

enumerates various plants from which solid oils have been procured in small quantities, and the list of which might probably be enormously increased.

Read also the conclusion of Mr. Griffith's memoir "On the Root-Parasites referred by authors to *Rhizanthæ*, and their Allies."

This extensive memoir, or series of memoirs, commences with "An Attempt to analyse *Rhizanthæ*," as established by Prof. Endlicher and by Prof. Lindley, from which the author deduces the inference, "that in the construction of the group called *Rhizanthæ*, a remarkable diversity of characters has been sacrificed to an appearance resulting from parasitism on roots, and to an assumed absence of any ordinary form of vegetable embryo."

In arriving at this conclusion, his line of argument is summed up as having especial reference to the three following points: "In the first place," he says, "I have endeavoured to extend the objections urged by Mr. Robert Brown, founded on the presence of a vascular system, and the absence of any abstract peculiarity in the embryos of these plants. I have also attempted to show that these plants are not similar in their parasitism, and that even in those which I have examined, there would appear to be two remarkably different types of development of the embryo. Secondly, I have alluded to the opposition presented, as it seems to me, by *Rhizanthæ* to the system of Nature, a chief point of the plan of which seems to me to consist in an extensive interchange of characters, either positively by structure or negatively by imitation of structure. Thirdly, I have adverted to a want of uniformity in opinion of the founders regarding its rank or value, incompatible, as it appears to me, with any group of the system of Nature. And in conclusion, I beg to add that my impression is that *Rhizanthæ* are an entirely artificial group, not even sanctioned by practical facility, which is the only merit of an artificial association, and that its adoption is a retrograde step in the course of philosophical botany."

To the family of *Rafflesiaceæ*, Mr. Griffith adds a new genus with the following characters:—

SAPRIA.

CHAR. GEN.—*Flores* dioici. *Perianthium* duplici serie 5-partitum, æstivatione imbricativum; faux coronâ foratâ clausa; tubus intus 20-carinatus. *Mas*: *Antheræ* 20, uniseriatim infra caput columnæ fungiforme verticillatæ, discretæ, 2—3-loculares, apice porosæ. *Ovarii* cavitas nulla. *Fœm*: *Antheræ* castratæ. *Ovarium* 1-loculare; placentæ indefinitæ, parietales; ovula indefinita. *Columnæ* apex fungoideo-dilatatus (e medio conum verrucosum exserens, disco piloso). *Fructus* —.

Planta parasitica, habitu Rafflesiae. Flos magnus, carnis colore, odore putrido.

SAPRIA HIMALAYANA.

Hab. in Jugi Himalayani Montibus Mishmee Assamiæ Superioris ad lat. Bor. 27° 50', long. Orient. 96° 27', altit. pedes 3000—5000.

The description of this plant is accompanied by observations on its mode of parasitism, on its vascular structure, on the plicæ of the inside of the tube of the perianthium (which the author suggests may perhaps be considered to represent a second series of stamina), on the inner membrane of the cells of the anthers, on the obstacles to independent impregnation, and on the natural relations of the genus, and the characters by which it differs from *Rafflesia* and *Brugmansia*, between which Mr. Griffith places it.

Mr. Griffith next proceeds to offer some observations on *Cytineæ*, and on the genera *Hydnora* and *Cytinus*. He believes that the difference in the direction of the nuclei of the ovula in *Cytineæ* and *Rafflesiaceæ* may perhaps be of some use in discriminating them; but thinks it necessary to observe that in *Nepenthes distillatoria* of the Calcutta Botanic Garden, the most marked instances of *ovula anatropa* and *antitropa* are to be met with in the ovaria at their mature state, to which circumstance he attributes the discrepancies in the accounts of the direction of the radicle of the ripe seed of that genus. His observations on *Hydnora* were made on specimens of *H. Africana* both in the dry state and in pyroligneous acid sent to him by Mr. Harvey from the Cape of Good Hope. He regards the anthers as indefinite, and describes the stigma as “discoideum, trilobum, e lamellis plurimis in placentas totidem pendulas undique ovuliferas productis,” a structure which, if correctly determined, appears to him to present another objection to the placental hypothesis of M. Schleiden. He also notices the apparent opposition of the lobes of the stigma to the lobes of the staminal column. In regard to the composition of the pistillum he hesitates between regarding it as highly compound and analogous to *Papaver* and *Nymphæa*, the space between each lamella corresponding with a carpellary leaf, and each lamella itself being compound, or considering it as made up of only three parts, to which latter opinion his own observations and those of Mr. Harvey would lead.

Mr. Griffith's observations on *Cytinus* are derived from specimens of *C. dioicus*, Juss., also sent to him from the Cape of Good Hope by Mr. Harvey. He follows Jussieu and Endlicher in referring the Cape species to the genus *Cytinus*. He regards the terminal teeth or lobes of the staminal column as productions of the connectivum,

and not as rudiments of stigmata; and believes the anthers to be unilocular.

To his remarks on *Cytineæ* Mr. Griffith appends an account of two Asarineous plants, natives of Malacca, *Thottea*, Rottb., and *Asiphonia*. To the description of the former of these given by Rottböll from Koenig's MSS. he adds several particulars. Of the latter, discovered by himself, he gives the following generic character:—

ASIPHONIA.

Perianthium æquale, rotatum, tripartitum, tubo nullo. *Stamina* 8—10, uniseriata; filamentis nullis. *Stigma* discoideum, sinuoso-lobatum.

Pericarpium siliquæforme, 4-loculare, 4-valve, polyspermum. *Semina* trigona, rugoso-papillosa.

Frutex subscandens, facie Piperis fruticosæ cujusdam; articulis tumidis.

Folia venatione melastomaceo-piperoideâ. Corymbus terminalis; spicis paucifloris; floribus sursum secundis bibracteolatis.

ASIPHONIA PIPERIFORMIS.

Hab. in Provinciâ Malacca, ad margines sylvarum primævarum, copiosè versùs Ayer Punnus Rhim.

Mr. Griffith points out the near relationship of this genus to *Bragantia*, Lour., from which it is chiefly distinguished by the absence of any tube to the perianthium, its cordate sessile anthers, and discoid sinuate stigma. He suggests, however, that it may possibly be regarded as only a subordinate modification of that genus, and gives an arrangement of the known species in conformity with that view.

In connexion with these genera Mr. Griffith gives his views of the nature and composition of the stigma, which are essentially similar to those published by Mr. Brown in the second part of Dr. Horsfield's 'Plantæ Javanicæ Rariores,' to which work Mr. Griffith refers in a note stating that he did not become acquainted with it till several months after his own observations were written. He defines the stigma to be "the external communication of the conducting tissue, which itself communicates with the placentæ, and is in several cases at least (as in *Trewia nudiflora*) manifestly a continuation from them." Of its theoretical origin he desires to speak with caution, but notices two distinct cases of monstrosities affecting two Leguminous plants, in which the stigmatic surface is evidently a continuation of the placental margins of the carpellum. The ordinary relations may, he thinks, be obscured by several causes; such as separation of parts usually cohering, cohesion of parts usually distinct, division of the stigmatic part of the style, and division of the style of the simple carpellum. The stigmata of each carpellum may be distinct from each other or from those of the next carpellum; or adhesion may

take place between stigmatic surfaces ordinarily distinct, whereby the stigmata so resulting appear to alternate with the styles. Instances of the former occur in *Euhalus*; of the latter in *Orobanche*, if the author's observations are correct, in *Papaveraceæ*, and perhaps in all cases in which the stigmata, being apparently equal in number to the placentæ, are said to be opposite to them.

The succeeding portion of Mr. Griffith's memoir relates to *Mystropetalon*, Harv., referred by Sir Wm. J. Hooker to the order *Rhizanthææ*, group *Balanophoreæ*. Mr. Griffith, on the contrary, who describes the *Mystropetalon Thomii* from specimens obtained from Mr. Harvey, regards it as a plant *sui ordinis*, having no relation to any other plant admitted into *Rhizanthææ* except *Cynomorium*, to which it seems to him to present considerable resemblance in the structure of the stamen and of the female flower. It also offers, he thinks, curious agreements with *Loranthaceæ*, and he would at present consider it (doubtfully) as the homogeneous-embryo form of that order which he takes to include *Proteaceæ*, *Santalaceæ*, &c., and which nearly agrees with Prof. Lindley's alliance *Tubiferaæ*.

Sarcophyte also is described from specimens transmitted by Mr. Harvey. Mr. Griffith regards its affinities as very obscure; he objects to its being placed either in *Cytineæ*, *Cynomoriaceæ*, or *Balanophoreæ*, and suggests that on the whole the general tendency of the plant is towards *Urticeæ*.

Mr. Griffith next examines the family of *Balanophoreæ*, and gives distinctive characters of *Balanophora*, *Langsdorffia*, *Phæocordylis*, *Helosis* and *Scybalium*. The following are the characters which he assigns to *Balanophora* and *Phæocordylis* :—

BALANOPHORA, Forst.

Sexus diclines, rarissimè monoclines. *Flores masculi* bracteati. *Perianthium* 3—5-sepalum, æstivatione valvatum. *Stamina* totidem opposita, monadelphæ, bilocularia (in unicâ specie multilocularia). *Flores fæminei*: *Ovaria* stipitata, receptaculis apice incrassato-glandulosis affixa, nuda. *Stylus* setaceus, persistens. *Stigma* inconspicuum. *Fructus* pistilliformes, sicci.

PHÆOCORDYLIS, Griff.

Sexus diclines. *Flores masculi* ignoti. *Flores fæminei*: *Ovaria* in axi sessilia, nuda, pilis paraphysiformibus immixta. *Stylus* filiformis, exsertus, deciduus. *Stigma* subcapitatum. *Fructus* compressi (striati) apice subpapilloso.

Of *Balanophora* he describes as new five species with the following characters :—

B. BURMANNICA, squamis laxè imbricatis, bracteis truncatis parùm cana-

liculatis, perianthio masculino extus carneo demum sanguineo, columnâ staminum elongatâ, antherarum locellis basi discretis.

Hab. in Regno Burmannico, ad fl. Salween.

B. AFFINIS, squamis et bracteis præcedentis, floribus (masculis) pallidis, columnâ staminum brevi subrotundâ, locellis antherarum basi confluentibus.

Hab. in Collibus Khasiyanis.

Præcedenti minor; an verè distincta?

B. ALVEOLATA, squamis arcuè imbricatis, bracteis profundè canaliculatis inter se favi instar dispositis, columnâ staminum subrotundâ.

B. dioica, *R. Br. in Royle, Illustr.* p. 330. t. 99?

Hab. in Collibus Khasiyanis.

B. PICTA, squamis distantibus laxis (luteis), spicâ fœmineâ obscurè sanguineâ.

Hab. in Montibus Mishmee jugi Himalayani.

B. (POLYPLETIA) POLYANDRA, columnâ stamineâ brevi latâ, antheris indefinitis 1-ocularibus.

Hab. in Collibus Khasiyanis.

With reference to these species Mr. Griffith enters at considerable length into their anatomical and external structure, and in the course of his observations directs attention to the resemblance of the pistilla to the pistilla of *Musci*, and more especially to those of some evaginulate *Hepaticæ*, and to the effects produced by the action of the pollen on the styles. "Indeed," he observes, "in the development of the female organ, the continuous surface of the style before fecundation, and its obvious perforation after, *Balanophora* presents a direct affinity to a group of plants, with which otherwise it has not a single analogy." On this ground he objects to the association of *Balanophoreæ* with such highly developed families as *Rafflesiaceæ* and *Cytineæ*. "As a mere hypothesis," he adds, "I would consider it as the homogeneous-embryo form of *Urticinæ*, forming a direct passage in one, and usually the more perfect, structure to *Musci* and *Hepaticæ*."

Of *Phæocordylis* (a name used by him to prevent confusion, as he has not sufficient knowledge of Dr. Wallich's plant to determine whether his genus is the same as that doubtfully proposed in Dr. Wallich's list under the name of *Sarcocordylis*) he describes and figures a single species, *Phæocordylis areolatus*, collected in the Khasiya Hills. He compares its structure with that of *Balanophora*, notices several curious peculiarities, and adverts to the structure of the hairs in which the fruits are imbedded as presenting a remarkable analogy with the paraphysiform appendages of *Drepanophyllum* and

certain *Neckera*, and also with the bodies which he suspects to be the male organs of Ferns.

Lastly, Mr. Griffith adds the description of a new genus which he dedicates to the memory of Mr. Thomas Smith, referred to by Mr. Brown in terms of high commendation in his remarks on *Kingia*. This genus is characterized as follows under the anagrammatized name of

THISMIA.

CHAR. GEN.—*Perianthium* superum, campanulatum (caducum), 6-partitum; laciniis 3 exterioribus (brevibus) oblongis, 3 alternis interioribus (longissimis) subulatis; fauce annulo semiclausâ. *Stamina* 6, fauci inserta, perianthii laciniis opposita, deflexa insuper parietem tubi internum; filamenta brevia, discreta; antheræ (maximæ) secus margines connatæ, membranâ bilamellosâ terminatæ, biloculares, loculis parvis distantibus adnatis. Ovarium inferum, 1-loculare; placentæ 3 parietales, supra medium ovuligeræ; ovula indefinita, anatropa. *Stylus* brevis. *Stigmata* 3 bifida. *Fructus* carnosus, truncato-turbinatus, apice pericarpium circumscisso dehiscens, 1-locularis. Semina indefinita, placentis 3 parietalibus demum liberis affixa. *Embryo* indivisus, homogeneus.

Planta pusilla, aphylla, radicum parasitica, aspectu cereaceo. Perianthium luteum, coccineo pictum.

THISMIA BRUNONIS.

Hab. ad pedes Bambusarum in humo ligno semiputrido farcto prope Palar Oræ Tenasserim, ad grad. lat. bor. 12° 50', long. orient. 98° 20'.—*Flor. et fruct. lect. Mense Octobris, 1834.*

Some observations follow on the mode of venation of the perianthium, on the dehiscence of the fruit, and on the position of the plant in the natural system, which the author regards as intermediate between *Tacceæ* and *Burmanniaceæ*. He adds that he is disposed to consider it as a Monocotyledonous form of the albuminiform homogeneous embryo, and as the analogue of *Rafflesiaceæ* and *Cytineæ* of Dicotyledons.

Associated with *Thismia* grew a species of *Salomonina* and a species of *Burmannia*, both having the ordinary appearance of plants parasitic on roots. The former is characterized as

SALOMONIA APHYLLA, parasitica, floribus pentandris.

The paper was accompanied and illustrated by an extensive series of coloured drawings.



Griffith, William. 1844. "On the root parasites referred by authors to Rhizanthææ and their allies." *Proceedings of the Linnean Society of London* 1, 216–221.

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