

which measures 4 cm. long and averages 1 mm. wide), 14.75 cm. wide at largest point. Spadix rigidly erect, "orange-yellow" (*fide* collector), about 8.5 cm. long, 1 cm. wide basally, narrowing to 4 mm. wide at apex, the basal 2.5 cm. composed of pistillate flowers, irregularly furnished with staminodes, the upper part all fertile, staminate; pistillate flowers globose to urceolate-globose, obscurely sulcate, slightly attenuated apically, surmounted by a solitary orbicular stigma which is narrowed basally and often obscurely bilobate, with 1-3 staminodes on slender filaments around base; ovules parietal, pendulous, few (4-5) in number. Staminate flowers contiguous with pistillate ones, truncate, with 2-5 stamens, producing very copious yellowish-white pollen.

Type. Pasto, altitude about 2500 m., Ecuador, April 22, 1950, *Reinaldo Espinosa 2866* (Herbarium of the University of California, no. 905798).

The genus *Pseudohomalomena* is virtually unique in the subtribe Homalomeninae in its widely-spreading, almost flattened, large spathe. The dimensions of this structure, coupled with the relatively small size of the spadix and the unusual vegetative habit, set the genus apart from its congeners, *Chamaecladon* Miq., *Curmeria* Lind. & Andre, *Diandriella* Engl. and *Homalomena* Schott.

The writer wishes to express his appreciation to Dr. Rimo Bacigalupi for assistance in the preparation of the Latin diagnoses.

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REVIEWS

Families of Dicotyledons. By ALFRED GUNDERSEN. The Chronica Botanica Company, Waltham, Massachusetts. xvii + 237 pp., illustrated. 1950. \$4.50.

Alfred Gundersen was born in 1877. In 1914, after due academic training, he joined the staff of the Brooklyn Botanic Garden, in which institution he served for thirty-two years, at first as an assistant in the herbarium, later as Curator of Plants. The treatments of the classification of dicotyledons by Rendle, 1925, and Hutchinson, 1926, interested him in the studies of which the results are presented in the work here under discussion. This work is the continuation of a memorable series, extending back at least to Caesalpino, and it is at the same time the crowning and worthy achievement of one man's life.

Training, ability, and industry are evident throughout. Index and bibliography are duly provided. The illustrations are abundant, informative, and attractive. The publishers, the Chronica Botanica Company, have treated the publication as

though with individual loving care.

Gundersen arranges and names the orders and blocks of orders of dicotyledons as follows:

MAGNOLIFLORAE

- | | | |
|----------------|------------|--------------|
| 1. Magnoliales | 2. Ranales | 3. Piperales |
|----------------|------------|--------------|

CISTIFLORAE

- | | | |
|--------------|------------------|--------------------|
| 1. Cactales | 4. Papaverales | 6. Aristolochiales |
| 2. Cistales | 5. Sarraceniales | 7. Tamaricales |
| 3. Salicales | | |

THEA GROUP

- | | | |
|------------|-------------|-------------|
| 1. Theales | 2. Ebenales | 3. Ericales |
|------------|-------------|-------------|

ROSAEFLORAE

- | | | |
|------------------|-----------------|-------------|
| 1. Rosales | 3. Thymelaeales | 4. Myrtales |
| 2. Hamamelidales | | |

ULMUS GROUP

- | | | |
|---------------|-------------------|-----------------|
| 1. Proteales | 4. Balanopsidales | 6. Leitneriales |
| 2. Santalales | 5. Fagales | 7. Casuarinales |
| 3. Urticales | | |

MALVA GROUP

- | | |
|-------------|-----------------|
| 1. Malvales | 2. Euphorbiales |
|-------------|-----------------|

GERANIUM GROUP

- | | | |
|----------------|----------------|---------------|
| 1. Rutales | 3. Sapindales | 5. Geraniales |
| 2. Juglandales | 4. Celastrales | |

DIANTHIFLORAE

- | | | |
|-------------------|---------------|------------------|
| 1. Caryophyllales | 3. Primulales | 4. Plantaginales |
| 2. Polygonales | | |

JASMINIFLORAE

- | | | |
|-----------------|----------------|---------------|
| 1. Loganiales | 3. Boraginales | 4. Campanales |
| 2. Polemoniales | | |

RUBIFLORAE

- | | | |
|---------------|-------------|--------------|
| 1. Umbellales | 2. Rubiales | 3. Asterales |
|---------------|-------------|--------------|

Diels, editing Engler's Syllabus in 1936, recognized 44 orders and 257 families of dicotyledons. Gundersen has combined more often than he has divided, and has produced a list of 42 orders and 240 families. He leaves only seven orders which consist of single families.

Conforming to current practice, Gundersen has applied a uniform termination to the names of orders. Assuming that this practice is not yet so firmly established as to be beyond debate, one may say that it is no compliment to the intelligence, and that it flies in the face of priority.

In his concluding remarks, Gundersen proposes the establish-

ment by international action of an official sequence of families. This project is not feasible, for the reason that fixing the sequence of families would have the effect of classifying them. Classification, in contrast to naming, is not subject to legislation: its ultimate authority is not human will, but human knowledge.

The reviewer was honored to be one of a number of botanists whom the author admitted to smaller or greater degrees of collaboration. While accepting this honor, he reserved the right to criticize. In dealing with personal opinions and contributions, discourse in the first person will be permissible. Probably it was by my own carelessness in reading manuscript that I find myself saying, on page 18, that the nucleus of the pollen grain undergoes meiosis. Of course, it is the nucleus of the pollen mother cell that undergoes this process.

Placentae which are axile at anthesis are regularly parietal during early development. Gundersen concludes that parietal placentation is relatively primitive. He assembles under the name of *Cistiflorae* several orders which exhibit this character, and gives them an early place in the sequence of orders. I called it to his attention, that the parietal placentation of certain monotropoid genera is apparently derived; but I was unable to cite any principle in conflict with the classic biogenetic doctrine which guided him. Recently I have found writers, particularly zoologists, making much of paedomorphosis, that is, of courses of evolution by which the juvenile condition of particular groups becomes the adult condition of derived groups. Assuming that paedomorphosis is prevalent, it is not probable that parietal placentation is the mark of one primitive natural group.

I attribute to myself much responsibility for Gundersen's *Thea* Group. Dr. Gundersen required of me a full exposition of the grounds for placing *Ericales* next to *Theales*. It was possible to answer him by citation of authority, from Lindley to Schnarf, and by a comparison of characters, of wood, of flowers, and of embryogenic stages. The purpose of the foregoing statement is not personal publicity; it is to show by example the procedure which is necessary in attaining a taxonomic system truly representative of nature. It is only by group-by-group study that the true system can be approached. There is only one condition under which one can attain confidence in a hypothesis that certain groups belong together. The condition is this, that a considerable number of pieces of evidence, of varied character, are found uniformly to tend to support the hypothesis in question. It is on this basis that I warrant Gundersen's *Thea* Group as essentially sound.

Various other novel arrangements presented by Gundersen appear happy. The community of plant taxonomists is called upon to judge them: each taxonomist is to give judgment upon those details which he is individually qualified to judge.—
HERBERT F. COPELAND, Sacramento College, Sacramento, California.



Copeland, Herbert Faulkner. 1951. "Families of Dicotyledons by Alfred Gundersen." *Madroño; a West American journal of botany* 11, 149–151.

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