GEOGRAPHICAL DISTRIBUTION OF *CONIFERAE* IN THE FAR EAST.

by

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Botanically *Coniferae* comprises two families, *Taxaceae* and *Pinaceae*; *Ginkgoaceae* being sometimes included in it or placed between *Coniferae* and *Cycadaceae*. *Coniferae* is the most important class of *Gymnosperms* and its geographical distribution is of great interest since it was better represented in earlier periods than in the present. *Taxaceae* comprises 13 genera and more than 111 species, while of *Pinaceae* 33 genera and more than 322 species are recorded. The following list gives the names of the genera, the number of species and their geographical distribution.

TAXACEAE

Tribe I. *Taxeeae*

Taxus Linn.—7 spp., N. Temperate Zone.

Torreya Arn.—5 spp., Eastern Asia, south east and western United States.

Austrotaxus Compton—monotype, New Caledonia.

Cephalotaxus Sieb. et Zucc.—6 spp., Eastern India to Japan.

Amentotaxus Pilger monotype, China, Formosa.

Tribe II.—*Podocarpeae*

Pherosphaera Archer.—2 spp., Tasmania, New S. Wales.

Dacrydium Soland.—14 spp., Malaya, New Guinea, New Caledonia, New Zealand.

Acropyle Pilger—monotype, New Caledonia.

Popocarpus L'Herit.—about 65 spp., Tropics and Subtropics,
mostly southern Hemisphere.

Saxegothaea Lindl.—monotype, Chile.

Microcachrys Hook. f.—monotype, Tasmania.

Phyllocladus L. C. Rich.—6 spp., Philippines to New Zealand,
Tasmania.

Prumnopitys Philippi—monotype, Chile.

PINACEAE

Tribe I.—*Abieteeae*

Picea A. Dietr.—40 spp., North Temperate Zone.

Tsuga Carr.—10 spp., Asia, North America, Japan.

Keteleeria Carr.—2 spp., China, Formosa.

Abies Link.—35 spp., North Temperate Zone.

Pseudotsuga Carr.—5 spp., North America, Japan, China, Formosa.

Larix Mill.—15 sp., North Temperate Zone.

Pseudolarix Gord.—monotype, E. China.

Pinus Linn.—about 70 spp.—Temperate Northern Hemisphere.

Cedrus Lawson—4 spp., Atlas Mtns. to Himalaya.

Tribe II.—*Araucareae*

Agathis Salisb.—15 spp., Malaya to New Zealand, Polynesia.

Cunninghamia R. Br.—2 spp., China, Formosa.

Taiwania Hay.—monotype, China, Formosa.

Araucaria Juss.—15 spp., New Guinea, East Australasia, S. America.

Tribe III.—*Taxodieae*

Arthrotaxis D. Don.—3 spp., Tasmania.

Sequoia Endl.—2 spp., Pacific N. America.

Cryptomeria D. Don.—monotype, Japan.

Glyptostrobus, *Endl.*—monotype, S. China.

Taxodium *L. C. Rich.*—2 spp., S. E. United States and Mexico.

Sciadopitys *Sieb. et Zucc.*—monotype, Japan.

Tribe IV.—*Cupresseae*

Fitzroya *Hook. f.*—monotype, Chile and Patagonia.

Diselma *Hook. f.*—monotype, Tasmania.

Cupressus *Linn.*—8 spp., North Temperate Zone.

**Chamaecyparis* *Spach.*—6 spp., North America, Japan, Formosa.

Fokienia *A. Henry et Thomas*—2 spp., South China.

Thuja *Linn.*—6 spp., North Temperate Zone.

Thujopsis *Sieb. et Zucc.*—monotype, Japan.

Libocedrus *Endl.*—9 spp., Formosa and S. W. China to New Zealand, West Temperate South America.

Juniperus *Linn.*—28 spp., Northern Hemisphere, Mts. of East Africa.

Tribe V.—*Callitreae*

Callitris *Vent.*—18 spp., Australasia.

Callitropis *Compton*—monotype, New Caledonia.

Actinostrobus *Miquel*—2 spp., Western Australia.

Widdringtonia *Endl.*—5 spp. Africa.

Tetrclinis *Masters*—monotype, N. Africa, Malta, Carthage.

The Far East is rich in *Coniferae* and Japan is singularly so, they are more numerous than other trees, they range from extreme South to the northern limit of the Empire and from sea-level to the summits of the highest mountains. In *Taxaceae* 5 genera out of 14 are represented in the Far East, these are *Taxus*, *Torreya*, *Cephalotaxus*, *Amentotaxus* and *Podocarpus* ;

**Chamaecyparis* is often included in *Cupressus*.

Amentotaxus and *Cephalotaxus* being the endemic genera of the East. In *Pinaceae* 20 genera out of 33 are represented; endemic genera being *Keteleeria*, *Pseudolarix*, *Cunninghamia*, *Taiwania*, *Glyptostrobus*, *Cryptomeria*, *Sciadopitys*, *Fokienia*, and *Thujopsis*. The following is the table showing genera and number of species found in the Far East and in North America.

	Japan	China	Formosa	North America
GINKGOACEAE				
<i>Ginkgo</i>	1	1	0	0
TAXACEAE				
<i>Taxus</i>	1	1	1	4
<i>Torreya</i>	1	2	0	2
<i>Cephalotaxus</i>	1	4	1	0
<i>Amentotaxus</i>	0	1	1	0
<i>Podocarpus</i>	2	0	4	0
PINACEAE				
<i>Picea</i>	7	18	1	7
<i>Tsuga</i>	2	2	1	4
<i>Keteleeria</i>	0	2	1	0
<i>Abies</i>	7	7	1	10
<i>Pseudotsuga</i>	1	1	1	2
<i>Larix</i>	2	3	0	3
<i>Pseudolarix</i>	0	1	0	0
<i>Pinus</i>	6	4 or 5	4	28
<i>Cunninghamia</i>	0	1	1	0
<i>Taiwania</i>	0	1	1	0
<i>Sequoia</i>	0	0	0	2
<i>Cryptomeria</i>	1	0	0	0
<i>Glyptostrobus</i>	0	1	0	0
<i>Taxodium</i>	0	0	0	2
<i>Sciadopitys</i>	1	0	0	0
<i>Cupressus</i>	0	1	0	4
<i>Chamaecyparis</i>	2	0	2	3
<i>Fokienia</i>	0	2	0	0
<i>Thuja</i>	1	1	0	2
<i>Thujopsis</i>	1	0	0	0
<i>Libocedrus</i>	0	1	1	1
<i>Juniperus</i>	5	6	2	12

The total number of genera represented in the Far East is 26 ; endemic genera of Japan proper are *Cryptomeria*, *Sciadopitys* and *Thujopsis*, those of China are *Fokienia*, *Pseudolarix* and *Glyptostrobus*, while North America has two endemic genera, *Sequoia* and *Taxodium*, the former grows in the Pacific range, the latter on the Atlantic Coast regions and in Mexico.

Formosa was believed to possess one endemic genus in *Taiwania* but after the recent investigation it is distributed in Western China.

It is very interesting to note that there are four genera that are common to China and Formosa but found nowhere else these genera are *Keleeria*, *Taiwania*, *Amentotaxus* and *Cunninghamia*.

There is no endemic genus common to Japan and Formosa and this fact indicates that Formosa was connected with Asiatic Continent in Tertiary period. There is one genus that is only found in China, Korea and Japan but nowhere else, that is *Ginkgo* of *Ginkgoaceae* but this is believed to be introduced into Japan. The genera that are common to China and Formosa but not found in China are *Podocarpus* and *Chamaecyparis*, while the genera that are common to Japan and China but not found in Formosa are *Torreya* and *Larix*. The genera that are common to China and Formosa but not found in Japan are *Libocedrus* and the four genera mentioned above. There are eight genera that are common to China and Japan and Formosa : *Taxus*, *Cephalotaxus*, *Picea*, *Tsuga*, *Abies*, *Pseudotsuga*, *Pinus* and *Juniperus*. These genera are all represented in North America except the genus *Cephalotaxus* and this shows the two Continents was connected in an earlier time. As seen in the table there are 17

genera and 42 species in Japan, while in China 20 genera and 61 (or 62) species, in Formosa 15 genera and 23 species and in North America 15 genera and 86 species.

Lastly a word must be mentioned about the distribution of *Coniferae* in Japan. In Saghalien 5 genera *Taxus*, *Pinus*, *Picea*, *Abies* and *Larix* are found; in Hokkaido also five genera, *Taxus*, *Abies*, *Picea*, *Pinus* and *Thujopsis* are found; *Larix* grows on the Kuriles but not in Hokkaido. In Honshu, all genera that are found in Japan are represented; in Shikoku all genera excepting *Thuja*, *Thujopsis* and *Larix*; while in Kiushu excepting *Thuja*, *Pseudotsuga* and *Larix*.

In Lutchoo Islands four genera of *Podocarpus*, *Pinus*, *Cryptomeria* and *Juniperus* are found and in Korea 10 genera are represented by *Taxus*, *Cephalotaxus*, *Torreya*, *Abies*, *Picea*, *Larix*, *Pinus*, *Tsuga*, *Thuja* and *Juniperus*.