	"	" " "	Kitoin	"	564	0	0	1	38
268	"	Japan Rubber Co, Ltd	Fukuoka	Japanese & Board	648	0	0	2	52-3/4
269	"	" " "	"	"	10,152	0	0	1	55
270	"	" " "	"	"	"	"	"	1	86
271	"	" " "	"	"	"	"	"	1	72
272	"	" " "	"	"	"	"	"	2	64
273	"	" " "	"	"	"	"	"	1	29
274	"	" " "	"	"	"	"	"	2	46
275	"	" " "	Inobe	Japanese	1,128	0	0	1	52
276	"	" " "	Kawasaki No 1	"	624	0	0	1	52
277	"	" " "	Kawasaki No 2	"	504	0	0	1	52
278	"	" " "	Haimusuka	"	"	"	"	1	50
279	"	" " "	Watase	"	624	0	0	1	66
280	"	" " "	Kamisuna	"	804	0	0	1	31-1/2
281	"	" " "	"	"	120	0	0	1	0
282	"	Oji Paper Mfg Co, Ltd	Kokura	Foreign	12,096	1	100	0	0
283	Saga	Saga Board Paper Mfg Co, Ltd	Kubota	Board	13,548	1	108	0	0
284	"	" " "	"	"	"	"	"	1	72
285	"	" " "	Uehisu	"	6,768	0	0	1	40
286	"	Takachiho Paper Mfg Co, Ltd	Saga	Japanese	1,812	0	0	1	64
287	"	" " "	"	"	"	"	"	1	70
288	"	West Kyushu Paper Ind Co, Ltd	Uehisu	"	1,092	0	0	1	54
289	"	" " "	"	"	"	"	"	1	42
290	"	" " "	Ogi	"	1,680	0	0	1	72
291	"	" " "	"	"	"	"	"	1	48
292	Nagasaki	Toa Paper Ind Co, Ltd a/	Nagasaki	"	0	0	0	1	63-1/2
293	Kumamoto	Oji Paper Mfg Co, Ltd	Yatsushiro	Japanese & Foreign	20,556	1	142	1	75
294	"	" " "	"	"	"	2	110	0	0



TABLE 13. - DIRECTORY OF PAPER COMPANIES AND MILLS (CONT'D)									
No	District or Prefecture	Company	Mill	Type of Paper	Annual Productive Capacity <sup>a/</sup> (short tons) <sup>b/</sup>	Paper Machine <sup>a/</sup>			
						No	Fourdrinier (Width in in)	No	Cylinder <sup>c/</sup> (Width in in)
269	Kumamoto	Oji Paper Mfg Co, Ltd	Sakamoto	Foreign	19,656	5	103	0	0
270	Oita	Asahi Paper Mfg Co, Ltd <sup>e/</sup>	Oita	Japanese	0	0	0	1	64
271	Miyasaki	" " "	Miyasaki	"	156	0	0	1	68
272	"	" " "	Obi	Foreign	3,780	1	88	0	0
273	Kagoshima	Satowa Paper Mfg Co, Ltd <sup>e/</sup>	Kagoshima	Japanese	0	0	0	2	41
274	"	Takachiho Paper Mfg Co, Ltd <sup>e/</sup>	"	"	0	0	0	1	58

<sup>a/</sup> Production capacity as of April 1946; paper machine data as of January 1945

<sup>b/</sup> One short ton (2,000 pounds) = 0.9072 metric tons

<sup>c/</sup> Cylinder machine includes board machine

<sup>d/</sup> Paper machinery dismantled

<sup>e/</sup> Bomb-damaged

Source: Paper Section, Ministry of Commerce and Industry, April 1946



NATURAL RESOURCES SECTION  
REPORT NUMBER 56  
15 September 1946

## LIST OF NATURAL RESOURCES SECTION REPORTS

Report No.	1. Classified	31 Oct 45
Report No.	2. Classified	13 Nov 45
Report No.	3. Basic Problems of the Coal Mining Industry in Japan	14 Nov 45
Report No.	4. Culture and Utilization of "Kozo" and "Mitsumata" for the Manufacture of High-Grade Paper in Japan	24 Nov 45
Report No.	5. Ownership and Administration of Japan's Forests	27 Nov 45
Report No.	6. Administration of the Japanese Mining Industry	1 Dec 45
Report No.	7. Classified	11 Dec 45
Report No.	8. Stockpiles of Logs and Lumber in Japan	11 Dec 45
Report No.	9. Classified	17 Dec 45
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Report No.	47.	The Forestry Situation in Southern Korea	26 Jul 46
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Report No.	55.	Fertilizer in Japan	10 Sep 46
Report No.	56.	The Wood Pulp Industry in Japan	15 Sep 46



NATURAL RESOURCES SECTION  
 REPORT NUMBER 56  
 15 September 1946

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(Subject to Change)



PLATE I  
GHQ SCAP NRS  
LOCATION  
OF  
PAPER MILLS IN JAPAN

-Legend-

- LESS THAN 1,000 SHORT TONS RATED ANNUAL PRODUCTION
- 1,000 TO 10,000 SHORT TONS RATED ANNUAL PRODUCTION
- ◐ 10,000 TO 30,000 SHORT TONS RATED ANNUAL PRODUCTION
- ◑ 30,000 TO 200,000 SHORT TONS RATED ANNUAL PRODUCTION

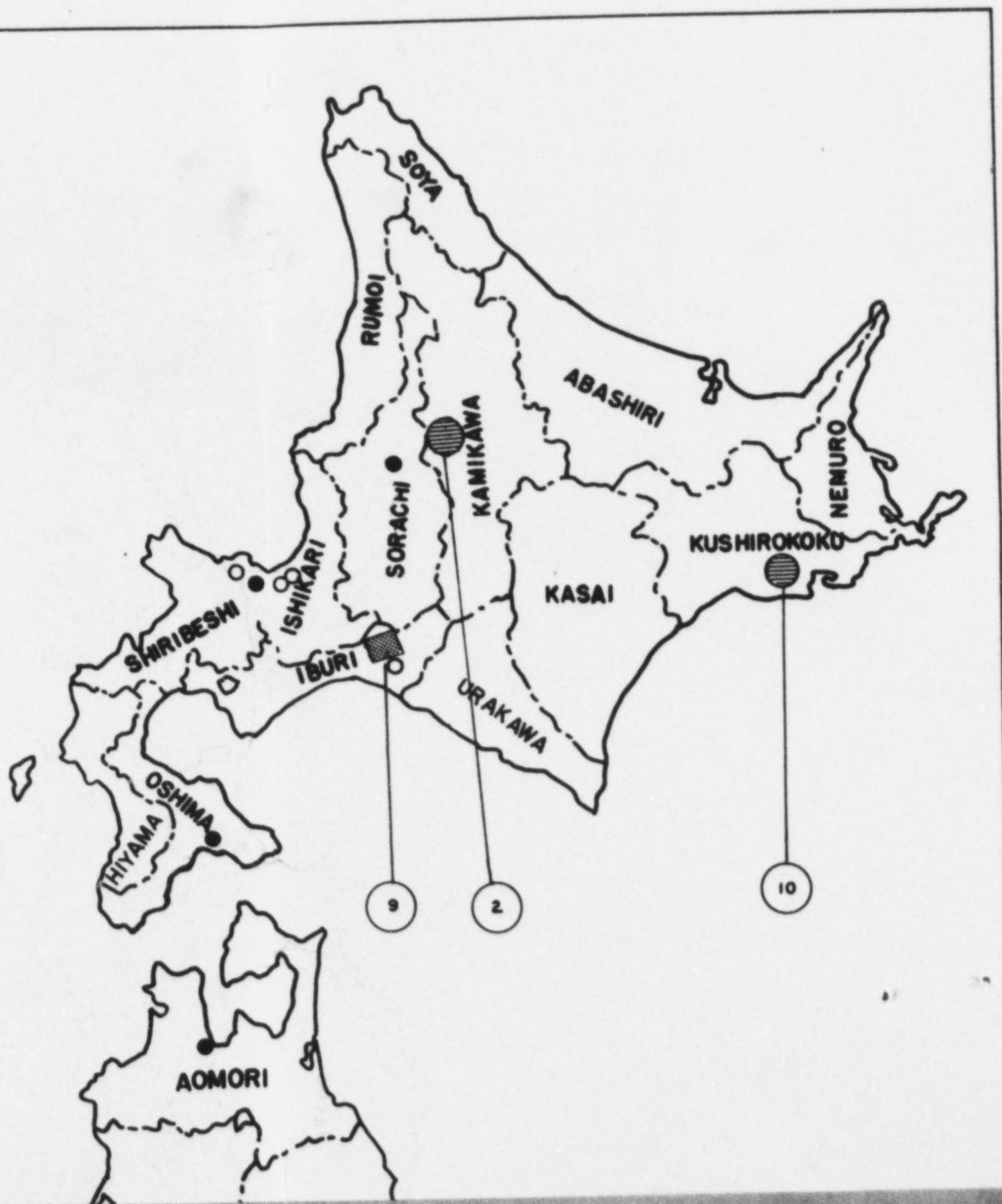
One short ton (2000 pounds) = 0.9072 metric tons



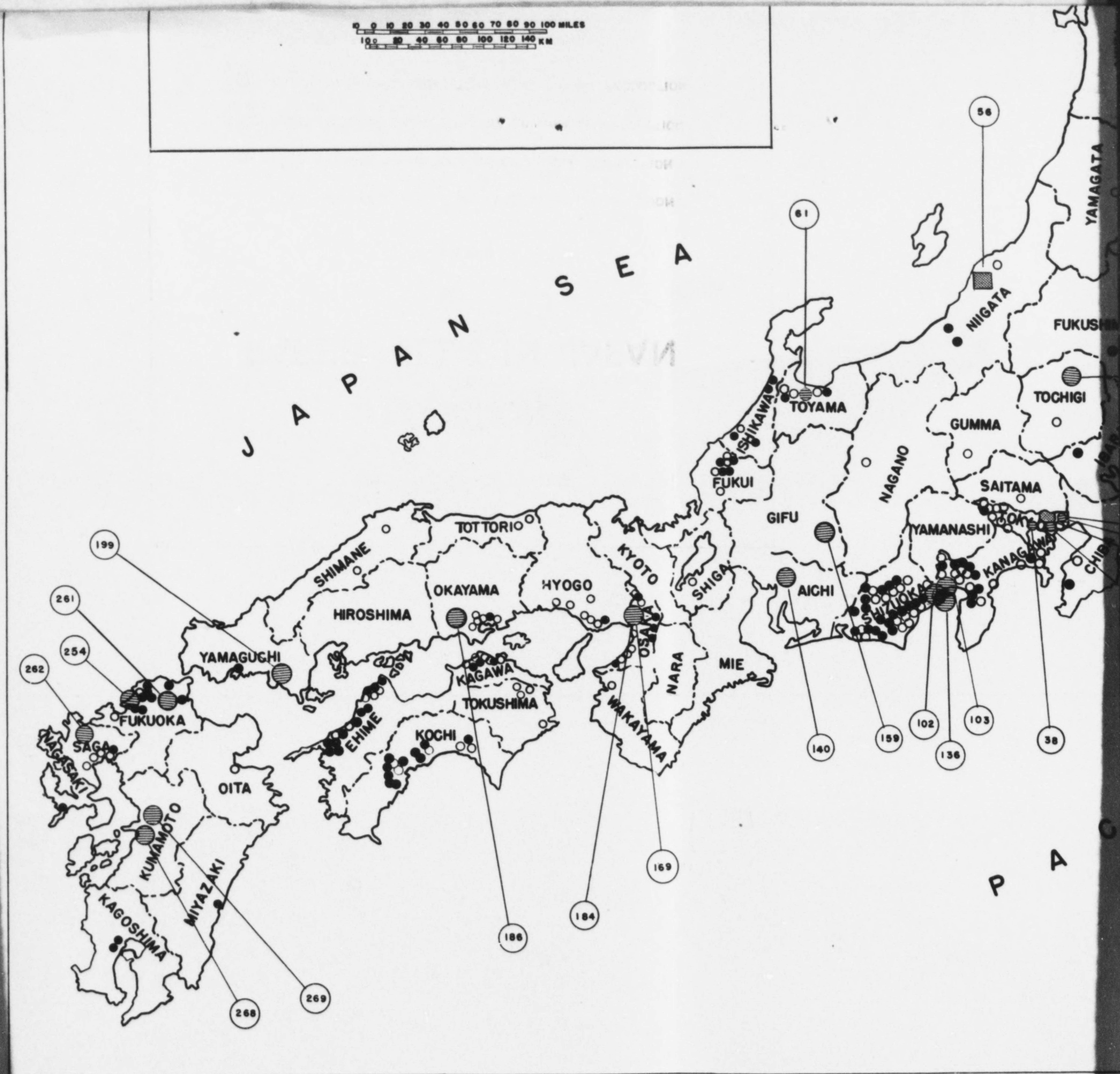


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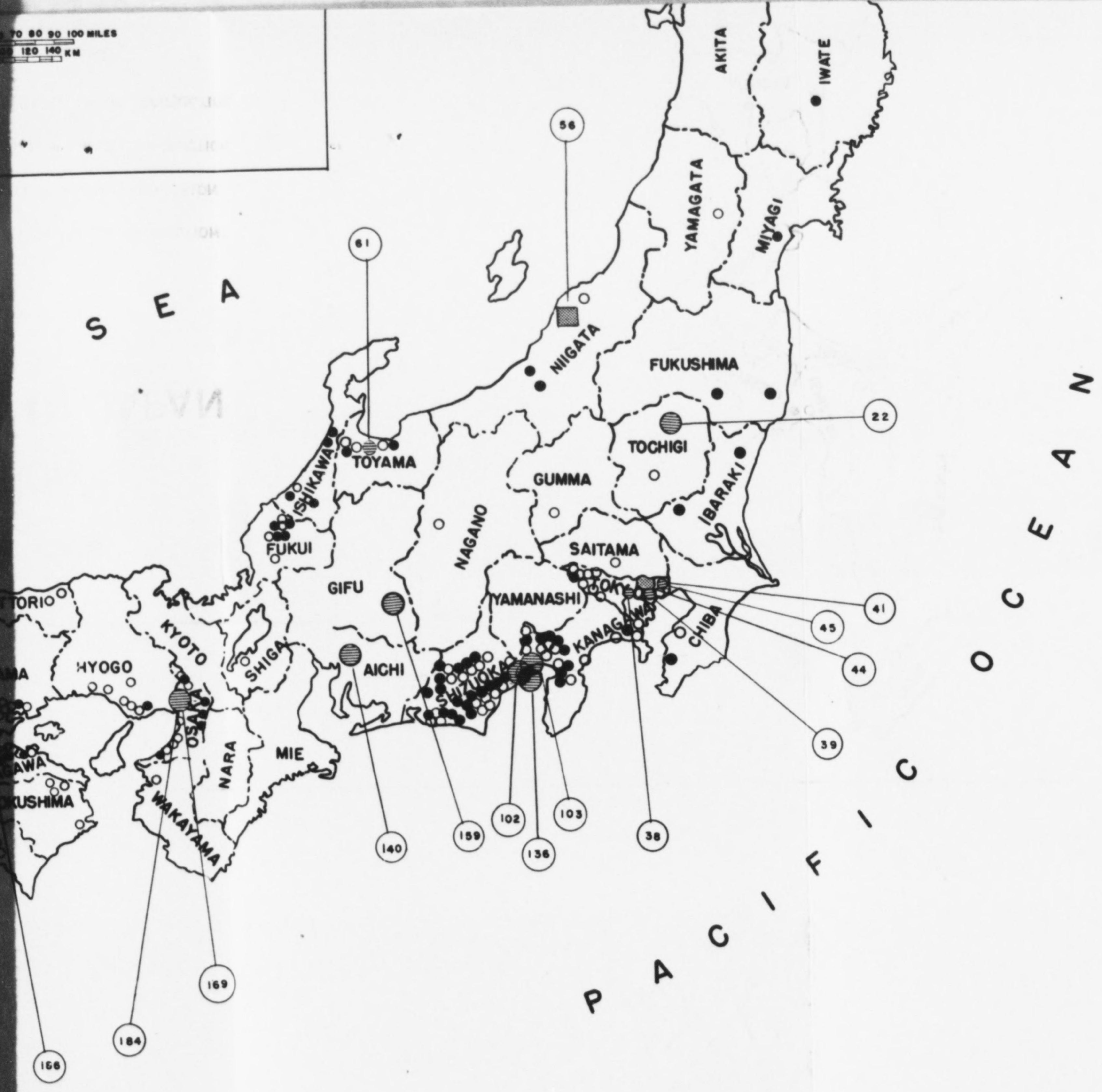
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## DIVISION OF COMMUNICATIONS AND RECORDS

## RECORDS BRANCH

February 25, 1947.

MEMORANDUM TO THE RECORDS BRANCH PERSONNEL WHO ASSISTED  
IN THE TRANSFER:

On behalf of Mr. Scott as well as on my own behalf, I wish to express my personal thanks to the members of the staff who assisted in the transfer of the Records Branch to its new quarters.

The transfer was accomplished efficiently, speedily and with a minimum of interruption to the work of the Branch. The successful execution of the transfer was due entirely to the efforts of the staff who so willingly assisted us.

Thank you very much!

Walter H. Anderson,  
Chief, Records Branch.





UNITED STATES POLITICAL ADVISER FOR JAPAN

Tokyo, April 14, 1947

UNCLASSIFIED

No. 971

SUBJECT: Reports on Wood Pulp and Paper, Requested by the Office of International Trade, United States Department of Commerce

FE EP IR ED OGD

894.6561/11-2046

The United States Political Adviser has the honor to refer to this Mission's despatch No. 715, dated November 20, 1946, subject: "The Wood Pulp Industry of Japan", and to the Department's air mail instruction dated February 17, 1947, with which were enclosed copies of requests from the Office of International Trade, United States Department of Commerce, for reports on the subjects "Pulp and Paper-Annual Industry and Foreign Trade Review" and "Pulp and Paper-Current Industry and Foreign Trade Review". There is enclosed a copy of a memorandum for the record and attachment, dated March 14, 1947, by the Pulp and Paper Branch of the Forestry Division of the Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers, compiled on the basis of the instructions received with the request for a report on the first of the above-mentioned subjects.

With regard to the second subject mentioned above, statistical data for the month of March will not be available for a considerable length of time. Therefore, the following information received from the Forestry Division concerning pulp and paper production during the months of January and February 1947, is quoted for present utilization by the Department of Commerce:

- "1. Pulp production dropped 1,651 tons in rebruary as compared to January. Critical pulps, Rayon B and unbleached kraft, were substantially lower percentage-wise due to coal and price situations.
- "2. Paper production was approximately the same as January but newsprint production dropped 1,548 tons which was offset by increased production of Japanese style papers.
- "3. Increased tonnages are anticipated for March in all grades.
- "4. The attached table shows production figures of both pulp and paper for January and February 1947."

DOR, ITP Unit

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The table

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Tokyo's No. 971  
April 14, 1947

-2-

The table mentioned in paragraph four of the above quotation is shown below:

PRODUCTION OF PULP AND PAPER IN JAPAN

(Unit: 2,000-pound tons)

	Jan. 1947	Feb. 1947
<u>Pulp</u>		
Groundwood	12,965	11,322
Unbleached sulfite	4,994	4,699
Bleached sulfite	536	942
Rayon A <u>a/</u>	124	0
Rayon B <u>b/</u>	378	220
Rayon C <u>c/</u>	34	13
Regular	0	709
Others	0	0
Unbleached kraft	418	252
Bleached kraft <u>d/</u>	0	0
Soda and others	87	134
TOTAL	19,000	17,349
<u>Paper</u>		
Printing Paper	3,428	3,643
Newsprint	8,701	7,153
Paper Board	2,753	2,872
Wrapping and Bags	1,631	1,109
Writing and Drawing	64	94
Tissues	225	283
Japanese machine-made	2,208	2,693
Japanese hand-made	53	1,287
Others	1,023	1,356
TOTAL	20,086	20,490

a/ Rayon A is the highest quality pulp produced. It is used exclusively in bank-notes and photographic paper production.

b/ Rayon B is the quality acceptable for viscose rayon production. Rayon C is that quality which failed to meet viscose specifications (Rayon B).

c/ Rayon C is used in paper production along with the regular grade bleached sulfite.

d/ Bleached kraft is not in production but is under contemplation in order to replace partially the need for importation of hemp fiber.

Hereafter



Tokyo's No. 971  
April 14, 1947

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Hereafter, statistical data concerning the monthly pulp and paper production of Japan, received from the Natural Resources Section of General Headquarters, Supreme Commander for the Allied Powers, will be forwarded for transmittal to the Department of Commerce.

Enclosure: *MSL*  
Memorandum for the record, March  
14, 1947, with sub-enclosure.

Original and hectograph to Department.

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RHBushner:mm

*W3*



Enclosure No. 1 to Despatch No. 971 dated April 14, 1947 from the United States Political Adviser for Japan, Tokyo, on the subject "Reports on Wood Pulp and Paper, Requested by the Office of International Trade, United States Department of Commerce".

COPY

GENERAL HEADQUARTERS  
SUPREME COMMANDER FOR THE ALLIED POWERS  
Natural Resources Section

NR 532 (14 Mar 47) Fo

HGS/PH/HRM/bc  
14 March 1947

MEMORANDUM FOR: Record

SUBJECT: Report requested by the Office of International Trade, Department of Commerce, on "Pulp and Paper - Annual Industry and Foreign Trade Review."

## 1. Pulp-wood and other Paper Making Stock

a. About 30,000,000 cubic feet of pulp-wood was consumed in 1946 by the wood pulp industry. The total annual growth per year of 1,693,000,000 cubic feet has been projected from reasonably good evidence as the overall timber value for Japan. In 1943 the estimated standing timber in Japan was around 60,708 million cubic feet. Pulp-wood in Japan has to compete with mine props and firewood, all of which were in short supply in 1946. Labor and transportation have been serious deterrents to increased production of all types of wood products.

b. Rice straw has been practically non-existent for use in paper making with exception to about 2,000 tons of strawboard in 1946.

c. Mitsumata is an important bast fibre used in Japanese style machine made papers; 3,500,000 kans (1 kan equals 8.3 lbs) of black bark (Mitsumata) was produced in 1946. Around 3,000,000 kans was used by the Japanese Government in the production of bank-note paper.

d. Kozo is another important bast fibre used by the Japanese hand made paper producers. A production of 2,150,000 kans of black fibre is estimated for 1947 production. This is approximately the 1946 figure, which is not available in concrete figures.

## 2. Wood-Pulp Industry

a. Fundamental data on the industry are not available on all type of pulps. The following effective and installed capacities for important pulps is as follows. Effective capacity is based on only minor repairs to existing equipment but free availability of pulp-wood, coal and necessary chemicals and other supplies.

	<u>Effective Capacity</u>	<u>Installed Capacity</u>
Groundwood	415,370	569,990
Unbleached Sulfite	278,720	446,571
Bleached Sulfite		
Paper Grade	170,353	274,598
Viscose Rayon Types	162,660	258,720

The preceding



Encl. No. 1 to  
Tokyo's 971  
April 14, 1947

-2-

The preceding values are stated in short tons per year. When rayon pulp is produced it decreased proportionally the bleached sulfite figures. In the same way production of bleached sulfite reduces the unbleached sulfite figures shown.

b. Pulp production for 1946 classified in major grades is shown in the attached table. The year 1940 was the peak year in Japan's paper production; 1,703,034 short tons were made but only 1,432,156 tons were produced in the present area of Japan. The balance was made available in Karafuto, Korea and Formosa, which are now lost to the Japanese. These values in comparison with the production of 231,190 tons in 1946, show the serious impairment of the war upon this industry. Possible yearly increases of 10 to 20 percent are expected in 1947 and 1948.

c. Japan has ample paper producing capacity for many years ahead. Increased production of wood-pulp is the answer to this situation of paper production.

### 3. Paper and Paperboard and Converted Products Industry

Reliable data on paperboard and converted products are at present not available. The activity is at a low point because of the shortage of the basic raw material, paper.

### 4. Export Trade

Export was negligible in 1946 and plans for 1947 are indefinite and depend upon regulations made by the Supreme Commander of the Allied Powers.

### 5. Import Trade

Import was negligible in 1946 and controlled by the Supreme Commander of the Allied Powers.

### 6. Production and Export Controls

These matters are pertinent to the Army of Occupation.

s/ Harold R. Murdock  
HAROLD R. MURDOCK  
Chief, Pulp and Paper Branch  
Forestry Division

1 Attachment



Encl. No. 1 to  
Tokyo's 971  
April 14, 1947

-3-

PRODUCTION OF PULP AND PAPER FOR 1946 IN JAPAN

(Unit: ton 2,000 lbs) -----

Pulp

Groundwood		138,477
Unbleached Sulphite		64,850
Eleached Sulphite		15,994
Rayon A.	2,019	
" B.	9,828	
" C.	525	
Regular	3,622	
Others	0	
Unbleached Kraft		6,466
Eleached Kraft		0
Soda and Others		1,012
	TOTAL	<u>226,799</u>

Paper

Printing Paper	47,428
Newsprint	83,262
Paper Board	30,921
Wrapping and bags	25,462
Writing and Drawing	676
Tissues	4,482
Japanese machine-made	16,954
Japanese hand-made	1,085
Others	<u>20,920</u>
	<u>231,190</u>



754

APR 17 1947

In reply refer to  
JK

894.6561/4-1747

Dear Mr. Staples:

Following your request of several days ago for a copy of a report on the woodpulp industry in Japan, we made a thorough search of our files but were unable to find a copy of such report. However, inquiry of the War Department revealed that a report, "The Wood Pulp Industry in Japan" was issued by General Headquarters, Supreme Commander for the Allied Powers on September 15, 1946, as Natural Resources Report No. 56.

Copies of this report may be obtained, for a nominal sum, from the Office of Technical Services, Department of Commerce, Washington, D.C. We are advised also that copies were sent to the following libraries in New York City and are there available for public use:

The New York Public Library  
Woodrow Wilson Memorial Library  
Columbia University Library

We regret our inability to obtain a copy of the report for you.

Sincerely yours,

*Handwritten initials and scribbles*

Edwin M. Martin  
Chief, Division of Japanese and  
Korean Economic Affairs.

Mr. William E. Staples,  
American Paper & Pulp Association,  
122 E. 42nd Street,  
New York, New York.



APR 16 1947

JK:JPHackett:jph: 4-15-47

CS/N

894.6561/4-1747



ACTION  
is assigned to

*DC/K*

UNITED STATES POLITICAL ADVISER  
FOR JAPAN

No. 489

Tokyo, August 3, 1948

UNCLASSIFIED

*DCIR*

Subject: Wood Pulp Production Capacity (Code 41ST482004)

The Acting United States Political Adviser has the honor to refer to the Department's unnumbered instruction of July 16, 1948 regarding the woodpulp report on Japan and to enclose the chart upon which certain statistical information requested for the years 1947-48 has been entered. Estimates for 1948 covering items 1, 2, 4, and 5 are not available.

894.6561/8-348

Enclosure *att*

Chart.

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