

秦仁昌论文选

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秦仁昌教授（1898—1986）



R. C. Ching & R. E. Holtum
October 1963, at the Summer Palace, Beijing
秦仁昌与英国蕨类学家霍尔通合影
一九六三年十月于北京颐和园

INTRODUCTIONS 序

远在我于国外读书时，即景仰秦仁昌先生大名。回国后，有幸于1935年在他到武汉大学参观时和他见面。经过那艰难的抗战岁月，在建国后，又有机会和他在中国科学院植物研究所共事近四分之一世纪。在此期中，我对秦老又有进一步的了解，对他的治学及为人更为敬佩。他是我国植物学家在世界植物学界的一枝独秀。

本来，中国植物学会准备在秦老九十岁的时候，召开国际蕨类植物学科学讨论会，以庆祝他从事蕨类植物学工作六十五年，但不幸他于前年逝世了。中国植物学会决定会议如期召开，并出版《秦仁昌论文选》以纪念他诞辰九十周年，嘱我为之作序。为了对秦老表示敬意和悼念，谨应命作此序言。

秦仁昌先生1898年出生于江苏武进县的一个农家。1914年考入江苏省第一甲种农业学校林科，在校长陈嵘、教授钱崇澍的熏陶下，立志植物分类学。1919年毕业，考入金陵大学林学系。由于他勤奋好学，成绩优异，被陈焕镛教授赏识，在毕业前两年就被介绍到东南大学兼任助教。在教学过程中，他发现中国的蕨类植物全是外国人在研究，学校连腊叶标本都没有，他决心白手起家，锲而不舍地把这项工作承担起来。这一想法得到陈焕镛教授的支持，并于1926年带他到香港植物园标本室工作，使他有机会接触到许多标本和文献，坚定了他研究蕨类植物的信心。

1927年，他受聘于中央研究院自然历史博物馆，任植物学技师。在胡先骕教授的支持下，于1929年被派到丹麦哥本哈根大学植物博物馆，在当时世界著名蕨类学大师克利斯登生（C. Christensen）教授指导下研究蕨类植物分类学。在学习期间，经常得到美国的科波兰特（C. B. Copeland）、摩尔通（C. U. Morton）以及瑞士的克利斯特（H. Christ）等著名蕨类学家的帮助，奠定了他研究蕨类植物的坚实基础。翌年秋，他代表中央研究院出席在英国剑桥大学召开的第五届国际植物学会议，会上结识了许多国家的植物学家，扩大了眼界。会后他到瑞典、德国、法国、奥地利、捷克斯洛伐克等国的标本馆作短期访问。最后在英国皇家植物园标本馆及大英博物馆进行系统研究，写出七十多万字，包括11科，86属，1200多种的一部完整的中国蕨类专著。为了发展中国的植物分类学，他查阅了该馆所藏全部中国产的植物标本，拍摄模式标本照片18300张，并作了记录，1932年回国任静生生物调查所研究员兼标本室主任。

我认识他是在1935年，当时我在武汉大学任教。由于他的建议和毛遂自荐，他离开了当时条件优越的城市，受命去庐山创建森林植物园。他送夫人回长沙治病，路过武汉来看我。他对发展林业和植物学研究的关心，给了我深刻印象。抗日战争爆发后一年，江西告急，他辗转流亡到云南，建立了庐山植物园丽江工作站。他充分利用号称“植物王国”的云南有利条件，进行调查采集，经过多年的标本资料积累，对外部形态和内部结构及生态等比较研究，在1940年发表了“水龙骨科的自然分类系统”一文，大胆而科学

地把一百多年来囊括蕨类种的90%以上,属的4/5的混杂的水龙骨科分为33科249属,清晰地显示出它们之间的演化关系。文章引起了国际蕨类学界的重视和争论,推动了蕨类系统学研究和发 展,荣获荷印隆福氏生物学奖。虽然这一系统当时遭到守旧派的反对,但随着科学的不断进步,在以后的年代里逐渐为许多学者所采用。

1945年他被聘为云南大学生物系和林学系教授兼主任。解放后,兼任云南省林业局副局长,领导并计划云南省金鸡纳和橡胶宜林地勘察及育苗造林工作。在这期间,他坚持不懈地研究蕨类植物。1954年发表了“中国蕨类科属名词及分类系统”,为全国各大标本室所采用。1955年,他当选为中国科学院生物学部委员,调任植物研究所研究员兼植物分类及地理研究室主任。1958年,中国植物志编辑委员会成立,他被选为委员兼秘书长,率先响应党的号召,在年轻同志的协助下,日以继夜地工作,以短短三个月时间完成第一本《中国植物志》(第二卷)向中华人民共和国建国十周年献礼。在十年浩劫期间,他遭到严重迫害右腿致残,但仍然注意国际植物学研究动态,收集资料。1978年发表了“中国蕨类植物科属的系统排列和历史来源”,充实和发展了1954年的系统。他之所以在学术上不断取得进步,一方面是他对标本资料有很深的造诣,另一方面是具有丰富的野外经验,他经常参加野外考察,在他年逾六十高龄之时,还参加新疆综合考察。

秦仁昌先生不但是一位专业研究人员,也是一位教师,除了他培养出来的林业和植物学人材外,现在全国各地从事蕨类植物学工作者无一不是在他指导下成长起来的。他没有门户之见,对任何专业、非专业、甚至对反对他的人都一视同仁,有求必应,热心地在各方面给予帮助。为了使青年人能更快成长,他翻译了八十万字的《植物学拉丁文》,编译了《现代科技辞典》和《大不列颠百科全书》中的植物学部分;组织和审改《韦氏大辞典》植物学部分的译稿。他编写的《中国高等植物图鉴》中的杜鹃花科在美国译成英文本。六十多年来他发表论文160多篇,出版专著和翻译15本,是国际蕨类植物学界所少有的。秦老不但专心于科学研究,也关心科学事业的发展,他是中国植物学会的发起人之一,曾任理事、副理事长。他曾被选为第一、二、三届全国人民代表大会代表,先后被聘为新疆考察队植物组组长,国家科委林业组成员,中国科学院中国动植物调查委员会委员,国际植物学会分类和命名委员会名誉主席及蕨类小组成员,《植物分类学报》主编,印度蕨类植物学会名誉委员,参加过制定国家科技远景规划,出席过全苏植物学会第二届代表大会,他是中国植物学的奠基人之一,是世界上富有贡献的蕨类学权威。正如已故美国蕨类学权威科波兰特1947年在其巨著《真蕨属志》一书的序言中所说:“在极端困难的条件下,秦仁昌不知疲乏地为中国在科学的进步中,赢得了一个新的地位。”

今天,在纪念他诞辰九十周年之际,从他的大量著作中选取极小部分,代表不同时期、不同方面的作品汇编此书,一方面表彰他对植物学的贡献,另一方面也寄希望于后起的植物学工作者,学习秦仁昌先生数十年如一日的勤勤恳恳的治学态度,孜孜不倦的海人精神,为发展我国植物学事业,脚踏实地地向前迈进。

中国植物学会理事长 汤佩松

一九八八年一月于北京

I first met the late Professor Ching Ren Chang at Singapore in 1929, when he was on his way by sea from China to Copenhagen to study ferns with Carl Christensen. At that time I had myself been helped by Christensen in my efforts to understand the ferns of Singapore and the Malay Peninsula, so we had much to talk about and I took him to see the ferns in the Nature Reserve on Bukit Timah. I met him again, and also Christensen, at the International Botanical Congress at Cambridge in 1930 and afterwards in the Herbarium at Kew.

Christensen's earlier detailed study had been concerned mainly with ferns of the Americas, during which he noted characters ignored by most 19th century authors and thus gained new insights as to the constitution of natural genera. He had also established more clearly the meaning of many names through a new study of type specimens. Ching applied Christensen's methods to a detailed study of the ferns of China, re-describing the type specimens, a large proportion of which were in European herbaria. Many species native in China had first been described from specimens gathered in India, and the largest collection of Indian specimens was at Kew, where W. J. Hooker prepared his great work on the world's ferns (*Species Filicum*, 1844—1864, in five volumes). During three years in Europe Ching visited many herbaria, making photographs of type specimens, not only of ferns but also of other Chinese plants. He re-described the fern types, and thought about the meaning of the information he so acquired. During the years 1930 to 1941 he published a series of papers embodying the results of these studies and thoughts. During the same period I corresponded frequently with him and we exchanged specimens, a process which added much to my understanding of the species of mainland Asia which are related to those of Malesia.

To understand the significance of Ching's studies, one must consider the work of W. J. Hooker which greatly influenced that of R.H. Beddome whose *Handbook to the ferns of India, Ceylon and the Malay Peninsula* was still the latest source of information about many Chinese ferns. Hooker was obsessed with the idea that other authors had recognized too many species of ferns; he also ignored many details of structure which he thought unimportant, though later study has shown them to be significant. For these reasons he failed to recognize the distinctness of many species. Beddome did correct some of Hooker's errors, but his own field studies were confined to southern India and he relied on C.B. Clarke for much information about those of the north which were Ching's concern. Beddome did a little to improve Hooker's generic con-

cepts and expressed an opinion that more thought was needed. At Kew Ching could study all the specimens of Hooker, Clarke and Beddome, along with his own Chinese collections, and he viewed them with the critical guidelines derived from Christensen. He thus produced order out of confusion, and his resultant publications gave a radically new view of many ferns of mainland Asia. Hooker had in some cases confused Indian and Chinese species with others native in Java described by C.L. Blume. Ching had therefore also to take into consideration such species which do not belong to mainland Asia, both those described by Blume and by some other European botanists, notably G. Kunze, which he found in other European herbaria. In three years Ching did an amazing amount of work.

One can only understand genera if one looks at all the species, and such was the confused state of fern taxonomy in the 19th century that allied species were often placed in different genera. This greatly complicated Ching's work in preparing his monographic studies. These studies produced a flood of new information and new ideas which were of great importance to me in my studies of the fern flora of the Malayan region. I had to modify or amplify some of Ching's ideas to fit the different range of species with which I had to deal, but nearly all Malesian ferns are related to those of mainland Asia, and Ching's work was a foundation necessary for the development of mine.

Ching's monographs were as follows: *Tectaria*, *Vittaria* and *Egenolfia* in 1931, *Microsorium* and other genera formerly included in *Polypodium* in 1933, *Arachniodes* (under the name *Rumohra*) in 1934, *Pyrrosia* in 1935, and in 1936-1938 his very important works on genera confused under *Dryopteris* in Christensen's *Index Filicum* of 1905, thus applying to the ferns of Asia the ideas developed by Christensen in his monograph on "*Dryopteris*" in the Americas (1911-1921). Ching also clarified the concepts of several small genera: *Sinopteris*, *Lithostegia*, *Scleroglossum*, *Gymnocarpium*, *Onychium*, *Hypodematium*, *Stegnogramma* and *Leptogramma*. He completed his work of the decade 1930-1940 with a paper summarizing his ideas on the genera of all leptosporangiate ferns (1940). Simultaneously with these systematic studies he also produced four parts of *Icones Filicum Sinicarum*, the first part in collaboration with H.H. Hu; a fifth part was added in 1958, the whole work illustrating 250 species.

The war in Asia interrupted Ching's work. He published a paper dealing with miscellaneous new species in 1949, then monographs of *Adiantum* in China (1957) and of the genus *Plagiogyria* (1958). Important works followed on the compound-leaved *Polysticha* in 1962, a new classification of *Thelypteridaceae* in 1963 and a paper on *Phymatopteris* and *Crypsinus* (*Polypodiaceae*) in 1964. In 1963 I had the privilege of meeting Prof. Ching in Peking through the hospitality of Academia Sinica.

Subsequently Prof. Ching collaborated with other pteridologists to produce a new series of papers which complement those of earlier years by adding descriptions

of new species. But his work of 1930 to 1964 constitutes his main contribution to a factual knowledge and an understanding of the world's ferns, and it is a contribution not excelled by any other person during that period. It is a pleasure to express my admiration of his achievement and also my indebtedness to him for help and inspiration during the course of my own studies.

Royal Botanic Gardens
Kew, England
January 1988

R.E. Holttum

CHRONOLOGY OF R. C. CHING

- | | |
|-----------------|--|
| 16 January 1898 | Born in Wujing County of Kiangsu Province to a peasant family. |
| 1914—1919 | Student at Kiangsu First Agriculture School. |
| 1919—1925 | B.S. from Department of Forstry, Kingling University, Nanking. |
| 1924—1925 | Asistant Professor of Botany, Department of Biology, Southeast University, Nanking. |
| 1926—1927 | Lectuter, I.c. |
| 1926 | Visited the Herbarium of Hong Kong Botanical Garden for examination of fern specimens. |
| 1927—1932 | Head of Botany Section, Metropolitan Museum of Natural History, Academia Sinica, Nanking. |
| 1929—1932 | Studied ferns under C. Christensen in Copenhagen, Denmark; visited herbaria in Netherlands, Germany, France, Austria, Czechoslovakia and worked at Kew Herbarium and British Museum (Natural History). |
| 1930 | Represented the Metropolitan Museum of Natural History, Academia Sinica to attend the fifth International Botanical Conference at Cambridge, England. |
| 1932—1945 | Researcher and Head of Herbarium of the Fan Memorial Institute of Biology, Peiping. |
| 1933 | One of the sponsor and director of the Chinese Botanical Society.
Married Zuo Jin-fu. |
| 1934—1938 | Founder and Director of Lushan Arboretum and Botanical Garden, Lushan, Kiangsi Province. |
| 1937 | Birth of son, Ching Li-ming |
| 1938—1945 | Founder and Director of Likiang Botanical Station, Yunnan Province. |
| 1945—1955 | Director of Yunnan Agriculture Improvement Institute; Vice Director of Yunnan Forestry Bureau; Director and Professor of Biology Department and Forestry Department of Yunnan University. |

- 1954 The deputy of the 1st, 2nd, 3rd National People's Congress.
- 1955 Member of Academia Sinica; Advanced Researcher and Director of Phytotaxonomy & Phytogeography Department of Botanical Institute of Academia Sinica; Head of Botanic Section of Sinkiang Comprehensive Expedition.
- 1957.5. Attending the Second Congress of Botanical Society of USSR.
- 1958 Member of the Animal and Plant Survey Committee of Academia Sinica; The member and Secretary general of the Editorial Committee of Flora of China, Academia Sinica; Honorary vice Chairman of the Taxonomy & Nomenclature Committee of the International Botanical Society.
- 1964 Death of Mrs Ching
- 1979 Adviser of the Botanical Institute, Academia Sinica; Chief editor of the Acta Phytotaxonomica Sinica.
- 1986, 19:22nd July Died in Peking, at age 88 years.

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SOME NEW SPECIES OF FERNS FROM KWANGSI, CHINA¹⁾

In the Spring of 1928, the National Research Institute started its first scientific expedition to Kwangsi, in southwestern China, with a view to an extensive investigation into its fauna, flora, mineral resources and racial constituents of that province, which had been prior to this expedition very little known to the outside world. The writer was very fortunate in being appointed as a botanist in the expedition, in which botany was a part of its whole undertaking, and had a unique chance to see much of this yet botanically unknown land of China. The party, however, did not get into the field until late in May, as, before the actual collecting work commenced, a considerable amount of time was spent in familiarizing ourselves with the geographical features, existing forestry and local conditions and, finally, considering and arranging the proper means for transportation in the regions wherein the work of botanization could be profitably centered. This was considered particularly important in such a province like Kwangsi, about which so little had been known to us prior to our visit.

The regions we botanized were very extensive, covering the northern, western and southern borders of the province, varying in climatic conditions from the temperate in the north, near the border of Kweichow, to subtropics towards the south, bordering Indo-China and a part of southern Kwantung. The field work, commenced from the end of May, was carried through the remaining part of summer, the entire autumn and the earlier half of the winter. The entire collection arrived in Nanking several months ago and the total number of plants secured runs a little over 3,400, of which the fern materials are very rich.

Since the floral literatures of Kwangsi are altogether nonexistent, it is quite natural that considerable difficulties are to be expected in the course of working out materials from such a region. As the writer has yet had little chance to examine the whole collection, a part of the ferns has been forwarded to Dr. Carl Christensen, Copenhagen, for identification, and the writer himself has recently taken up a preliminary study on the remaining part among which the following are the species evidently or presumably undescribed heretofore. Besides, there are some other suspicious novelties, a genus and a number of species not previously recorded from China, which will together with Dr. Christensen's identification be published later.

1) *Sinensia* 1(1): 1—13. 1929.

DIAGNOSIS

Trichomanes tereticaulum, n. sp. § **Eutrichomanes**, Subsect. **Ptilophyllum**,
v.A.v.R. in Handb. Malay. Ferns, p. 83. (1908).

Rhizome naked or nearly so, very short, interwoven in dense wiry fibrous roots; stipes densely caespitose-fasciculate, wiry, rigid, teret, not winged or only narrowly winged towards apex, 4—6 cm long or longer, naked. Fronds glabrous, subdeltoid to linear-oblong, 4—6 cm long, 2—2.5 cm broad, 3-pinnatifid, rachis narrowly winged throughout; pinnae 3—5 on each side remote erect, patent, oblong-ovate, 1—2 cm long, the upper ones gradually shortened; pinnules 2—4 entire or 2—3 pinnatifid into small linear, entire, rounded segments; texture thin-herbaceous, translucent, dull green; veins distinct, 1 to each segment, spurious veinlets wanting. Sori terminal on ultimate segments, mostly immersed, 2—3 to each pinna, inducium short funnel-shaped, slightly dilated, obscurely undulate at mouth, not bifid, receptacle long-exserted, stout, dark brown.

A very distinct little species for its wiry teret wingless rachis, short radiate rhizome and rather a few remote cuttings, not comparable with any of the Chinese species known to the writer.

Hab. Seh-feng Dar Shan, S. Kwangsi, near the border of Tonkin, a common, densely tufted fern on shaded dripping cliff in a wooded ravine, about 1800 ft. elevation. (*R.C. Ching*, No. 8239).

Polystichum Chunii, n. sp.

Rhizome thick, strong, woody, rather short oblique ascending; paleae large, dense, imbricate, membranaceous, ferruginous, broad ovate, long acuminate, 6—10 mm long, 3—5 mm broad. Stipes fasciculate, 5—10 clustered, 8—12 cm long, 2 mm thick, rufo-stramineous, densely clad in dimorphic scales, the one similar to the rhizomatic paleae, the other, smaller, fibrillose-subulate or linear-subulate, and extending throughout the rachis. Fronds linear-lanceolate, 35—42 cm long (including stipes, 9—11 cm long) 4.2—5 cm broad, bipinnate, \pm abbreviate towards base, long attenuate towards apex, gemmiferous and radican at tip or a considerable distance backward, gemmae globular, densely clad with imbricate scales similar to the rhizomatic ones. Pinnae sessile, alternate or sub-opposite, rather confert, horizontally patent, with the lower ones deflexed, numerous, 30—35 on each side of the rachis, glabrous above, \pm fibrillose beneath, clad at the point of insertion beneath with a few ovate, acuminate, ciliate scales, 2—2.5 cm long, 1 cm. broad at base, oblong-lanceolate, pinnate (except the terminal ones which are only aristate crenate or -serrate) below the middle, pinnatifid towards

apex, strongly auricled on the anterior side; i.e., the basal pinnule on the upper side of the costa by far much the largest with its lower side cut parallel to the rachis and aristato-acute apex. Pinnules 5—7, confert, basal ones free, sessile, upper ones adnate, rhomboidal-ovate, entire or crenate, rounded and aristate at apex; texture thick, coriaceous, shining green above, pale below; veins inconspicuous, lateral veinlets in the pinnules 3—5 jugate, free, mostly once-forked. Sori small, uniserial, 2—3 on each side of the costule, medial, dorsal on the veinlets, indusium small, coriaceous, persistent.

A coarse tufted fern with fronds tipping downwards, in habit, allies to *P. moupinense* (Franch.) but differs in much narrower fronds, more numerous pinnae which are much less scaly beneath, and in gemmiferous and radicans characters.

Hab. Dar-young Kiang, N. W. Luchen, near the border of Kweichow, common in wooded ravines, though not seen elsewhere in the province, about 3000 ft. elevation. (*R. C. Ching*, No. 6256.)

This species is named in honor of Prof. W. Y. Chun of Botanical Laboratory, Sun Yat-shan University, Canton, South China, from whom the writer has through a close association in the past eight years received many an encouraging inspiration in the course of his work.

***Microlepia chrysocarpa*, n. sp.**

Rhizome wide-creeping, 3—4 mm thick, densely hirsute, sparsely rooted; stipes uniseriate, scattered, 1.5—2 cm apart, strong, rigid, densely shaggy hirsute near the base, sparsely hirtellous upward, light lustrous castaneus, sulcate, 32—40 cm long, as thick or slightly thicker near the base than the rhizome. Frond broadly oblong-lanceolate, not at all abbreviate towards base, 35—42 cm long, 10—12 cm broad, gradually acuminate towards apex, tripinnatifid or almost tripinnate towards the base of the lower pinnae. Pinnae shortly petiolate, (petiole 3—4 mm long), 14—17 on each side below a deeply pinnatifid acuminate apex, the lower ones much remoter than the upper (5—6 cm apart), erect-patent, confert above the middle, the lower ones 10—12 cm long, 4—4.5 cm broad, oblong-lanceolate, slightly narrowed towards base, pinnate; pinnules 14—17 on each side below a short deeply pinnatifid acuminate apex, confert, shortly petiolulate, oblong-lanceolate, strongly unequal at base, 2—2.5 cm long, 7—10 cm broad, pinnatifid almost down to costa into oblong, rounded, more or less crenate lobes; lobes pectinate, the basal ones on the anterior sides much the largest with their outer margin parallel to the rachis of pinnae, 5—7 mm long, 3—4 mm broad, about 7 on each side under an acute serrate apex, veins in the ultimate lobes distinct, free, pinnate, 4—5 jugate, each again once-forked, sori dark brown, dense, submarginal, terminating the veinlets in the ultimate lobes, 5—6 on the basal lobes, fewer on the upper ones, unisorous on the uppermost lobes, indusium brown, persistent, almost rounded.

Texture thick, coriaceous, light green, sparsely hairy along costa above, densely hirtellous on the rachis, and upper side of the costa of the pinnae, and much less so beneath.

A dense gregarious fern, in habit resembles *M. tenera* Christ, differs in much longer and broader petiolate pinnae and pinnules, of a thick coriaceous texture, more branched veins and veinlets and more sori to each ultimate segment.

Hab. Tan Ngar. 10 li E. of Hoo-chi, N. Kwangsi, by the foot of exposed limestone cliff, common in the locality, about 1600 ft. elevation. (*R. C. Ching*, No. 6382.)

Lindsaya Chienii*, n. sp. § *Eulindsaya

Rhizome moderately wide-creeping, oblique-ascending, 1.5–2 mm thick, thinly covered by small adpressed subulate ferruginous scales; stipes subcaespitose, slender, 15–26 cm long, grooved above, polished dark chestnut brown, and so as the rachis, rarely sparsely scaly near the base, otherwise glabrous in all parts. Fronds oblong-deltoid, 11–14 cm long, about 7 cm broad at base, bipinnate, with a short simple pinnate apex; the basal pinnae much the largest, 5 cm long, 2 cm broad, pinnate, the upper ones gradually smaller and less compound, subsessile, alternate, erecto-patent, the lower 4–6 pairs pinnate, oblong lanceolate, with an acuminate pinnatifid apex, secondary rachis castaneous beneath; the pinnules subsessile, oblique rhomboid with basal ones often suborbicular, cuneate, cut on the outer and upper margin into few broad short truncate soriferous lobes, entire and straight on the lower and inner sides, 1–1.2 cm long, 5 mm broad, alternate, 5–6 pairs in the basal pinnae; the terminal pinnae are of same shape and size; texture thin herbaceous, light green above, paler below, rather pellucid, midrib distinct only in larger pinnules, veins all free, \pm flabellate, translucent, 1–2 forked. Sori 5–7 on each pinnule, short, not confluent, submarginal, transversally linear-oblong, mostly uniting the apices of two veins, but not uncommon apical on single veins, indusium membranaceous, narrow, grayish.

In habit this species closely resembles the bipinnate form of *L. media* Hooker from Tropical Australia, but differs in more lobed pinnules, discontinued sori and always free veins.

Hab. Yao-mar Shan, N. Lin Yen, N. W. Kwangsi, on the border of Kweichow, common on the floor of mixed hardwood forest, about 4800 ft elevation. (*R. C. Ching*, No. 7184).

This species is named in honor of Prof. T. H. Chien, the chairman of the Museum Committee, to whose sympathetic and ever prudential vigilance is largely due the success of the previous expedition.

Lindsaya chinensis*, n. sp. § *Eulindsaya

Rhizome creeping, about 3 mm thick, paleae dense, spreading, dark shining brown,

linear with rather a blunt apex, 1—1.5 mm long. Stipes \pm approximate, 4—10 mm apart slender, glabrous throughout, dark shining chestnut brown and become lighter upward, to 9 cm long, and 1 mm thick at base. Fronds deltoid lanceolate, 10—16 cm long, about 5.5 cm broad at base. 1.2—1.8 cm broad in the middle, glabrous, bipinnate in the lower one-third, the remaining upper two-thirds simple pinnate, or sometimes the whole frond simple pinnate, gradually diminuate towards apex; pinnae spreading-patent, petiolate, alternate, the lower 3—6 pairs oblong lanceolate, 2—3 cm long, 6—10 mm broad, pinnate under a pinnatifid rather blunt apex; pinnules 5—8 pairs, almost equalateral triangular, petiolulate, cuneate at base, cut on the rounded outer margin about $\frac{1}{3}$ way down into 2—4 short broad more or less dilated segments with a blunt or more or less eroded or truncate apex, the upper ones often subentire, to 4 mm long, about as broad; the upper pinnae numerous (about 22—30 pairs), reniform to flabellato-cuneate, to 1 cm long and as broad variously cut along the rounded outer edge into 4—6 oblong more or less dilated segments which are often again bifid and of the same shape as, but larger than, those in the pinnules of lower pinnae. Rachis slender, teret, more or less channelled above, light green, except the lower part which is dark stramineous-brown, glabrous; veins slender, free, rather distinct, flabellate, mostly once-forked or simple, 1—2 (never 3) to each ultimate segment; texture pellucido-herbaceous, thin, but rigid. Sori orbicular to transversal-oblong, one to each segment, terminating 1—2 veinlets, indusium membranaceous, pale green, margin subentire or bifid, falling quite a way short of the margin of segments.

This is one of the very distinct species of the genus. In habit it resembles *L. orbiculata* Mett., but from which it can be distinguished at once by its finely-cut pinnae, very short sori, etc.

Hab. Tsing Lung Shan, N. W. Kwangsi, on the border of Kweichow, under forest, about 3800 ft elevation. (R. C. Ching, No. 7968.)

Diplazium macrophyllum*, n. sp. § *Eudiplazium

Rhizome thick, short, woody, erect, paleae dense, imbricate, linear-lanceolate to linear-subulate, 1.5—2 cm long, with long hair-pointed frizzy apices, often 2 cleft, blackish, ciliate. Stipes strong, 50—85 cm long, about 1 cm. thick, dark brown, and paleaceous near the base, greenish upward, turning dark stramineous upon drying, broadly channelled above, paleae similar to the rhizomatic ones, sparse on the basal part of the stipe, glabrous upward. Fronds ample, 40—60 cm long, 20—26 cm broad, simple pinnate, broadly oblong, slightly abbreviate towards base, glabrous on both surfaces, texture herbaceous, moderately firm, glossy green above, paler below (when living). Pinnae 7—9 on each side below a broad and shallowly pinnatifid acuminate apex, 2—3 cm apart, oblong-lanceolate, petiolate (petiole —5 mm long), the uppermost ones adnate,

17—19 cm long, 3—4 cm broad, base subtruncate to subrotund, apex acuminate, margin remotely lobato-crenate into broad rounded short lobes; midrib prominent, lateral veins spreading-patent, about 7 mm apart, veinlets 5—6-jugate, free, very ascending. Sori dense, \pm confluent at last, oblong, 5—7 mm long, following the lower 2—4 veinlets of the group, considerably short from the margin, indusium broad, spurious.

A large coarse tufted fern with ample fronds from a short thick woody caudex, closely allied to *D. megaphyllum* Baker, differs by petiolate pinnae with broadly crenate margin and broader indusium.

Hab. Bako Shan, S. Kwangsi, on the border of Tonkin, in a shrine of lime stone cliff, rare, about 3000 ft elevation. (R. C. Ching, No. 7434.)

My No. 7280 from Lin Yen, N. Kwangsi, on border of Kweichow, is closely comparable to this species in habit, except of still larger dimension, stipes and rachis pale stramineous, pinnae much larger, more shallowly, broadly serrate and so as the terminal lobe, and of thinner texture. Esquirole's No. 2677 from Kweichow doubtless belongs here, of which the writer has seen a fragment in Hongkong Herbarium and was erroneously determined as *Diplazium bantamense* Blume, to which the present species is closely similar in habit, except in having a larger and pinnatifid terminal pinna and serrated or lobato-crenate margin with more lateral pinnae of much thinner texture.

Diplazium pellucidum*, n. sp. § *Eudiplazium

Rhizome short, thick, obliquely erect; paleae. Stipes densely tufted, clad rather sparsely in membranaceous brown subulate ciliate spreading scales, 20—23 cm long, dark brown on the lower half, dull stramineous upward, deeply channelled above. Fronds oblong-ovate, 30—32 cm long, 17—20 cm broad in the middle, which is much the broadest, slightly abbreviate towards base, simple pinnate, rachis stramineous, scaly. Pinnae 10—12 pairs under a broad pinnatifid acuminate apex, the middle ones 9—11 cm long, 1.6—1.8 cm broad near the base, lanceolate, subhorizontally patent, the basal ones shorter (8—9 cm) and as broad, only slightly deflexed, alternate, rather approximate, the lower ones sessile, the upper ones broadly adnate, subtruncate or rounded at base, \pm dilated on both sides, apex acuminate, remotely and rather irregularly crenate below the middle, but distinctly and regularly serrate towards apex, costa slender, lateral veins translucent, distinct, free, 4—5 mm apart, 2-jugate, except the basal pair which is mostly 3-jugate, very ascending, extending to the margin; texture thin, pellucido-chartaceous, lustrous light green above, paler below (when living). Sori linear, 3—5 mm long, slightly curved, oblique, following the upper veinlet of the group, placed midway between costa and margin, very rarely diplazioid, indusium moderate broad, persistent.

So far as the writer is aware, the only known Chinese species comparable to the