

Notes on certain Coniferae recorded by Hector Léveillé in Flore du Kouy-tchéou

BY

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It is now some years since Alfred Rehder¹ published a summary of the results of his investigation of the ligneous plants described by Hector Léveillé from eastern Asia, and proved conclusively that the majority of Léveillé's species had no foundation in fact and are invalid. Reference to the type specimens showed that these had been identified incorrectly in the first instance, and some indeed bore not the slightest relationship to the genus, nor even to the family to which they had been assigned. The descriptions of these "species" had appeared from time to time in Fedde's Repertorium, in Monde des Plantes and in other publications, to be recorded subsequently by Léveillé in Flore du Kouy-tchéou and in his Catalogues of the plants of Yunnan and Szechuan. The inclusion of such fictitious records relating to new species has naturally impaired the value of these regional floras, and has created doubt as to the authenticity of all recordings made by Léveillé. It seemed not at all unlikely that more of the plants mentioned by Léveillé as occurring in these Chinese provinces might be masquerading under false names because of faulty diagnosis. To have explored this possibility with a view to establishing the validity of all Léveillé's records, however desirable that might be, was outwith the scope of Rehder's original investigation, which had as its objective the determination of the true status of the species created by Léveillé, concerning which there had been much dubiety among systematists. That some at least of these records are erroneous and misleading has since been confirmed, and it is the purpose of this paper to direct attention to them.

The writer had occasion recently to re-examine the Coniferae included in the Léveillé Herbarium (now in the possession of the Royal Botanic Garden at Edinburgh), and while endeavouring to correlate the specimens with the names in Léveillé's lists, it became apparent that the original identification of the material was at fault in several cases, thus invalidating Léveillé's records. These cases of mistaken identity are more easily traceable in Flore du Kouy-tchéou than in the Catalogues, which are merely lists of the species said to have been found in Szechuan and Yunnan. In Flore du Kouy-tchéou, each recording of plant material from the province is substantiated by a citation of the Collector's name and the number of the specimen upon which it is based. It should be mentioned here that this flora was compiled by Léveillé during 1914 and 1915, and was reproduced by him in manuscript, eighteen copies only being distributed. Despite its limited circulation, and the small number of conifers wrongly described, apart from the species reduced by Rehder, it seems worth while to publish the corrections of the faulty records, especially since these include first recordings of two rare conifer species discovered in Kweichow. In order to facilitate reference to the original manuscript each emendation is preceded by a transcription of Léveillé's recording of the specimen in question.

¹ A. Rehder in Journ. Arnold Arbor. xviii (1937), 278-321.

"*Libocedrus macrolepis* Benth. Tien-sen-kiao (va disparaître de ces rochers) mai 1910, 900 m. (Jos. Esquirol 2691)."

Esquirol's specimen No. 2691 is not *Libocedrus macrolepis*, found only in Formosa and Yunnan, but is *Fokienia Hodginsii* (Dunn) Henry & Thomas. To the legend accompanying the specimen, the collector has added the query "cette conifère est elle rare ?" So far as is known, this represents the first finding of this rare species in the province of Kweichow, and it was not until 1930 that *Fokienia Hodginsii* was again found in Kweichow, on this occasion by the Chinese collector Y. Tsiang, who described it as being a rare conifer, growing on open hillsides and in woods at Yao-ren-shan and Ku-kai-shan.¹ Esquirol's material is without cones, but the vegetative characters are unmistakable.

"*Thuja orientalis* L. Distr. de Gan Pin à Hin-Hiang-Ho, fevr. 1898 (Martin 2074)."

Martin's No. 2074 belongs to *Cupressus funebris* Endl. This specimen bears cones, and it is therefore all the more surprising that it should have been identified as *Thuja orientalis* by Léveillé. The Weeping Cypress is now reported to be of common occurrence in certain areas in Kweichow, occasionally forming forests on mountain slopes.

"*Tsuga Brunoniana* Carr. Route de Tong-tcheon à 20 kil. de Pin-fa, R. R. nov. 1905 (Cavalerie 2639)."

The material collected by Cavalerie under this number consists of three sterile shoots with a few leaves, and in a note accompanying the specimens Komarov makes this comment, "espèce nouvelle de *Keteleeria* ou de *Tsuga*, décrire sans cônes impossible, faut écrire à M. Cavalerie qu'il est absolument nécessaire de faire des nouvelles récoltes." Komarov apparently failed to appreciate the significance of the statement on Cavalerie's field note that the bracts of the cone stand out in the form of an arrow, and although no cone is included with the vegetative parts the leaf-anatomy shows clearly that the specimens belong to a *Pseudotsuga*. The vascular tract of the leaves is undivided, a feature characteristic of this genus, as is also the infolding of the cell-walls, clearly perceptible in the elements composing the spongy parenchyma. Stellate idioblasts are present in the mesophyll, and, although such inclusions are not peculiar to the leaves of *Pseudotsuga*, they occur in those of both the Chinese species. Two resin canals are present in the leaves, and these are marginal in position, whereas in the leaves of *Tsuga* there is but one duct, situated below the vascular bundle. The relatively short leaves, the pubescent shoots and non-resinous buds are all indicative of *Pseudotsuga sinensis* Dode. This species was discovered by Père Maire at Tong-tcheon (Yunnan) in 1912, and has since been recorded from Chekiang and Anhwei, but so far as the writer is aware Cavalerie's No. 2639 represents the first and only record of the occurrence of *Pseudotsuga sinensis* in Kweichow.

A further instance of erroneous recording in the Flore du Kouy-tchéou is afforded by the misquotation of the number of Cavalerie's material of *Cryptomeria japonica* from Gan Chouen. The correct number of the specimen in question according to the field note is 3984, and not 3934 as stated by Léveillé.

¹ W. C. Cheng in *Sinensia*, 2 (1932), 105.

Reference has been made to Léveillé's later works, *Catalogue des Plantes du Yun-nan* (1915-17), and *Catalogue des Plantes du Seu-tchouen* (1918), and it was pointed out that these consist mainly of lists of species, unaccompanied by confirmatory citations of particular specimens, so that it is impossible to determine whether or not these recordings are based on reliable data afforded by native material correctly named. Undoubtedly, many of the plants gathered within the confines of these two provinces, and incorporated in the Léveillé Herbarium, bear designations which are obviously incorrect. Among such are the specimens originally assigned to alien species, the real identity of which has long since been established, along with those constituting the type material of Léveillé's new species, now shown by Rehder to be invalid. Recordings of other species are open to doubt, but in the absence of specific evidence of the source of these, they cannot be disproved. While looking over the material in the Léveillé Herbarium, collected in Yunnan and Szechuan, the writer came across two particular examples of misnaming which should certainly be mentioned here. Both relate to conifers, one from Yunnan, and one from Szechuan.

Among the Coniferae listed by Léveillé in *Catalogue des Plantes du Yun-nan*, there appears the name of *Juniperus tamariscifolia* Aiton, a species now reduced to a variety of *Juniperus Sabina* Linn., and not known to grow spontaneously in China. The specimen on which this record was based was collected by E. E. Maire on the Ta-hai-tse plateau in 1912, and was referred to Aiton's species by Léveillé in *Monde des Plantes* (1914). In his account of the Taxads and Conifers of Yunnan, the late E. H. Wilson¹ there expressed the opinion that the material gathered by Maire belongs to *Juniperus Wallichiana* Hook. f., but this is incorrect as the specimen in question is without doubt referable to *Juniperus squamata* D. Don, which is of common occurrence in western China.

The second case referred to above concerns a specimen in the Léveillé Herbarium which was collected by E. E. Maire in the forest of Tié-tchang-keou in the province of Szechuan, and was named *Thuja sutchuenensis* Franch. This species was discovered by Farges in the same region of Szechuan, and is therefore rightly included by Léveillé in *Catalogue des Plantes du Seu-tchouen*. Maire's material does not, however, belong to *Thuja sutchuenensis*, and has been wrongly identified as such. It is, in fact, *Fokienia Hodginsii* (Dunn) Henry & Thomas. This being so, it constitutes the first, and only record of the occurrence of this rare conifer in Szechuan.

¹ E. H. Wilson in *Journ. Arnold Arbor.*, vii (1926), 67.