Yudzuru Ogura*: A fossil wood of Castanopsis-type from the Tertiary of Nagano Prefecture.**

小倉 謙 ：長野県第三紀産クリガシ型の化石材

The writer has received a small piece of a silicified wood, about 10 cm. in diameter and 30 cm. in length, from the Tertiary of Nagano Prefecture. Though the preservation is not very well, it is enough to investigate its internal structure. This wood shows a very distinct ring-porous structure comparable with that of Castanopsis of the Fagaceae, as shown in the following description.

* Castanopsis Makinoi Ogura, sp. n.

Diagnosis: A fossil wood showing dicotyledonous structure. Annual rings distinct, broad. Ring-porous; large vessels in early wood in four or five radial rows; small vessels, gradually becoming smaller toward late wood, arranged radially or diagonally in two or three tangential rows. Large vessels, circular or slightly elliptical in cross section, 300—350 μ in diameter, 400—500 μ in length, do not touch each other; filled with thin-walled tyloses. Small vessels circular or nearly circular in cross section, 50—100 μ in diameter, solitarily or two or three of them contact with each other. Perforation simple; lateral wall with small bordered pits arranged roughly and irregularly. Wood-parenchyma, 20 μ in average diameter, arranged mostly around vessels, few in other parts. Chambered parenchyma distributed abundantly throughout. Tracheids and wood-fibers similar in shape. Rays always fine, uniseriate; 2—18 cells, mostly 1—14 cells, in height; walls in contact with vessels with simple elliptical pits, horizontally elongated.

Locality: From the Tertiary tuff at Amorimura, near Nagano City, Nagano Prefecture. Type in the Botanical Institute, Faculty of Science, University of Tokyo.

Affinities: The general structure of the wood, especially the mode of arrangement of vessels is comparable with that of Castanea, Castanopsis or Lithocarpus of the Fagaceae. The species belonging to these genera are similar with each other, not only in their external characters but also in their anatomical structure. Their woods are characterized by the ring-porous form, provided with small vessels arranged radially, fine rays consisting of one row, and wood-parenchyma arranged a-

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round the vessels and more or less tangentially in the late wood. In these characters, these genera cannot be distinguished from each other. In other structure, it seems that they have their own special characters, but it is not always the case. For example, the rays in Castanea are always fine and uniseriate, and those in Litho-

Fig. 1. Cross section, showing the arrangement of vessels. (X8)

Fig. 2. C. cross section, R. radial section, T. tangential section: v. vessels with tyloses, m. medullary ray, p. wood-parenchyma, c. chambered parenchyma. (X160).
Carpus are provided also with the broad and multiserial ones, while in Castanopsis
the rays in some species (e. g. C. Kawakamii, C. formosana, C. subacuminata)
show only the uniseriate but some others (e. g. C. taiwanica) show the uniseriate,
as well as the multiserial. The similar relation is to be found in the chambered
parenchyma; they are present in Castanopsis and absent in Castanea generally,
but some of the former (e. g. C. Kawakamii) have none of them. These facts
show that there are no distinct characters which discriminate these genera from
each other. It is therefore difficult to determine the affinity of the present fossil
wood accurately, but the general characters, especially the presence of the cham-
bered parenchyma, are mostly familiar with Castanopsis. These cells are very char-
acteristic, occurring abundantly and arranged longitudinally in a single row, showing
that they are derived from a long fibrous cell by transverse septation. The fibrous
cell in which a few chambered parenchymatous cells are partially included is not
rare. The wall of these cells is thick, and in some cases a large polygonal space
is to be found within the cell, suggesting that it may be a crystal-including cell.

The genus Castanopsis consists of more or less thirty species, mostly found
in South China, Malaya, East Indies and India, and a few on the Pacific coast of
North America. They are not found in Japan proper. The anatomical structure of
these species was studied only in a few2), and the writer cannot compare the pre-
sent fossil with all living species, but it seems that the tangentially arranged wood-
parenchyma, which is one of the characteristics of the living species, is rare in its
occurrence, while the occurrence of the chambered parenchyma, another charac-
teristic of the genus, is more numerous than the living species. The fossil wood
described by Schönfeld as Castanopsis sp.3) cannot be compared with the present
one, as the description is not complete. The present fossil wood seems therefore
to be different from the woods of the recent and fossil species of Castanopsis ever
known, and the writer intends to name it provisionally as Castanopsis Makinoi,
dedicating to Dr. T. Makino, in commemoration of his 88th birthday.

1) Kanehira: Anatomical characters and identification of Formosan wood. 1921.
2) Kanehira: I.c.; Anatomical structure and identification of important woods of Japanese Empire.
1926. Brown & Parshin: Identification of the commercial timbers of the United States. 1934. Re-
des Holzes der auf Java vorkommenden Baumarten. 6. 1936.
筆者は曾で八木貞助氏から、長野市附近に産した一化石材の標本を送られその鑑定を乞われた。その標本は外観的に余り見事なものではないが、薄片を作って見ると比較的保存がよく顕微鏡的観察が出来る程度であったので、多数の薄片を検観の結果、クリガン属の材と鑑定するに至った。

即ち顕孔材の一端で、大導管が春秋材数列あり、これに続く小導管は放射的に排列し、射出顕は一列で細く、その導管との接面にはレンズ形の膜孔が発生する。柔細胞は導管の間に多いが他の部には比較的稀く、仮導管と木部繊維とは余りよく区別し得ない。向続続状細胞が短く区割されて立方体形をなす所謂多室細胞が可成り多く見られ、中には原細胞の局部に二、三の細胞がこの状態に隔膜を生じることもあり、その成因を知るに都合よい。

クリガン属は南支那から東印度諸島、印度に亘り産し、仏二三北米の太平洋沿岸にも産し、外観も内部構造もクリ属や Lithocarpus に類し、互に区別し難い種であるが、この化石材はクリガン属に最も類似するものと認め、牧野博士米漱を記念して Castanopsis Makinoi と命名した。

長野県上水内郡安茂里村小市埜沢山の第三紀塩灰岩中から曾て金子俊司氏（当時長野中学校生徒）の採集したものである。

○夏間採集の思い出。
　“私が台湾へ行つたのは明治 29 年であった。丁度所属の変つた直後のことではあり、感じも外国の様であったし、それにベストが流行していたので何となくいやなところだと思った。基隆に上陸して、台北に行く途中で、患者の家の畑を畑でとり巻いてあったものを思い出す。台北には城門などもあって、昔の通りであつた。その時、大稻埕（タイトウタイ）に溝が流れていて、そこでコナウキクサ（Wolffia）を採つた。その標本は東大の標本室に今もある管だが、これが Wolffia を日本人が採集した最初である。

山へ行きつたかたが、未だ入ることが出来なかったから、主に道傍で採集をしたのであった。治安もよくなかった関係もあるが、又金が足りなかったことも事実で、旅費として 3 人で 200 円しかなかった。3 人というのは小石川植物園の園丁をしていった内山富次郎君と、大学にいた大渡忠太郎君と、そして私の 3 人であったが、基隆へつく迄にもう準備に半分の 100 円を使ってしまい、心細かった。それでこの少ない金でどう旅行しようかということで、基隆で大渡と喧嘩別れになってしまい。私は内山と二人で台北に残つたが、大渡は打狗へ出掛けて行った。初めてタカサギユリを採つたことやツウダマポケの見事な出来に驚いたことや、基隆で絡色した毒蛇を打殺して多田剛介にやつた事をおぼえている。”　（牧野先生一夕話一文責在編集）