Hunt Institute for Botanical Documentation
5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

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About the Institute
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

ORCHIDS STUDIED BOTANICALLY

THE ORCHIDS. Edited by Carl L. Withner. The Ronald Press Company, 15 East 26th St., New York 10, N.Y. $14.00.

Here is a book which may well come to be the standard text on orchids. The college professor can use it as the basis for a course on the scientific (as opposed to the purely horticultural) aspects of our present-day knowledge. Or it could serve as the basic text for a general course in botany, using the orchid as the typical plant (even though in many cases it certainly is not typical). Almost every phase of botany is covered in this survey: structure, growth and development, physiology, heredity and variation, cytogenetics, and pathology. Each topic has a fact-filled chapter for itself. And these are not chapters to be skimmed or read lightly, but rather to be studied and read and re-read.

The scientific researcher on orchids can use this book to review what has been done in his and related fields and, on the basis of this review, map what problems remain still to be investigated. The horticulturist who asks "Why?" as well as "What?" and "When?" and "How?" will find here the explanation for many of the techniques and procedures he uses and will welcome the insight given him into his daily activities. Likewise, the serious amateurs, the members of garden clubs, the persons who raise orchids as a hobby, will want this in their libraries where they can turn to it for reference when necessary, or dip into it from time to time. The book will arouse and hold their interest, even though they may prefer to read only one chapter, or part of a chapter, at a time.

To some specialists, the appendix will be of special interest. Here the taxonomist will find a key to the orchid tribes; the cytologist and hybridizer can turn to the table of chromosome numbers in orchids; and the horticulturist will certainly use the formulae for culture media and nutrient solutions.

What about the non-botanist? Does the survey offer anything to the lay person? If he is a science-oriented lay person, the answer is a definite yes!

I suggest particularly the chapter on the history of orchids, the chapter on the relationships between them and the fungi with which they live in partnership, the chapter on responses to various temperatures and to exposure of varying amounts of light, simulating varied length of days (photoperiodic responses), the chapter on pathology and the battle of the grower against fungi, bacteria, viruses and animal pests, and finally the one on breeding and hybridizing. There is even a chapter for the business man in the story of the orchid of commerce, the vanilla plant.

Despite the many aspects covered, the editor frankly calls attention to the fact that several aspects of the biology of orchids have not been touched at all, or only very lightly: the ecology (their relationships to their environment), their geographic distribution, and their evolution—past and present. It is planned to cover these phases in succeeding volumes.

The 15 authors who have been brought together

for this symposium come from a number of fields, from various parts of this country and from Puerto Rico and Germany. Each one, though a specialist in a particular field, has tried to do what one of them, Robert E. Duncan, has said very well of the chapter he wrote: "It has been written for two types of readers, the one who knows a great deal about orchids but little about cytology and the other who knows a great deal about cytology but little about orchids."

The bibliographies at the end of each chapter will seem overwhelming, perhaps, to the non-specialist, but should prove extremely useful to those who want to survey some particular field by themselves.

For one accustomed to lush color plates in orchid books, the lack of them in this work may be a source of disappointment. On the other hand, the 61 plates of drawings illustrating the chapter on variation, are well worth careful study.

One addition to the book would have proved helpful to many potential readers, a glossary of technical terms. —IDA K. LANGMAN

Joseph Leidy, thought by many to have been the greatest naturalist of the 19th century. His field included parisitology, invertebrate anatomy and paleontology, vertebrate paleontology, mineralogy and botany.

William S. Vaux, curator and benefactor, whose bequest was largely responsible for the development of the Department of Mineralogy.

William M. Gabb, Jessup student, later associated with the Geological Survey of California and the Survey of the Island of Santo Domingo. Gabb's types of invertebrate fossils are among the department's most valued possessions.

E. D. Cope, vertebrate zoologist and paleontologist, who was responsible for extensive collections of fossil mammals, reptiles and fish from various parts of the United States.

George Tryon, conchologist and founder of the Conchological Section of the Academy.

Henry A. Pilsbry, successor to Mr. Tryon. Although best known for his work on recent mollusks, Dr. Pilsbry was equally well versed with fossil forms and wrote extensively on the subject.

An important event in the history of the department was the discovery of the skeleton of a duck-billed dinosaur (*Hadrosaurus foulkii*) at Haddonfield, New Jersey, and its presentation to the Academy by William Parker Foulke in 1858. This was the first dinosaur skeleton found in America.

In 1876 (Centennial Year) the Academy moved to its present location. In 1877 a Mineralogical Section was established. This was

FRONTIERS

A Magazine of Natural History

Published by the

ACADEMY of NATURAL SCIENCES
19th Street and the PARKWAY
PHILADELPHIA 3, PA.

June 24, 1959

Mrs. Oscar Langman
3509 Baring Street
Philadelphia 4, Pa.

Dear Mrs. Langman:

We are delighted with your thorough review of the orchid book. We are sure your botanical colleagues, the publisher and the various authors will welcome such a serious consideration of what seems to be an important publication.

Following our customary procedure, we will send you a small check when the magazine appears in September and two record copies. However, if you need a few extra copies for your professional associates, we shall be glad to furnish them. We shall send copies to the publisher of the book as well as the editor.

Aside from the botanical knowledge expressed in the review, we wish to compliment you on your literary style.

Sincerely,

McCready Huston

McCready Huston
Editor

MH/med

Reprinted from THE TAXONOMIC INDEX, Vol. 23, No. 1, January, 1960.

CASTILLA SESSÉ, NOT CASTILLA CERV. On 2 June 1794, Vicente Cervantes, head of the School of Botany in Mexico City, delivered an address at the Royal Botanical Garden; a month later, in the July 2 supplement to the *Gazeta de Literatura de México*, the speech appeared in print under the title "Discurso pronunciado en el Real Jardín Botánico." In 1805 it was translated into English and published in London by Phillips and Fardon in *Tracts relative to botany* (pp. 229–239). The discourse was reproduced again in Mexico in 1884, in the appendix to volume 7 of *La Naturaleza* (pp. 18–33). [For references to excerpts from the "Discurso" which appeared in various issues of the *Anales de Ciencias Naturales*, see Rickett, Chron. Bot. 11(1): 60 (1947)].

The subject of Cervantes' address, which attracted so much attention, was the "árbol del ule," or Mexican rubber tree. The tree is described, methods of extracting and preparing the latex are discussed, and the characteristics of the product are noticed. Other sources of rubber, including several species of *Jatropha*, are also mentioned.

The name given to the plant, *Castilla*, has been the subject of considerable controversy; it was chosen to honor Juan del Castillo, and one often sees it written "Castilloa." But nomenclature is not the subject of this note. Rather I want to call attention to the correct authority for the name.

Cervantes states that the description was provided by Martín Sessé, director of the Botanical Garden which had been established in Mexico by Charles III in 1787. Here are his words: "Describiré después el árbol de que fluye en Nueva España dicha sustancia, valiéndome para ella de la exacta descripción que hizo de él, el Sr. Director de la Expedición y Jardín, Don Martín Sessé y Lacasta." The jatrophas mentioned are referred to similarly as "especies nuevas descritas por el citado Señor Director, en la Flora Mexicana." (This has already been noted by McVaugh, in "The jatrophas of Cervantes and of the Sessé and Mociño herbarium," Bull. Torrey Club 72: 31–41, 1945.)

Dr. Faustino Miranda confirmed McVaugh's observation and in addition called my attention to what he considered a similar situation with regard to *Castilla*. "La misma confusión," he writes, "aparece con respecto al árbol del hule, cuyo género Castilla Cerv. y especie C. elástica Cerv. se atribuyen a Cervantes, cuando este dice claramente en su discurso, 'Describiré después . . .' Entonces debería ser Castilla Sessé in Cerv. y Castilla elástica Cerv. Pero . . . así se escribe la historia."

When Cervantes chose the "árbol del ule" as the topic for his "Discurso," he indicated that one of his reasons was to give merited recognition to the professor of pharmaceutics and botany, Don Juan del Castillo, "to whose memory the Botanical Expedition of this kingdom has wished to dedicate the plant, naming it in tribute to his activities and kindnesses, castilla elastica." Since Cervantes himself formed part of the Expedition, it is conceivable that Sessé could have provided the description and Cervantes the name. But it is more likely that Sessé, in providing the description, also gave the name, as he did for the jatrophas. We may, therefore, follow Dr. Miranda's proposal and rewrite history at least to the extent of writing, from now on, *Castilla* Sessé in Cerv. and *C. elastica* Sessé in Cerv.—IDA K. LANGMAN, Botanical Laboratory, University of Pennsylvania.

LA VANGUARDIA ESPAÑOLA - Barcelona MIERCOLES, 5 DE ABRIL 1972

CARTAS A «La Vanguardia»

LA RESTAURACION DEL MONASTERIO DE ST. LLORENÇ DEL MUNT

Sr. Director de «La Vanguardia»

En la edición de este periódico correspondiente al domingo 26 de marzo pasado, apareció una carta que, bajo el título de «La restauración del Santuario de St. Llorenç del Munt», firmaba F. Gurri Serra.

El señor Gurri Serra, en la mencionada carta, hace referencia a una crónica mía como corresponsal en Tarrasa, publicada el día 22 del mismo mes de marzo, sobre la visita efectuada a Sant Llorenç del Munt por el arquitecto director del Ministerio de Información y Turismo. En la crónica se decía, entre otras cosas, que dicho arquitecto «como consecuencia de la reciente visita efectuada por el ministro señor Sánchez Bella, vino a estudiar la posibilidad de restaurar el cenobio benedictino existente en "La Mola" y la instalación de un parador de turismo en los bellos parajes de la montaña de Sant Llorenç». Con relación a lo que antecede, dice el señor Gurri en su carta, que desea, «a la vez que rectificar un error, "dar al César lo que es del César"», indicando a continuación que «lo que el Ministerio de Información y Turismo tiene en estudio es, independientemente de alguna otra construcción similar en algún otro paraje de la montaña, la adecuada restauración y habilitación de la hospedería existente en "La Mola", con-
[illegible] ques

UNA OPINION SOBRE LA BIBLIOTECA CENTRAL

Sr. Director de «La Vanguardia»

En mi calidad de investigadora sobre temas botánico-bibliográficos he tenido la oportunidad de visitar y trabajar en la Biblioteca Central de Barcelona. La primera vez la visité en julio de 1971 y, últimamente, he vuelto en marzo de 1972. En ambas ocasiones he quedado sumamente impresionada por la magnífica labor que están realizando el personal y cuerpo técnico de dicha biblioteca.

Podría destacar el servicio excelente que se presta a los que vienen a trabajar en este centro. Todas las personas que he tratado están bien preparadas para su trabajo, sea como bibliotecarios, ayudantes, técnicos, como en el servicio fotográfico, etc. Y todos atienden a los que acuden a la biblioteca con cortesía e interés y lo hacen rápida y eficazmente.

Todo el ambiente de la biblioteca es tal que uno trabaja con gran placer. La mayoría de los que vienen a la biblioteca son estudiantes y me dieron la impresión de que trabajan con gran devoción y seriedad. En fin, la Biblioteca Central de Barcelona puede considerarse a la par con las grandes bibliotecas, no solamente de España sino con las de otros países de Europa y América y me da satisfacción poder expresar mis impresiones a los lectores de su periódico.

También cabe llamar la atención sobre la magnífica obra que se ha hecho al abrir otra vez el jardín botánico que, en estos días, se puede contar no solamente como una maravilla de Cataluña, sino también como un tesoro de todo el pueblo del país.

Ida K. LONGONAM
(Hunt Botanical Library. Carnegie-Mellon University. Pittsburgh Pennsylvania)

Longman

LA MUERTE DE CASTELAR

Sr. Director de «La Vanguardia»

Me permito molestar su atención con estas líneas para decirle que en el número del día 16-3-72 aparece un artículo sobre don Emilio Castelar, firmado por Fernando Barango Solís. En dicho artículo, y casi al principio, se dice que don Emilio Castelar murió en Madrid, cuando en realidad el óbito de tan ilustre político se produjo en la casa propiedad de mis abuelos, ya fallecidos, don José Servet Magenis y doña Encarnación Spottorno Sandoval, en la villa de S. Pedro del Pinatar (Murcia), en una finca denominada «Hotel S. Sebastián», a 1 km. escaso de la anteriormente citada villa. En dicha casa puede todavía, si sus actuales dueños no la han eliminado, observarse la lápida que colocada debajo del balcón de la habitación mortuoria, perpetúa este histórico acontecimiento.

Fernando SERVET SANCHEZ
(Murcia)

and data from the early unmanned spacecraft which have orbited or landed on the Moon, as well as from theoretical studies and Earth-based observations.

Scientists from throughout the world are being invited to propose investigations for the new program, which will be conducted under NASA's Lunar Programs Division, headed by William T. O'Bryant, a part of the Office of Space Science. Scientists in the United States should submit two copies of their proposals to the Director, Office of University Affairs, NASA, Code PY, Washington, D.C. 20546, and 25 copies to Manager, Lunar Data Analysis and Synthesis Program, Lunar Programs Division, Office of Space Science, NASA, Code SM, Washington, D.C. 20546. Scientists outside the United States must submit proposals through their government sponsoring agency to Office of International Affairs, NASA, Code I, Washington, D.C. 20546.

COURSES

The Medical Laser Laboratory and the office of Continuing Medical Education (CONMED) of the University of Cincinnati, Ohio, have announced the fifth semi-annual **Short Course on Laser Safety** to be held 6-10 August. The course director is R. James Rockwell, Jr. For further information, write: Laser Safety Course, CONMED, 114 Medical College, Cincinnati, Ohio 45210.

MEETING REPORT

Latin American Congress of Botany

The First Latin American Congress of Botany was held in Mexico City, 3-9 December, 1972, in conjunction with the Fifth Mexican Congress of Botany. A full schedule of meetings and events–mornings, afternoons, and evenings–covered practically every aspect of botany and made total use of the excellent facilities of the Unidad de Congreses of the Centre Médico Mexicano (part of an impressive complex of buildings run by the Institute Mexicano de Segure Social).

Much credit is due the two officers in charge of arrangements for the congress: José Sarukhán Kermez, president of the Sociedad Botánica de México, and his assistant and coordinator Biologist Roberto Cruz Cisneros. They were assisted by members of the Sociedad, and by wives, husbands, and students. Meeting rooms of all sizes were available, and at all the large meetings simultaneous translation facilities were available, using the three official languages of the congress: Spanish, Portuguese, and English.

About 500 participants were registered for the Congress, with representatives from nine South American countries (the largest delegation was from Argentina) several Central American countires, and a sizeable contingent from the United States. The latter came from all sections of the country and were a good sampling of those who have devoted much time to working in Latin America. On arrival, each registrant received not only the program but also the complete texts of the papers to be delivered at the symposia, resumés of all the contributed papers, and a complete schedule of the field trips, planned before and after the congress. All were included in a handy over-the-shoulder bag of sisal fiber, bearing the symbol of the Sociedad: the flor de las manitas, or "macpalxochitl" in Nahuatl (*Cheiranthodendron pentadactylon*).

The sessions were divided into symposia (with invited participants), meetings for contributed papers, and several special evening meetings. The symposia reviewed the advances made in recent years in paleobotany, floristics, systematics and evolution, physiology and autoecology, synecology, teaching botany, and the contributions of botany of problems of development in the American Tropics. Many of the topics above were also covered in the meetings for contributed papers. In addition, there were sessions on plant morphology, phytogeography, phytochemistry, ethnobotany, genetics, agricultural and forest botany, phytopathology, and bibliography. Evening sessions were arranged by the Organization for the Flora Neotropica, by the Sociedad Botánica de México, and the Sociedad Mexicana de Cactologia. At the meeting of the Sociedad Botánica, gold medals were presented to four botanists for their contributions to Mexican botany. Two of the recipients were Mexicans: Ing. Efraim Hernández Xolocotzi of the Colegio de Post-Graduates of the Escuela Nacional de Agricultura and Jerzy Rzedowski of the Instituto Politécnico Nacional. Both were honored for their work as teachers and for their studies of the Mexican flora. The others were Paul C. Standley, whose posthumous award (for his numerous studies of the plants of Mexico and other Latin American countries) was accepted by Louis O. Williams; and Ida K. Langman, associate bibliographer with the Hunt Institute for Botanical Documentation, for her *Selected guide to the literature on Mexican flowering plants.* At the closing session of the congress diplomas were awarded to 39 outstanding botanists, named honorary vice presidents of the congress for their contributions to Latin American botany. They included representatives from Mexico, Central and South America, and one from Europe. At this session, Rzedowski delivered an important paper on the problems facing the preparation of a flora of Mexico, a project which he considered of the highest importance. He stressed the many difficulties facing those who are trying to move such a project into full activity and ultimate completion.

The arrangers of the congress did not neglect the social aspects of the meetings. There was an inaugural luncheon, featuring typical Mexican dishes; a cocktail party in the new and handsome Museum of Natural History; a closing banquet; visits to various botanical institutions; and for those accompanying the delegates, visits to various places of tourist interest in and around Mexico City. Field trips included two before the congress, to areas within a day's travel of Mexico City, and a 12-day trip to southeastern Mexico, scheduled after the congress.

The most valuable aspect of a congress such as this was the opportunity for botanists of the Americas to get to know each other and judge the contributions being made by those working in different fields and in different countries. Two themes brought forth the most heated discussions: the problems of preparing floras for the different countries or areas; what kinds of floras they should be; what techniques should be employed; and how to obtain the necessary funds to provide the needed personnel for a minimum of 10 years.

The second was the relation of botany and botanists to the various development programs that have been undertaken in Latin America as part of the "third world"; the growing dangers to existing natural areas; and the effects of chemical fertilizers, pesticides, etc. in the lands being developed.

IDA K. LANGMAN
Associate Bibliographer
Hunt Institute for Botanical Documentation
Carnegie-Mellon University
Pittsburgh, Pa. 15213

Plant colonization studies on black wastes from anthracite mining in Pennsylvania. By J. R. Schramm. Transactions American Philosophical Society. ns 56: 1–194. Philadelphia, 1966. $6.00.

Dr. Schramm's study of plant colonization on black wastes from anthracite mining in Pennsylvania is an elegant answer to those botanists today who find it impossible to do significant ecological research without elaborate instruments and large grants of money. From this point of view it would make good required reading for young Ph.D. candidates. Dr. Schramm had an ordinary thermometer and, except for one or two instances where he used a thermocouple and at times a microscope, he otherwise used merely a shovel and various pieces of boards, planks, and rocks. With such instruments he produced, through keen observation and ingenius experimentation, a splendid intensive study of the environmental influences of a hostile plant habitat. He had already published a chapter on the coal mine dumps in 1958, "The mechanism of frost heaving of tree seedlings." Anyone who had read that fascinating paper would inevitably be tempted to read this larger, more ambitious publication. What Dr. Schramm has that makes his studies so good is a keen inquiring mind that readily sees where the problems are and how to go about them with simple, productive experiments.

The study focuses to a large extent on insolation effects. Lethal surface temperatures are characteristic so that few seedlings ever get started except under very special circumstances of shading. When tree seedlings do get started on the dumps, only those with ectotrophic mychorrhizae ever survive. Those with endotrophic mycorrhizae, like red maple, do not survive. The course of his research led Dr. Schramm to an extensive study of mycorrhizae, a study to which the mine waste substratum is uniquely suited, there being no complicating fungus population besides the ones that attach to tree roots, and the trees being scattered and isolated. These studies, together with field experimental work with nutrient solution, led him to the conclusion that the exceedingly extensive fungus mycelia extending from the tree roots serve as remarkably efficient nitrogen mobilization systems without which trees cannot live in a soil so extremely deficient in nitrogen.

Three things help to make this publication especially satisfactory to the reader quite aside from Dr. Schramm's research ingenuity and scientific capability. First, Dr. Schramm is a good writer. Second, the editor appears not to have in any way sacrificed readable style for brevity. Third, the publication is profusely illustrated with excellent, well chosen photographs.—MURRAY F. BUELL.

Huntia. A yearbook of botanical and horticultural bibliography. Published by the Hunt Botanical Library. Carnegie Institute of Technology. Pittsburgh, Pennsylvania. Volume 1. 15 April 1964. Volume 2. 15 October 1965. Editor: George H. M. Lawrence. Subscription Price: $7.50 a volume (paper), $8.50 (cloth).

HUNTIA is different. At least, in the field of botanical literature, this reviewer found it so. And the characteristics which make it "different" must be considered along with the contents. For only in the light of what its publishers want HUNTIA to be can we appraise the contents.

What, then, is HUNTIA? Basically, though this is only one aspect of the publication, it is a "house organ," albeit a very elegant one—the voice of a fairly new, private library, the (Rachel McMasters Miller) Hunt Botanical Library. This library, like many other private collections, bears the strongly personalized imprint of its founder and this imprint is reflected just as strongly in the contents, as well as the general appearance, of HUNTIA. Thus, there are articles on unusual items in the Library's holdings, lists of the Library's recent acquisitions, articles about the authors represented in the Library—especially authors who may have been neglected or completely forgotten—and items of a similar nature.

All the other characteristics of HUNTIA stem from this reflection of the Library which produced it; for example, its interest in old botanical works (with heavy emphasis on horticulture and botanical illustrations) and the generous endowment which guarantees

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that the publication will be noted for "quality craftsmanship and typographical beauty." Then, because the Library is strongest in its holdings of books which were printed at a time when mechanical uniformity of the finished product was far from guaranteed, an accurate description of any of these older works usually requires a very detailed, bibliographic analysis of the work which is expressed in a very specialized kind of bibliographic shorthand.

Since this is a shorthand generally familiar only to the specialist, one of the articles in volume 1 of HUNTIA presents a lengthy explanation by Ian MacPhail, of the terms and symbols used in this technical language. For the most part, descriptions of books in this terminology of the professional bibliographer which, presumably, will be a more or less regular feature of HUNTIA, will probably appeal mainly to the bibliophile—antiquariat type of reader than to the general botanist—be he the "classical botany"—advocate or a devotee of the "new systematics." The taxonomist or plant geographer will, perhaps, not be so deeply interested in what kind of paper was used in a certain book, or how the paper was folded to give it the size it has. (See, for example, the bibliographical account of L'Heritier's *Stirpes Novae*, an excellent example of the remarkable knowledge and skill required in preparing this kind of analysis.)

On the other hand, the botanist will be exceedingly interested in the article by John Heller, tracing the early history of binomial nomenclature, with special attention to Linnaeus' own development in this field. This article, by a chairman of a department of classics is a stimulating example, by the way, of the benefits derived when the "two cultures" meet. (Dr. Heller will be recalled for his "index of books and authors cited by Linnaeus," in the Ray Society facsimile edition of the *Species Plantarum*.) Likewise every botanist will enjoy reading Herbert Baker's article on the controversy involving Charles Darwin, Thomas Meehan, Asa Gray, and the Rev. George Henslow over heterostyly in *Linum perenne* and *Linum lewisii*.

HUNTIA is only one of the publications of the Hunt Botanical Library, which also sponsors re-printings of specially selected, out-of-print botanical works, or printings by hitherto unpublished manuscripts. So, in HUNTIA, we find reports on works already published by the Library or those scheduled for future appearance. These reports will be of interest to a wide group of readers as will be, also, the various biographies scattered through the two volumes. In the latter, the style is generally more relaxed and informal since, in many cases, the author is writing about someone he knew personally, often as a close friend, and the results are warm and appealing portraits. Such is the case with the biographies of Mrs. Hunt, herself, and Jane Quimby, her first librarian (both written by the present director of the Library, George Lawrence, who is also editor of HUNTIA). Such, too, is the case with Elizabeth Kay's recollection of David Fairchild or Chester Arnold's memoirs of Percy Train.

Two contributions concerned with botanical art deserve special mention. One is Richard Rudolph's story of how a Japanese botanist, Iwasaki Tsunemasi, adapted some 25 illustrations from Wienmann's *Phytanthoza* into his famous work on systematic botany, *Honzo zufu*. Here we have another example of an outstanding contribution to the field of botany by a linguist. (Dr. Rudolph is a professor of Oriental languages.)

The other article, by Alice Coats, presents her selection of some 17 portraits of British botanists and gardeners, to which are added the author's interesting and perceptive comments. (The next time, by the way, you feel impelled to criticize our long-haired beatniks, turn to the picture of Sir Joseph Banks in his teens (p. 188, volume 2).

A review such as this can hardly mention every item in the table of contents of the two volumes. Still I cannot close this summary without referring to the section which lists the 1964 acquisitions of botanical illustrations. This is one department of the Library which concentrates on the work of contemporary artists and illustrators. The plates shown here are such excellent examples of botanical art and so effective as plant portraits that it seems safe to predict that, in the future, this department of the Library may well become one of its most important, as well as most popular, sections.

A closing note may be in order. The Library is making a special effort to collect holograph letters of botanists (and others who contributed to botanical knowledge) as well as portraits (in all media) of botanists, living or deceased. Readers who have such materials, which they would be willing to make available to the Library are urged to communicate with the director of the Library, Dr. Lawrence.—IDA LANGMAN, Smithsonian Institution, Washington, D.C. 20560.

TAXON VOLUME 17. JUNE 1968 pp. 300–307

BRIEF REVIEWS

THE GALÁPAGOS

The Galápagos. Proceedings of the Galápagos International Scientific Project, ed. by R. I. Bowman. University of California Press, Berkeley and Los Angeles, 1966. xvii + 318 pp., 55 figs. and photogr. in black and white, 9 photogr. in colour, 12 maps. Price $ 10.00.

The names of almost fifty different contributors appear on the list at the beginning of this book, and its scope is certainly impressive, covering, as it does, historical, evolutionary, geological, paleogeographical, climatological, oceanographic, zoological, botanical, economical, and conservation aspects of the Galápagos Islands. For the present review only the paragraphs dealing with the plant-life and its background need concern us, although many non-botanical ones, like A. H. Miller's chapter "Animal evolution on islands," and A. Cox's contribution "Continental drift in the Southern Hemisphere", will prove very much worth-while reading to anyone with a broad biological interest.

In a chapter called "Variation and adaptation in Galápagos plants" G. L. Stebbins briefly reviews the history of the botanical exploration of the archipelago. He then discusses such questions as the presence of relict forms, the way the plant-life reached the islands, the ties of the Galápagos flora with other regions, and its evolutionary history. The connections of the flora are undoubtedly with adjacent South America, and most examples of more remote affinities claimed by other authors are shown to be due to incorrect taxonomic evaluation. The variability of the flora is in great need of further study. P. C. Silva informs us about the state of knowledge of the benthic marine algal flora. As a whole this flora is relatively rich, with many endemics, but many widespread genera of warmer seas are absent or nearly so. I. L. Wiggins analyzes the origin and relationships of the land flora. At present about 700 species and lower categories are known. The number of endemics was formerly overestimated because of our poor knowledge of the flora of adjacent South America, and will probably decrease further. The absence of certain genera is about as striking as the presence of others. A supplementary chapter by L. A. Fournier deals with the botany of Cocos Island, far to the North of Galápagos, off Costa Rica, with a more luxurious vegetation but less diversified habitats and much fewer endemics. A preliminary list of the plants recorded from the island is given by F. R. Fosberg and W. L. Klawe.

On of the most important contributions is W. A. Weber's chapter on the moss and lichen flora, with checklists of species thus far recorded; it is the only modern treatise on these groups. The lichens are comparatively little known. The author promises us a comprehensive flora. Despite the abundance of lichens endemism seems to be quite low, though here, again, the lack of knowledge of the mainland flora suggests the opposite. The list of recorded Bryophytes is longer, but still very incomplete.

Problems of variation of populations on the same and on different islands, and of introduction to and expansion on the islands, are discussed by S. G. Stephens and Ch. M. Rick in the paragraph on the Galápagos cottons, two species of *Gossypium* also found on the continent but with more or less distinct island forms.

Three chapters are devoted to plant-animal relationships. It is at first surprising to find the one on the Galápagos cacti, by E. Y. Dawson, under this heading. This is because of the ecological interdependence of the arborescent Opuntias and the – now almost the late – giant tortoises for which these cacti provide food and water and on which they more or less depend for the dispersal of their seeds. The variation of the cacti on the individual islands and their derivation from mainland forms are also discussed. Aspects of pollination biology and of seed dispersal are dealt with in another chapter by Ch. M. Rick. The surmise that autogamy is frequent in an archipelago with few pollinators was confirmed by experimental studies. Most endemic plants have small, inconspicuous flowers. The problem is discussed from the entomological viewpoint in a chapter on pollinating insects by E. G. Linsley.

As may be expected, CH. DARWIN is mentioned in many chapters as a pioneer of research in many divergent fields of Galápagos biology. Although the reviewer would not care to underwrite J. HUXLEY's statement, at the beginning of the first chapter, dealing with DARWIN's ideas derived from his studies in Galápagos and their later development, that "Charles Darwin effected the greatest of all revolutions in human thought . . .", this book, on what might be termed an important, perhaps the most important part of the raw material with which DARWIN started, is warmly recommended to botanists, zoologists, geologists, and specialists in evolutionary biology alike.

K. U. KRAMER

MEXICAN BOTANY

ARTURO GÓMEZ POMPA — *Estudios botánicos en la región de Misantla*, Veracruz. Instituto Mexicano de Recursos Naturales Renovables. México. 27 Jun. 1966. 173 p. 49 fig.

JERZY RZEDOWSKI and ROGERS MCVAUGH — *La vegetación de Nueva Galicia*. Contributions from the University of Michigan Herbarium 9(1): 123 p. 28 fig. map. Ann Arbor, Michigan. 1966.

Here are two important works on regional botany in Mexico which have appeared in recent years. Both are examples of the contributions being made in this field by the two leading young botanists in Mexico: Dr. Gómez Pompa and Dr. Rzedowski. (Dr. McVaugh is already well known for his work in plant taxonomy, vegetation studies, history of botany, etc.). Both are examples of the kind of work which will have to be done for all the regions of Mexico before we can begin to hope for the much needed Flora of Mexico or Flora of Middle America. Both are quite similar in their treatment; both show to a considerable extent the influence of the botanist, Dr. Faustino Miranda, who was responsible for stimulating and training many of the younger botanists of the Mexici of today.

The regions considered lie on opposite sides of the country; Misantla along the Gulf of Mexico in the east; Nueva Galicia in the west (the old Virreinato in the times of Spanish rule) includes the states of Jalisco, Colima, Aguascalientes as well as parts of Nayarit, Durango, Zacatecas, Guanajuato and Michoacán. In the first study a smaller area is covered somewhat more intensively. But, in both studies, there are summaries of data from all the basic fields which contribute to an understanding of the flora and the vegetation of a region: physiography, climate, soils, etc. In both, the types of vegetation are described in some detail but with some differences. In the Misantla publication Dr. Gómez Pompa, interested in both ecological and taxonomic problems, emphasizes primary and secondary vegetation types and the components of each. In the Nueva Galicia study, the emphasis is on vegetation; thirteen vegetation types are discussed as divided among four physiographic regions. And in both, maps and photographs add immeasurably to an understanding of the areas being studied. The work by Gómez Pompa concentrates on the trees and shrubs of the flora (reflecting, perhaps, the special interest of his teacher, Dr. Miranda), listing the families with tree or shrub species and then considering the families in detail. Rzedowski and McVaugh, on the other hand, close with a systematic enumeration of 1400 species of vascular plants covering collections which were made between 1949 and 1966.

As a final note, it should be stressed that both works are in Spanish. This is not unusual with regard to the Gómez Pompa work, which was published in Mexico. But it is noteworthy with the Rzedowski-McVaugh work since that was published in the United States. The University of Michigan is to be commended for its contribution to Inter-American cooperation by recognizing that in presenting a study of a region in Mexico the most logical procedure is to publish it in Spanish. Bravo!

The two works here reviewed should be studied not only by all who are interested in Mexican botany, but also by those who are interested in general vegetation studies, and in tropical and sub-tropical botany, whether worldwide or limited to the Americas.

I. K. LANGMAN

DIATOM CATALOGUE

SAM L. VAN LANDINGHAM, *Catalogue of the Fossil and Recent Genera and Species of the Diatoms and their Synonyms. Part 1.* Acanthoceras *through* Bacillaria. xi + 493 pp. 1967. Verlag von J. Cramer, 3301 Lehre, Germany.

The origins of the work under review go back a long way, to the *Catalogue of the*

WOODY FLORA OF TAIWAN. Hui-Lin Li. Livingston Publishing Company, Narberth Pa., 1963. 975 pages, 371 illus. $18.75.

The Morris Arboretum and the Livingston Publishing Company can deservedly take pride in this latest product of their collaboration. The distinguished and scholarly work of Dr. Li, on the woody flora of the island better known until recently as Formosa, is here presented to the public in a dignified, yet easy to use format. The public, in this case, is a highly selected one, composed in large measure of trained botanists and in particular, those interested in the flora of what we call the Far East. On the other hand, it is a book which should find a place in every library that caters to serious botanists: university libraries, particularly those of the biology departments; large city libraries, museums, botanical gardens, arboreta, both in the United States and in all large centers of learning over the world; in all of these Dr. Li's guide has an undeniable place.

While the greater part of the weighty volume is devoted to a systematic study of the woody plants of Taiwan, the introductory section provides interesting related material, and a selected bibliography lists the most important references used in preparation of the work. A preliminary chapter discusses the physical background of Taiwan: its location, topography, soils, and climate. This is followed by a detailed analysis of the vegetation and its floristic composition: first in terms of altitudinal distribution, then by families represented, and finally by geographical areas of the world with which the plants are related. It is this section which can well be studied by every professional botanist, and certainly also by the serious amateur, many of whom, of course, are included among the Associates of the Morris Arboretum.

The main body of the work provides first a key to families, in an arrangement which some will find new, since the monocotyledons follow the dicotyledons. In the latter we end with the

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Goodeniaceae, rather than with the usual Compositae (which are not represented in the woody flora here described). The monocotyledons begin with the Pandanaceae and close with the Liliaceae. Keys to genera and species are included, and descriptions of each species include distributional data and complete synonymies. The illustrations, of one species in practically every genus, merit special commendation. They are beautifully executed line drawings, by a Taiwanese artist, C. T. Chen.

Another Taiwanese botanist, Dr. James Chen, has been kind enough to permit me to pass on an observation of his in this review. As Dr. Li mentions in his introduction, the names of localities in Taiwan have long been in a confused state, due to occupation of the island for so long by various groups. For this reason, he has attempted to cite all the names (with a few exceptions) as they will be found on current Chinese maps. This, says Dr. Chen, was an enormously difficult task. To reduce the native aboriginal names reported by many collectors, as well as the Japanese names and the older Chinese names, to those in modern usage, required the most painstaking kind of work, and for this botanists using the work will be most grateful since they can now, in most cases, turn to modern Chinese maps and locate the collection sites for a particular species.

Dr. Li, who has been on the staff of the Arboretum for a number of years, is noted in his field as a skillful, meticulously careful, and perceptive taxonomist. His many publications which include several books, as well as numerous articles in various botanical journals, have always been regarded most highly by his colleagues. This latest publication adds fresh luster to an already illustrious name.

IDA K. LANGMAN

THE ORIGIN AND CULTIVATION OF SHADE AND ORNAMENTAL TREES. Hui-Lin Li. University of Pennsylvania Press, Philadelphia, Pa. 282 pages, 90 illus. 1963. $6.00.

Of the making of books about trees there is apparently no end and this is entirely as it should be, for trees are among man's best friends and most valued possessions. Dealing, as the present volume does, with shade and ornamental trees, it constitutes an significant contribution to a literature which is heavily overweighted with works on trees as sources of fruit, fiber, drugs or timber.

Dr. Li, taxonomist at the Morris Arboretum, and no stranger to these pages, has long been a careful student of the flora of the northern hemisphere. His intimate knowledge of the flora of southeastern Asia, a region which has contributed so many woody plants to eastern American horticulture, qualifies him eminently to write about those kinds of trees which not only delight the eye but provide grateful shelter and shade to persons living in temperate North America.

In an introductory chapter the author deals with man's early knowledge of the value of trees, their geographic distribution, their modes of cultivation, and their capacities for selection and improvement. Sections devoted to the dispersion of cultivated trees and recent botanical exploration prepare the reader for the detailed descriptions of individual genera which follow.

The treatment of weeping willow, Lombardy poplar, plane tree, ginkgo, horse chestnuts, lindens, maples, locusts and dawn redwood have appeared previously in these pages of the Morris Arboretum Bulletin. The author has added chapters on Conifers, Ornamental Flowering Trees and other important genera of Shade Trees, the last-named containing brief discussions of *Fraxinus, Betula, Quercus, Fagus,* etc.

Separate chapters contain lists of tree species which originated in Europe and Western to Central Asia, in Eastern Asia, and in North America. In each of these three geographic categories a special section is devoted to a brief consideration of those tree genera which are endemic.

The book closes with a very useful bibliography and indices to both scientific to common names of trees.

Dr. Li has assembled between the covers of this modest volume a tremendous amount of valuable information concerning a group of plants without which our parks, gardens, cities, and highways would be bleak places indeed.

J. M. F., JR.

Dear Dr. Langman: I think that I have not yet acknowledged your review of Flowers for the King. I've been extraordinarily derelict lately! Anyway, the review was received, and it is a fine review indeed. Thank you for preparing it for us.

JWT

John W. Thieret

UNIVERSITY of PENNSYLVANIA
PHILADELPHIA 19104

The College
Department of Biology
JOSEPH LEIDY LABORATORY
OF BIOLOGY

May 5, 1965

Dear Dr. Thieret:

Thank you for the card letting me know that the review I prepared of Flowers for the King was received and is satisfactory.

I had wondered how you happened to ask me to do the job and, just this week end, learned the answer to the question. Joe Ewan stopped off in Philadelphia on his way to lecture in New England and in the course of our conversation, we happened to touch on book reviews in general, and on Flowers for the King in particular. It was then I learned that he had given you my name.

This leads me to make the suggestion (and I wish I could figure out a way to get this to journal editors in general) that in asking some one to do a review, it might be well to mention that the request was being made at some one's recommendation(if such were the case). This would make it possible for

the reviewer, if he accepts the invitation to write and thank the one who recommended him. Or does this sound like too much red tape or formality to you?

In any case, I'm very grateful to Joe for having recommended me and I told him so. Flowers for the King will always be one of the treasured books in my library.

Sincerely,

Ida K. Langman

(Mrs.) Ida K. Langman
(sorry, not Dr.)

I think your idea is a fine one, and so I'll adopt it! I'm always glad to have suggestions.

Sincerely yours,

John W.

John W. Thieret

Flowers for the King. The Expedition of Ruiz and Pavon and the Flora of Peru. Arthur Robert Steele. 378 pp. illus. Duke University Press, Durham, North Carolina, 1964. $10.00.

Here is a book, by a professor of history, which every plant explorer will read with genuine satisfaction, for in it he will find a vivid chronicle of one of the famous expeditions sent by a King of Spain to his American colonies. Here is an absorbing record of plans and achievements, of adventure and frustrations, and of high purposes and petty bickerings. More than any one else, the plant explorer will appreciate the problems described in planning and carrying out this project of exploration for botanical ends. Reading the book he will re-live his own excitement on finding a plant that might turn out to be a new species, perhaps even a new genus. And he will re-live the mishaps and near mishaps that seem to plague even the best planned expeditions.

For the botanist who has traveled and collected in Latin America, the book will be even more meaningful. The pleasure upon recalling familiar places and plants will be tinged with sadness as one follows this account of the Ruíz and Pavón expedition, beginning with the decade from 1777 to 1788 spent in the field, continuing through the years of trials and vicissitudes, and ending with the death of Pavón in 1840. Whether our botanist has followed the footsteps of these, his illustrious predecessors, over the deserts, up the Andes, and down into the tropics of Peru and Chile, or those of Mutis in 1783 to 1816 in Colombia (the Nueva Granada of the colonial period), or those of Hernández (1570-1757) or Sessé and Mociño (1786-1803) in Mexico (then Nueva España), he will ask again, as he has asked before, why the tremendous gap, observed so often in Latin America, between grandiose project and finished accomplishment? He may ask if we will ever see the final and complete publication of the *Flora de la Real Expedición Botánica del Nuevo Reino de Granada*, resuscitated in 1954 after a gap of 138 years. Or he may wonder if we will ever see the final three volumes promised to complete the 1959-1960 edition of Hernández. (Perhaps he will already have resigned himself to thinking of this as only another chapter in the "fracaso editorial" that seems to have characterized so much of the history of botanical publication in what was once Spanish America.)

The final answer to these questions will not be found in this book; nor was the book planned with this goal in mind. It might be emphasized here that Dr. Steele has used great care to avoid turning his story into what he himself calls "an Anglo-Saxon recital of Hispanic incompetence," though he does ask if it is a "portrayal of the Spanish tragic sense of life—the philosophy that all things are destined to pass away." What Dr. Steele has produced is a thoroughly documented story of a gallant, if impossible, attempt to explore a region (still today far from completely known) and to describe the plants of that region. But he has given us more than just a story—more than just an itinerary or a list of collecting stations, more than mere descriptions of the area and a recital of daily activities. For our author is first and foremost an historian and, at the same time, a writer of high literary quality.

Here, indeed, is a work that combines the "two cultures." Here is a report of scientific activity against a backdrop of the social factors that played so strong a role in the direction and final outcome of that activity. In the first four background chapters (the first quarter of the book) we find the groundwork laid for an understanding of all that follows. Woven into the record of the Ruíz and Pavón Expedition is a perceptive history of Spain's interest in the botany of its 18th Century colonies; a revealing description of life and, in particular, the intellectual atmosphere of Lima, the City of Kings, in the 18th Century; and an analysis of the effects of wars and revolutions on scientific progress, as demonstrated by the policies of Spain in the 1820s. The author's aim was to "seek to record the human side of the expedition and its frustrating afteryears, with all of the tensions, the hardships, the follies, the heartaches, the triumphs, and the international jealousies." It is a pleasure to record that the aim was achieved.

One of the most impressive aspects of the book is the way in which the author unravels the details of the personal lives involved in his drama. And it is a drama in the most theatrical sense of the term, with a constantly changing cast of characters. We can begin with the tragic Joseph de Jussieu of the 1740s; then continue with Pehr Loefling, one of Linnaeus' favorite pupils, dying of fever in Venezuela; with the hard-working, caustic, and outspoken Ruíz and the more docile and easy-going Pavón; with Dombey, the versatile and resourceful Frenchman, trapped in the meshes of the rivalry between his country and Spain during the years in which he was attached to the expedition; with the audacious l'Heritier, who adds a "whodunit" angle to the play with the "case of the abducted herbarium"; and with Lambert, the wealthy Englishman, "international trader in plants, friendship, and cockle shells." Clashes of personalities are common, and appalling, when one considers how easily personal rivalries and ambitions displaced the oft-

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proclaimed objectivity and pursuit of knowledge for its own sake, that is supposed to characterize the true scientist. Disputes were not limited to the issues involved but often became bogged down in endless legal wrangles, or they degenerated into personal attacks—seen at their worst in the battle of words between the prolific "tsar of Spanish botany," Gómez Ortega, and the "quick-witted and sharp-tongued" Cavanilles, who eventually replaced him.

Our drama had its aspects of physical violence as well: a devastating fire, a catastrophic shipwreck, and Indian uprisings. If one adds to all these problems the eternal one of money—money to buy paper, money to pay the printers and the illustrators, and money to buy the plates and to pay for preparing them; and then adds the problems of red tape—as responsibility for publication shifted constantly from one department of the government to another, as different means of financing were sought; and as attempts were made to untangle the complicated bookkeeping records while holding on feverishly to the slippery *reales* and *pesos*—it seems miraculous that even four volumes of the originally projected 16 volume work (11 volumes and 5 supplementary volumes) were actually published.

All this drama, then, Dr. Steele has recreated for us with great skill and elegance. His skill enabled him to transform the dry figures and records of dusty archives into a vivid account of the life and death of a flora. From the drab and humdrum daily expense accounts, he was able to conjure up a lucid, if disheartening, picture of an era, a way of life. No detail is too minute for him to examine and, if it helps to fill in the picture, it is checked and inserted in just the spot where it is needed. The 20-page bibliography is eloquent proof of the author's ability to track down and dig up every clue needed to complete the story. On the botanical side of the account, the author deserves particular commendation. Either he had excellent botanical instruction in his undergraduate days, or (and this does not exclude the first possibility) he knew how to make excellent use of the expert help given him by the noted botanists listed in his acknowledgements. In any case, he seems to have made himself completely at home in the world of the taxonomist, with his problems of synonymy and priority, and has gone to considerable lengths to ascertain the correct (present) scientific names of the plants he discusses. This is particularly evident in the chapter on quinine, "the controversial bark." (I note only one error where, on page 42, *jalapa* is identified as the plant from which indigo was derived.)

Flowers for the King should be required reading for any one seeking to understand the Latin America of the past, as well as the Latin America of today.

IDA K. LANGMAN
University of Pennsylvania
Philadelphia, Pennsylvania

Principles of Genetics. Eldon J. Gardner. 2nd ed. 386 pp. Illus. John Wiley & Sons, New York, 1964. $8.00.

There are five principal changes in the second edition as compared with the first. Chapter 1, "The science of genetics," now includes the old chapter 2, "Mendel's experiments." Chapter 3, "Probability," is rewritten to include the old chapter 5, "Interaction." Two chapters have been added: chapter 11, "Protein synthesis and gene action," and chapter 12, "Recombinations in bacteria and viruses." The glossary is also a welcome addition. The remainder of the book has been rewritten to some extent but remains essentially unchanged. The arrangement of chapters is different and better in some respects, e.g., the chapters dealing with sex now follow one another. On the other hand, multiple alleles are now located between bacteria and physiological genetics and seem somewhat out of place. I suppose, however, that each person has his own preferred sequence of topics.

The book does not appeal to me for use as a text. The prime aim of the book is again "to present these basic principles in their modern context and as a unified whole." This is, of course, a great undertaking, and it is not surprising that the author does not altogether succeed. The effort to include all aspects of the science of genetics cannot be reconciled with the need to present the basic principles in a clear, concise, logical, and detailed manner that can be readily grasped by the beginning

REVIEW
ARTHUR ROBERT STEELE: FLOWERS FOR THE KING

Joseph Ewan

Reprinted from The Bryologist, Vol. 68, No. 1, Spring 1965

This tragedy—for such it was—all began with quinine, "without which drug," it was said 50 years ago, "there is no conquest of the tropics." The tale begins in 1636 when the wife of the Spanish viceroy residing at Loxa fell seriously ill with malaria. The colonial governor advised a powder that very likely had been known for centuries among the natives of equatorial South America. The Countess of Chinchon was given the powder and miraculously cured. Three years later the viceroy sent an expedition to the *Cinchona* regions to learn more about the plant and the next year the "countess powder" was heralded in Europe. One hundred years later La Condamine and de Jussieu interested themselves in the search for the miraculous bark during their travels in Ecuador and Peru. About this time Linnaeus received specimens of what he named (and misspelled) *Cinchona* from Loxa in present Ecuador. In 1792 the chemist Fourcroy extracted quinine from the bark in an impure state. It was soon found that all Cinchonas were not alike in their medicinal value and a rivalry soon developed among the botanists Ruiz, Lopez, and Mutis over the correct classification of the several Andean *quinas*. It is here that historian Steele takes up his story in earnest. It was the mid-nineteenth century before a seedling was raised in Paris from seed collected in Bolivia by Weddell. The modern history of quinine has been an oft-told tale and is beyond the present book.

Flowers for the King centers about the expedition sent out by Charles III, King of Spain, to seek the true and best Jesuit's bark. But then there were other pursuits in that court; there was a search for new dyestuffs, condiments, aphrodisiacs, to be followed as night the day by antisyphilitics, febrifuges, and the ever elusive panacea. "No monger in patent medicines ever made wider claims for a tonic than Ruiz utters in support of the miracle remedy *quina*." They found a bezoar stone or two and what appears in the inventory as an "elastic stone." The lords and ladies back in Spain were taking an interest in "exoticks" from America for their hothouses. There were fuchsias from Chile, the Venus fly-trap from Carolina, orchids and scented novelties. Spain, says Steele, was almost the last of the European kingdoms to swoon over its stoves. At the same time there was an awareness that to win a permanent place in the annals of botany discoveries must be published. The *Flora of Peru* stands, abortive as was its final publications, an even greater triumph in the face of all the vicissitudes that beset its appearance. Herbarium specimens and manuscript descriptions amassed over four years in Peru burned in a single fire. A shipwreck wiped out another consignment only a few days' voyage from port. Then there was wrangling among the professionals. Decisions as to publication rights, privileges accruing from discoveries, and sale of goods taken on the side were "bandied about." Personalities clashed over "the floral goodies of the montaña" (Steele's words). In these "topsy-turvy times, with revolutions popping all around," the *explorador* was out "house hunting." The author's folksy diction seems at times too modern and too *Norteamericano!*

But I enjoy the *dramatis personae* of this history: There is the tragic Joseph Dombey, who again and again tried to reach the United States only to die in a Montserrat prison; L'Héritier de Brutelle, whose library was second only to Sir Joseph Banks's, who defiantly sequestered Dombey's specimens in England; Professor Pavon, who outlived his collaborator but never matched Ruiz's talents; and A. B. Lambert in England, "international trader in plants, friendship and cockle shells," who acquired Pavon's set of the expedition's collections. The enterprising Cavanilles and the *Flora of Peru* expired together in 1804. By 1816 Ruiz was dead and the flowers for the king were "faded and done for."

Some marginalia in my copy: It is true that there is nothing especially un-Spanish about the study of plants, yet Spain failed to produce a sixteenth century herbalist of the lustre of a Brunfels or a Clusius, the German Fuchs, or the Italian Matthiolus. Nicholas Monardes was rather too much the

ARTHUR ROBERT STEELE. **Flowers for the King. The Expedition of Ruiz and Pavon and the Flora of Peru.** xv + 378 pp. illus. Duke University Press, Durham, North Carolina. 1964. Price: $10.00.

Mosses are hardly noticed in the crannies of this history of botanical exploration in South America in the eighteenth century. *Polytrichum subulatum* and *Bryum nitidum* are mentioned among the plants found at Tarma in the Andes of Peru. And there are seven species of the old genus *Lichen* listed in the same context. But no matter, this is a book of arresting interest for any botanist with historical tastes.

medico to qualify. Steele asserts that Philip II sent out the first botanical expedition in the sixteenth century, that under Francisco Hernández. But there was Gonzalo Fernández de Oviedo (1478-1557), who met Columbus, knew his sons, and at the age of 36 was sent to Santo Domingo. This was a half century before Hernández went to Mexico City. Sterling Stoudemire published Oviedo's botanical and zoological writings in English in 1959. Pierre Belon visited Asia Minor between 1546 and 1549 and established two botanic gardens. What to do with the controversial André Thevet who visited Brazil before Hernández went to Mexico is another question. His contribution was less than his stimulus to exploration.

Better documented is Gómez Ortega's part in the history of Spanish botany. His illustrated 70-page manual prepared for sea captains and pirates (?) who had an interest in shipping living plants back to Spain was published in 1779. Steele reproduces a nice plate from Ortega's work; this is part of a specialized literature, not so far studied in detail, dealing with instructions on collecting and preserving natural history objects. The entomologist Arthur A. Lisney remarked in his valuable *Bibliography of British Lepidoptera, 1608-1799*, that this literature seems to have begun almost exclusively in England beginning with James Petiver's broadsheet of 1715. Ortega, best educated of Spain's young aspiring botanists, translated John Byron's voyage adding natural history notes, and Duhamel's *La Physique des Arbres*, compiled the first catalogue of the plants growing in the Madrid botanic garden, and promulgated the classification of Tournefort in Spain by preparing a primer of his system. Ortega's manual for shipping living plants closely followed that of John Ellis, F.R.S., that had appeared in London in 1770.

Corrigendum: The author remarks that "whereas the British government gave no financial support to the study of plants—even the 'King's Botanist' John Bartram received no official encouragement." However, on April 9, 1765, Peter Collinson wrote John Bartram that "this day I received certain intelligence from Our Gracious King that he had appointed thee his botanist, with a salary of £50 a year." In fact, after William Young, Bartram's rival who proved no threat in the end, appeared on the scene Collinson assured Bartram that his stipend was secure. Then following Collinson's death that year Fothergill and his nephew continued to intercede for Bartram's pension until 1775.

Question: Who was the "greatest botanist in America" during the last decades of the eighteenth century? Linnaeus the Younger said it was Mutis of Colombia. Surely not. Olof Swartz? Humphry Marshall? Thomas Walter? William Bartram? Or was it Ruiz? Though three-fourths of the projected volumes for the *Flora of Peru* were never published, 100 of the 141 genera newly proposed by Ruiz and Pavon are considered valid today—a notable record indeed.

There are scentless flowers for Charles III, "restorer of the botanic art for the health and delight of his citizens." Thanks to Arthur Steele for arranging the bouquet for us.—JOSEPH EWAN.

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2. March 27—"Present Day Geology"—the rich sediment formations of the state. MRS. KARL REED.

3. April 3—"Plant Communities"—the ecological conditions and locations of the major plant communities. DR. LILY WEIERBACH.

4. April 10—"Coastal Life—The Littoral Society" — the multi-life zone between high and low water marks of the shore line. DR. PETER R. LYNCH.

5. April 17—"Coastal Life-Birds"—become acquainted with some of the 241 species of bird life which inhabit and visit the shore. MR. QUINTIN KRAMER.

6. April 24—"Spring Bird Migration"—the birds which migrate through this area. MR. QUINTIN KRAMER.

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Spring Holiday Programs

There will be special holiday programs for youngsters Monday, Tuesday, Wednesday and Thursday, April 8 through 11, at the Academy of Natural Sciences.

On each of these days at 11:00 A.M. and again at 1:00 P.M. two movies will be shown in the auditorium (total length 35 minutes)—a description of each is given below. Then at 2:00 P.M. there will be a special Easter holiday Live Animal Show. The demonstrator will instruct the children in the care of pets they may receive as Easter presents. A rabbit, a duck and a chick will be featured.

The movies are:

"Yours for a Song"—24 species of birds as they are attracted to a yard that provide their three necessities of life: food, water and shelter. Shows various kinds of shelters, water containers and many kinds of food which appeal to birds.

"Life in a Garden"—the natural history of a garden, presented in close-up shots of the common birds, animals and insects found in most gardens.

Parents and children who plan to attend both the movies and the Live Animal Show might like to bring a sandwich lunch and supplement it by the milk, coffee, tea, hot chocolate, etc. in the lunchroom machines.

LETTER TO THE EDITOR

"Silent Spring—Revisited"

To the Editor:

May I comment briefly on the critique by Carlton B. Lees, of Rachel Carson's *The Silent Spring*, which was published in the December issue of FRONTIERS? Mr. Lees' review is, on the whole, an extremely fair and objective review. The points where I find myself in disagreement are, perhaps, minor but I feel they need pointing out.

1. While Mr. Lees does not agree with *Time Magazine*'s criticism of the "inaccuracy, over simplification, and downright errors" in Miss Carson's work, he labels it misleading because it does not dwell on the "tremendous gains which have come to us through the use of modern pesticides." I shall let Miss Carson herself answer this point. I quote from a speech which she delivered before the Women's National Press Club on December 5th: "Anyone who has really read the book knows that I favor insect control in appropriate situations, that I do not advocate complete abandonment of chemical control, and that I criticize the modern chemical method not because it controls harmful insects, but because it controls them badly and inefficiently and creates many dangerous side effects in doing so. I criticize the present methods because they are based on a rather low level of scientific thinking. We are capable of much greater sophistication in our solutions of the problem."

2. Mr. Lees points out that a comparatively small percentage of the continental U.S. is subjected to any spray materials in a year and that there is therefore no reason for alarm. Is this not precisely the time for a word of warning before the harm has become so widespread that it is too late? And is it not precisely the time for an "emotional, well wrought plea"? How else combat the heavily subsidized Madison Avenue type of advertising that has emphasized all the supposed benefits while playing down the possible harmful results? The scientist does the research which produces the product but he has virtually no control over the methods used by the sales and advertising departments when it is time to market the product.

3. Mr. Lees counters Miss Carson's statement about cancer in American school children by pointing out that in preceding generations more children died of other diseases which have since been stamped out, and that our methods of diagnosing cancer are now more efficient. How do these two facts minimize the impact of the "today more American school children die from cancer than from any other disease?" If cancer is the killer today, then let's find the reason. And if it is suggested that careless use of chemicals is involved, let's see if there is any truth to the allegation.

Space does not permit my quoting from more of Miss Carson's speech. I am sure copies can be secured by writing to Miss Carson or her publisher. In the meantime, I would recommend to readers the reviews of Loren Eiseley in *The Saturday Review*, September 29, 1962 and LaMont C. Cole's review in the December issue of

(Concluded on Page 128)

LA HISTORIA NATURAL Ó JARDIN AMERICANO DE FRAY JUAN NAVARRO – 1801

Botanists interested in the history of Mexican botanical works will find an interesting article on Fray Navarro's work in the latest number of the *Boletin del Instituto de Investigaciones Bibliográficas*. It is Número 6, dated Julio-Diciembre 1971, but with a publication date of 7 December 1973. The author is Lic. Roberto Moreno.

The work by Navarro is a manuscript, labeled Tomo V, and the text begins on p. 171. Illustrations in color alternate with text pages. When I examined this work at the Biblioteca Nacional in Mexico, during the compilation of a *Selected Guide to the Literature on the Flowering Plants of Mexico* (published in 1964), I was puzzled by a statement that described the work as a continuation of Volume 2. In addition, there was also an index, following the text, of plants "of the second volume of the Historia Natural". And to confuse the issue even more, the author indicates that he is following the work which the R. P. Dr. Fernandez wrote on "vegetales americanos." In my commentary on the work (see p. 536 of the Selected Guide), I ended with the question "Does this refer to Hernández"

Well, Lic. Moreno has answered all these questions. Fray Navarro originally wrote a work on natural history and it consisted of 4 volumes, of which the second referred to plants, but not necessarily American ones. The 5th volume,

which seems to be the only which survived, was a continuation of the second, and specialized in plants of America. On the question of who was R. P. Fernández, Lic. Moreno shows that this was indeed Francisco Hernández, author of the basic work on Mexican natural history, written in the 1570's, but not officially published until 1651. However, an extract was available much earlier, published in Rome in 1628, and a manuscripy version of this was evidently available to Francisco Ximénez (Jiménez). It was this which he used as a base for his *Cuatro Libros de la Naturaleza*, and it is that work which Romero feels Navarro used.

However, even Romero indicates that there are still questions about Navarro and his work. Why did he not mention Ximénez? Was Navarro Spanish? Why then, did he not cite the Madrid edition of Hernández of 1790? Why does he call Fernández (Hernández) a "reverendo padre dominico"? Because Ximenez (Jimenez) was one?

Lic. Romero ends by emphasizing the importance of the plates provided for the plants shown, since they were the original work of Navarro, and are often cited with the locality where the plants were found. Of Navarro, himself, very little is known. Perhaps further research will turn up interesting and important information. In the meantime, Romero's article merits high approval.

IDA K. LANGMAN

POISONOUS PLANTS

HARDIN, JAMES W. and ARENA, JAY M., Human poisoning from native and cultivated plants. Duke University Press. 194 pp., 15 pls., 76 figs., published 4 January 1974 (second edition). Price US $ 6.75.

One of the more alarming events in child-rearing is the discovery of a small child with part of a reputedly poisonous plant in its hand. Usually the layman is frantic for identification of the plant and the doctor seldom is equipped by training or experience to recognize plants. Once the identity has been established, the doctor may still not have adequate information at hand concerning the action of the poisonous agent or its neutralization. Botanist Hardin and Pediatrician Arena have joined their specialties to produce an excellent little volume for the layman *and* the physician. They consider nearly 200 species of plants native or cultivated in the United States and Canada (mostly flowering plants but also including algae and fungi) under three headings: (1) plants that produce allergies

which have been incorrectly attributed to the second edition. The reprint of this rare work is indeed much welcomed. The quality of reproduction is fair with much broken and blurred type, making some parts difficult to read.

ROTH, ALBERTI GUILIELMI. Novae Plantarum Species Praesertim Indiae Orientalis. Ex Collectione Doct. Benj. Heynii cum Descriptionibus et Observationibus. Halberstadt, 1821. Reprinted by Oriole Editions, New York, 1975. iv + 411 pp. Price $35.00.

This very important work of Alberti Guilielmi (Albrecht Wilhelm) Roth (1757-1834) is reprinted for the first time. It is based primarily on Heyne's East Indian collection and follows the Linnean system of classification and nomenclature. Numerous new species are described.

Reproduction is fair with many pages difficult to read because of blurred and broken type. In spite of these shortcomings, we are indeed fortunate to have this work available.

Richard P. Wunderlin
University of South Florida, Tampa

MIGUEL DEL BARCO. Historia Natural y Cronica de la Antigua California. Adiciones y Correcciones a la Noticia de Miguel Venegas. Edited with a preliminary study, notes and appendices by Miguel León Portilla. Universidad Nacional Autónoma de México. Instituto de Investigaciones Históricas, México. 1973. lxxv pp., 8 pl. 2 maps. 100 pesos.

This work has been buried as a manuscript in the Biblioteca Nazionale of Rome since the 1770's. It was written by a Jesuit who went to Baja California in 1738 or 1739 and stayed there until 1768, when the Jesuits were expelled from Mexico. An acute observer, interested in all aspects of nature, he stored up an enormous amount of information about the plants, the animals and the mineral resources of the region. All this information went with him when he left Mexico and settled in Bologna, where he lived in exile until he died in 1790.

Still, he never planned to write a book on Baja California. What moved him to do so was the appearance, in 1757, of a work by Miguel Venegas entitled *Nitocia de la California*, edited and considerably modified by Andrés Marcos Burriel. Venegas had never been in Baja California. His work, based on reports and answers to questionnaires by various missionaries, was completed in 1739. The job of editing was turned over to Burriel, who revised and amplified the work.

Barco saw the work when it appeared and immediately noted its imperfections. But it was not until he was living in exile that he had the time to put his comments and corrections down on paper, and called his work *Adiciones y Correcciones a la Noticia de Miguel Venegas*. So, for 200 years, the work of Venegas has been considered a basic study on Baja California, while the corrections have lain in the manuscript archives in Rome.

For the botanist, one part of the Barco work is of special interest: chapter 4 on trees; chapter 5 on "fleshy plants" (cacti); chapter 6 on shrubs and herbs; chapter 7 on wheat; and chapter 8 on agaves and roots. These 70 pages provide detailed descriptions of the most important plants of the peninsula and equally detailed discussion of their uses. Since Barco was not a botanist, his plants are cited by common names only. The editor has tried to provide scientific names, with identifications from various botanical works on Baja California, and dictionaries which include names of Mexican plants. As a result, there are errors of identification and spelling. The introduction by the editor contains a fine biography of Barco, and an excellent history of the work.

Ida K. Langman

INDEX NOMINUM GENERICORUM

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Edited by:

The International Bureau for Plant Taxonomy and Nomenclature, Lange Nieuwstraat 106, Utrecht, Netherlands.

Origin

At the 8th International Botanical Congress, Paris 1954, it was decided to establish an *Index Nominum Genericorum*. A resolution to this effect was put forward by the taxonomic section and carried unanimously at a plenary session of the Congress.

Need

The lack of a complete index of validly published generic names has led to the publication of a great number of illegitimate later homonyms and thus the literature has been further burdened by subsequent name changes. In the absence of an index the avoidance of such homonyms leads to an enormous waste of time in searching through the various partial indexes and other relevant literature.
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J. Lanjouw, general editor; A. A. Bullock and R. C. Rollins, advising editors; F. A. Stafleu, technical editor.

I will check the work of specialists & prepare it for publication in my room.

Editorial work

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Repetition of old errors in citation will be avoided by consultation of the original literature in every case.
The quotation of type-species will be most carefully undertaken in order to avoid errors of fact or judgement.
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EXAMPLES

Vochysia Poir. Enc. 8: 681. 1808 *(nom. cons.)*.
Vochy Aubl. 1775; *Vochya* Vell. ex Vandelli 1788; *Vochisia* Juss. 1789; *Salmonia* Scopoli 1777; *Cucullaria* Schreb. 1789.
T.: *V. guianensis* (Aubl.) Poir. *(Vochy guianensis* Aubl.)
11/11111 PHAN.-VOCHYSIACEAE

Vochy Aubl. Pl. Gui. 18. 1775.
T.: *V. guianensis* Aubl.
vide *Vochysia* Poir. 1808.
11/11112 PHAN.-VOCHYSIACEAE

Dendroalsia E. G. Britt. Bull. Torrey Bot. Club 32: 263. May 1905.
Groutia Broth. Aug. 1905.
T.: *D. abietina* (Hook.) E.G. Britt. *(Neckera abietina* Hook.)
12/11113 MUSCI-CRYPHAEACEAE

Regnum Vegetabile

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