Book reviews


From earliest times it has been the desire of authors to illustrate their books, initially simply to beautify the pages, but fairly rapidly succeeded by a genuine attempt to convey more accurate information. The first illustrations were illuminated or decorated pages, then artists employed woodcuts and etchings, often laboriously hand-painted, and eventually photography, first tentatively used in 1839. To some extent we now take all this for granted.

With such a long tradition of book illustration—particularly in natural history—dating back to the fifteenth century, we might reasonably expect to find a significant amount of instructional material, or ‘How to Draw’ books, stretching back to the infancy of printing and reflecting the constantly evolving methods and techniques. There is, in fact, a considerable body of such literature, steadily produced over the centuries. With commendable tact and diplomacy the authors state that many of these instructional books are “so rare today that we can only surmise that either most copies were worn to death by avid users or that they created such little demand that very few were sold or else were generally discarded soon after purchase!”

Whatever the truth of the matter, and there is much evidence that artists “usually acknowledge indebtedness to the first-hand teachings of a master artist rather than to a text book”, the body of literature on the subject had become so large as to demand “a comprehensive bibliographical guide to both the primary instructional and iconographical material and the secondary descriptive, historical, bibliographical and biographical literature”, and since no such guide already existed the authors decided to write one. It can be said at once that they have succeeded admirably in their chosen task.

The entire text of what is undoubtedly an exceedingly complex subject has been laid out with the most admirable clarity. All serious research workers will already be well aware that the two authors are immensely experienced, but not all authors who possess such authority also have the ability to explain and guide in such a lucid way. After a very clear Introduction (which everyone should certainly read right through before starting to make serious use of the book), followed by Key List of Reference Works and Bibliographies, the volume is divided into four sections, on Nature in General, Plants, Animals, and the Human Body. Each of these is treated in a uniform way, with other 7,500 references arranged under Drawing and Painting, History, and Photography—not an easy format to achieve, but one which infinitely enhances the clarity and usefulness of the book. Such logical treatment of the subject is everywhere in evidence.

The final sections comprise Artist Biographies (a masterpiece of multum in parvo), Periodicals, Books on Colour and Organizations, with a separate index each for Title, Subject and Name. Throughout the entire volume, everything is admirably cross-referenced.

For such a detailed and complex subject, the book has been splendidly set out and printed in clear double-column format which makes it extremely easy to use. The several excellent illustrations placed throughout the book together comprise the entirety of John Payne’s Flora. Flowers, fruicts, beastses, birds and flies exactly drawne . . . (London, ca 1660), which few readers would otherwise have the good fortune to see.

The publishers state that this bibliography “is primarily intended for historians of science, but . . . will help to create greater appreciation and understanding of the role played by instructional literature in the development of plant, animal and anatomical themes in the history of art and scientific illustration”, and with these sentiments this reviewer agrees wholeheartedly. Gavin Bridson and James White have carried out their task superbly and their book is clearly destined to become a genuine classic in this field.

J. A. GIBSON


Johnsgard’s basic reason for compiling both The quails, partridges, and francolins of the world (1986) and this book was to provide a ‘showcase’ for the unpublished bird watercolours by Major Henry Jones, housed at the Zoological Society of London. There are over 1,200 of these paintings, including complete
sets of all currently recognised species of bustards and sandgrouse, and all but one of the species of hemi-pode (the African lark-quail Ortyxelos meifrenii). Johnsgard—who had in the first place thought to concentrate on the bustards—soon realised the potential thinness of such a book and thus arrived at the rather loosely scientific combination of these three groups. In his own words, "there is little if any indication that they are in any way closely related to one another".

The plates, however, are the glory of the book and as such this combination based on habitat works; the similarity of mottled plumage, brownish hues and desert backgrounds in all plates makes the book a cohesive blend of tapestry-like images. The text is useful but little can be found that is not widely available in other works such as Cramp and Simmon's *Handbook of the birds of Europe, the Middle East and North Africa* (1980). The format (distribution, measurements, description etc. in separate sections, which are interspersed with maps and line drawings) seems to have been based on the standard system that has been adopted for the *Handbook* and numerous tomes recently produced for other countries and regions. Having all the information which exists worldwide on these three groups pulled together in one reference book, though, will prove extremely useful.

Clemency Fisher


Considering the entire canvas of the history of natural history, tapestries do not immediately spring to mind as documents worthy of study, nor for that matter do marble inlaid tables, stained glass windows, Roman floor mosaics, or embroidered waistcoats! Yet a mosaic (2nd century AD) in Naples Museum records over a dozen fishes and other marine creatures, an inlaid table (*ca 1600*) in the Uffizi, Firenze, has most accurate representations of flowers (*e.g. Aquilegia vulgaris*), and a Florentine Medici tapestry (*ca 1550*) in Palazzo Vecchio, not only has a frieze of vegetables and animals but also wondrously embroidered marble pillars. Kaffe Fassett's omnium gatherum of illustrations from all branches of natural history is astonishing for its rich variety, and interesting also is the way he employs snippets from these various works when designing his own needlepoint tapestries and knitted fabrics.

This is not a history of natural history illustration—the text is slight—but it is a cornucopia that surely will educate those who rarely venture from dry-as-dust academic tomes. The medley is eclectic, exuberant and catholic, so I commend the book to all students interested in illustrations of plants, animals and minerals. Few other books cover such a diversity of mediums and more than three millennia beginning with Egyptian tomb paintings (Thebes, 1292 BC).

Moreover, *Glorious inspiration* is unalloyed fun! Browse it as you yourself embroider turtles (needlepoint in tent stitch on 10 mesh canvas) after Seba's *Locupletissimi Rerum Naturalium*, or seek inspiration for cushion covers, dreaming that, as Fassett suggests, "in years to come a piano stool or sumptuously coloured sweater or a needlepoint carpet you have created will grace the pages of a book similar to this one!"

E. C. Nelson


In the early 1860s Albert Bickmore (1839–1914) studied zoology under Louis Agassiz at Harvard University and, as his assistant, cared for the collections of radiates and molluscs. In 1865 he journeyed to Indonesia to collect from the island of Ambon the shells that were figured in Rumphius's *D'Amboische Rariteitkamer* (1705). Having accomplished this, he travelled more widely in the archipelago, returning to the United States in 1867, and two years later published an account of his travels.

John Bastin records that the book "enjoyed much critical acclaim at the time of its publication". He also notes that the inclusion of information gleaned from the works of Raffles, Horsfield and others removes "something from the spontaneity of Bickmore's writing". Similar sentiments were expressed in a contemporary review (*Gardeners' Chronicle* 24 April 1869: 448), as were the comments that "there are but a few other subjects upon which the reader does not feel that he has left untold some of the most important features . . . . From a Natural History Professor might reasonably have been expected some original observations upon the plants and animals of so interesting a region, but the zoological information given is of a very superficial character . . . .". I concur with the latter statement. Given Bickmore's background and the initial purpose of the expedition the lack of conchological information is particularly surprising.

As a travel book this is a more commendable work. Bickmore's accounts, albeit not always from original observation, on native dress and customs, cannibalism, leprosy, pirates, volcanoes, etc., plus a concluding account of his "struggle for life" with a python, do entertain and presumably account for any critical acclaim received on its release.

P. S. Short

This journal records six hunting trips in the early 1850s from the new colony of Natal into the Zulu kingdom and beyond. Struthers was an educated but impecunious immigrant who turned to hunting as a business venture, shooting hippopotamus, elephant and buffalo for the profitable trade in ivory, tallow and hides. It was a hard life. He tells of walking 40 miles in a day in search of elephants, of enduring clouds of mosquitoes, of almost dying of fever and of suffering lesser afflictions like a stab in the eye from a stick when evading a charging elephant and the crippling effect of sandworms in his foot.

The journal, then, is a hunting tale of endurance and adventure of a genre popular in the nineteenth century. But because it belongs to so early a period in the documented history of the area the incidental information it contains is of value. Struthers encountered other Whites, mainly hunters like himself, but also R. W. Plant, the botanist and plant collector, a thriftless Irishman and some Portuguese men making for Durban. The extent to which these men were dependent on the Zulus and Tsonga for food and shelter, their trade relations with them, the conflict between the colonial Blacks employed by White hunters and the indigenous peoples, the stream of Zulu refugees heading for the colony, the number and distribution of wild animals are all matters of great interest.

Editorially the document has been well served: an informative introduction, meticulous annotation, a good index and a clear map.

J. L. McCracken


This book, written by Donal McCracken, an historian, and his wife Patricia, a journalist, gives in the short space of six chapters an excellent account of the relationships between the Royal Botanic Gardens, Kew, and the colony of Natal in Victorian times. As a background to the main text, the authors describe the origin and development of Kew with particular reference to the role of a series of directors at that time, namely Banks (unofficial director), the two Hookers and Thisleton-Dyer. They also describe the political and social situation in Natal and emphasize the tremendous interest of the colonists in the botany of the colony. With its subtropical to alpine floras, Natal was indeed a botanical paradise—a fact well appreciated by Kew.

The chapters which follow describe the exchange of plant material between Natal and Kew, which reached its peak between 1866 and 1883. Detailed information is provided on the activities of amateur collectors such as Sanderson, Sutherland, Saunders, Colenso, Bowker and Buchanan and professional collectors (some freelance) such as McKen, Plant, Gerrard and Medley Wood. Consignments of living specimens of the more spectacular Natal plants packed in Wardian cases, seeds and, later, dried specimens were despatched to Kew and in turn Kew sent plants likely to be of agricultural, horticultural or silvicultural value to the colony. Crops such as sugar cane, tea, coffee, tobacco, rubber, cotton and fibre all had their origin in Kew.

The development of the Durban and Pietermaritzburg botanic gardens, founded by the horticultural societies in those two centres, is outlined as well as the establishment of the Natal Herbarium under Medley Wood.

This review would not be complete without a mention of the inclusion of sixteen exquisite paintings executed in Natal by Marianne North, that prolific and world-travelled artist; fifteen of these have not been reproduced before.

As one has come to expect from Robin Frandsen, the publisher, this book is well presented and the colour illustrations are beautifully reproduced. Apart from the misspelling of a number of plant and people’s names and an incomplete index, I cannot fault it. The two authors are to be congratulated on producing a long-overdue book on the Garden Colony of Natal containing a wealth of well-documented information woven into an absorbing and readable story.

D. J. B. Killick


Margaret Brodie Stewart, the Lady Herschel of the letters, was the young wife of Sir John Herschel, brilliant son of a famous astronomer. They sailed to Cape Town with three children in 1834 when she was only 24 years old. During their four years in the Cape she wrote numerous letters to her mother, brothers and cousins overseas, as well as to local friends.
Lady Herschel emerges as an unusually mature, self-sufficient woman, devoted to her socially inept, older husband who she clearly adored. They lived comfortably in charming surroundings where Sir John occupied himself with astronomical observations (which included sightings of both Halley’s and Encke’s comets and findings of numerous astronomical nebulae), camera lucida pictures of landscapes, gardening and investigation of the chemistry of Cape Flora. Lady Herschel made elegant paintings of wild flowers, educated her children and revelled in the beauty of the countryside. Not really in the social swim they nevertheless met all the important visitors to the Cape including Charles Darwin and his Beagle companions.

Her letters are filled with comments on political happenings, since the period of their sojourn was one of great unrest. The emancipation of slaves and frontier warfare led to the Great Trek. The Herschels were admirers of the missionary, John Philip, whose ideals led to disagreement with the Governor, Sir Benjamin D’Urban.

Three more children were born in the Cape, and Lady Herschel took these additions in her stride. She enjoyed wagon trips to the interior (Stellenbosch, Paarl, French Hoek and beyond) with a spirit of adventure, also a horseback ride up Table Mountain. We are even treated to Lady Herschel’s household accounts, listing everything from travel expenses and furniture to tape and buttons.

The Herschels obviously relished the serenity of a place with glorious climate and vegetation. Lady Herschel’s gift for expression and observation as well as a sense of fun give the reader a charming account of their four years at the Cape.

E. SCHOLTZ


A self-taught naturalist and popular writer, Marcia Myers Bonta was surprised to discover that women made important contributions to the study of nature. She prepared the biographical sketches of Women in the field to show their accomplishments. The presence of women in the field is already well-known among historians of natural history, yet Bonta’s sketches provide useful biographical and bibliographic information about American women who observed, collected, illustrated and studied nature. The women ventured into the field mostly, but not exclusively, in the United States.

This collection of sketches opens in the eighteenth century with botanist Jane Colden and closes in the twentieth century with ecologist Rachel Carson. The biographies appear in six sections of varying length—the pioneers, naturalists, botanists, entomologists, ornithologists and ecologists. Botany receives the most attention. Geology is conspicuously missing, with the one exception of Annie Montague Alexander, who took palaeontological field trips in addition to collecting West Coast fauna.

The field workers include informally trained naturalists and those with formal education. Maria Martin prepared botanical illustrations for John James Audubon, and Martha Maxwell of Colorado displayed her bird and mammal collections at the Centennial Exposition in 1876. Mary Treat maintained an insect garden. Ellen Quillin and Mary Sophie Young studied plants in Texas, Kate Brandegee and Alice Eastwood in California, and Ynes Mexia and Agnes Chase in South America. Anna Botsford Comstock, Annie Trumbull Slosson, and Edith Patch investigated insects. Florence Merriam Bailey published a book on the birds of New Mexico and Althea Sherman built a tower for chimney swifts. Ann Haven Morgan studied ponds and streams of New England. Also sketched are Graceanna Lewis, Kate Frubish, Elizabeth Knight Britton, Cordelia Stanwood, Margaret Morse Nice, Amelia Laskey and Carrie Dorman.

This flawed, but useful volume provides colorful descriptions and black-and-white photographs of the conditions encountered during the women’s trips into the field. The text fails to acknowledge similar field conditions, tenuous employment, and marginal professional status of many men working in the field. Bibliographic notes list major publications by and about the respective naturalists, as well as manuscript collections.

ANNE MILLBROOKE


This work was conceived by Elliott, Associate Curator of the Harvard University Archives, as a supplement to his Biographical dictionary of American Science: the seventeenth through the nineteenth century (Westport, 1979). The avowed purpose of the work is to assist scholars in locating basic biographical information on some 2,850 scientists who died prior to 1921, approximately three times the number represented in Elliott’s earlier work cited above. Not meant to present much information on each subject, it provides primarily bibliographical information designed to lead the user to biographical sources on his subject. The intention is not only to lead the user to biographical sources, but to identify the population of scientists in America active prior to 1921.
Elliott feels that “The scientific population listed here is a very substantial portion of the total for the time period, hopefully including all of those of the first rank, a very large percentage of the second level, and at least a representation of some of the personnel nearer to the periphery of the scientific community” (p. xiv). He admits that his ending date of 1920 is somewhat arbitrary, but he defends this on the grounds that it marks the end of the World War I period, and the beginning of an era of substantial growth in American science. Initially he compiled a list of all American scientists deceased before 1941, and found that “by a significant factor” more scientists lived (and died) between 1921 and 1940 than had lived and died in all of American history before 1921. He also felt that twentieth century scientists were fairly covered by American men of science.

In addition to the biographical index the book contains an Index of Names by Scientific Field, and a list of the biographical works cited in the biographical entries.

As with his earlier work, Elliott has again provided historians of American science with an invaluable reference tool. It is an essential addition to all research libraries and to the personal libraries of all who profess to work on the history of science in America.

W. A. DEISS


Phineas Taylor Barnum was many things in a long life: showman and speculator, politician and lottery agent, bank president and newspaper editor. In America his name lives on a century after his death as the middle component of the rod-long name of the country’s premier circus. Most Britons probably know him, if they know him at all, as the Yankee who elephant-napped Jumbo from the London Zoo. He advertised himself as the “Sun of Amusement”, but also admitted to being the “Prince of Humbugs”.

Barnum can be expected to serve as the grateful subject of an established historian of the circus and popular entertainment. A. H. Saxon, let it be said without further ado, has written an immensely readable and meticulously researched biography. For historians of natural history, however, the question is: good books being in such abundance, why should we read one on the “Prince of Humbugs”?

Well, the Barnum Museum of Natural History at Tufts University is a princely legacy. “For all his reputation today as a ‘circus man’,” Saxon writes (p. 112), “Barnum was always and foremost a ‘museum man’.”

His “American Museum” in New York (not to be confused with the American Museum of Natural History established in 1869) was “probably the largest and most comprehensive establishment of its kind in America” (p. 92). Barnum’s kind included at times such rum exhibits as the “Feejee mermaid” and the “Wooly horse”, but the legitimate natural history collections were impressive (if not always optimally labelled). His museum also maintained a large menagerie in the upper storeys that housed even a rhinoceros and America’s first hippopotamus, as well as the country’s first public aquarium. Barnum also ran museums in Baltimore and Philadelphia and an aquarium in Boston.

Barnum’s story is one of popular natural history, as well as of popular entertainment. And Saxon tells it well. His book is generously illustrated with plates of contemporary photographs and period advertisements. The earlier Selected letters of P. T. Barnum, edited and introduced by Saxon, includes additional pictures. As the title implies, the letters, some 300, were all written by Barnum. It might have been interesting to read some of the replies to certain letters but the space allotted the editor, he legitimately allotted Barnum. Both books have an index of persons only, but at least elephants are considered “persons”. And the biography does have an index of subjects under the heading “Barnum, P. T.”. The book is useful as a reference.

H. REICHENBACH


Minetta Altgelt Goyne gives us an excitingly interesting account of Lindheimer’s life in Texas, based upon his (fully reproduced and translated) letters sent to George Engelmann between 1841 and 1847, supplemented by carefully compiled notes and additional information.

Long ago, the plants collected by Lindheimer for his excisscata, ‘Flora Texana’, were listed and described by Engelmann and Asa Gray in Plantae Lindheimerianae (1845–1850). Goyne’s carefully established bibliography and exhaustive indexes permit the reader to find a wealth of additional comments on many of these plants, originally intended as sources of information for the descriptions and accompanying notes of Plantae Lindheimerianae.
The correspondence covers only 1841 to 1847; later letters (Lindheimer died in 1879, Engelmann in 1884), not represented among the holdings of Missouri Botanical Garden, are not dealt with. But there is no evidence that the correspondence came to an untimely end. However, the edited letters cover nearly exactly the period of Lindheimer’s most intensive collecting. Naturally, they contain ample and sometimes lively comments and descriptive notes on plants, among them cacti, yuccas, penstemons, the Texas yellow star (*Lindheimera texana*), the lovely *Gaura lindheimeri*. Interspersed with this wealth of botanical information are news and private communications. Inevitably, there is a certain casualness; Lindheimer certainly had not the slightest intention to see, one day, such personal documents published in order to produce a biography. But, in reading these old letters, the excitement of discovery once felt by this intrepid and courageous explorer is ours, as when we follow his tracks in quest of the ‘Flora Texana’, besides pages on personal problems and everyday life in Texas in the 1840s.

Like many political immigrants from central Europe, Lindheimer ventured into journalism and became publisher and editor of *Neu-Braunfelser Zeitung* in Texas; this and his involvements in political and public life are dealt with in the final chapters of the book which, as a whole, must leave its sensible reader full of admiration for this ‘defender of humanity and friend of human rights’ whose intellectual capacities successfully combined the spirit of a pioneer and explorer with a deep love and understanding of nature and the ‘scientia amabilis’.

To sum up, a phrase published on the cover of the book may be repeated because of its most fitting statement about the volume and the author of these letters, Ferdinand Lindheimer: ‘His wealth of experiences and pointed observations make this a story that will intrigue botanists, Germanists, historians, and Texans everywhere.’

H. HEINE


There is a story about Rafinesque and the ornithologist John James Audubon. On a visit to Audubon, Rafinesque is reported to have awakened his host late at night by crashing around his bedroom. When Audubon rushed into the room, there was his naked visitor, his host’s violin in hand, chasing bats around the bedroom and claiming that they were a new species. Some claim that the violin was a Stradivarius, but Audubon said it was a Cremona. Audubon got even by giving Rafinesque the details of a dozen local undescribed (and fictitious) species of fish, which Rafinesque then described as new (with drawings). Thus is Rafinesque looked upon as a fool by all who know Aububon’s story. He may have acted foolishly at times, but Rafinesque was no fool.

Cain’s book is a translation into English of three of Rafinesque’s earlier works and part of a fourth, from 1814 and 1815. They all bear on his taxonomic philosophy and classification of nature. *Specio delle scienze* (Mirror of the sciences) is an introduction to the journal, with a discussion and classificatory outline of natural history. *Précis des découvertes et travaux somiologiques* (Epitome of the somiological discoveries and works) expands the classificatory outline and describes new taxa of plants and animals. Many of the plants at least are well enough described to be identifiable today. ‘Somiological’ is synonymous with ‘organic’. *Principes fondamentaux de somioLOGie* (Fundamental principles of somiology), dedicated to Linnaeus, is an attempt to produce an updated version of the latter’s *Philosophia botanica*. It deals with the principles of nomenclature and of classification. *Analyse de la nature* (Analysis of nature) again attempts to bring Linnaeus up to date. It is a new version of *Systema naturae*, covering from cosmology to genera, with all classificatory categories defined, subdivided and discussed.

Cain has done a great service by bringing these works to our attention. They must be read in order to understand Rafinesque’s taxonomic publications, which otherwise may appear rather bizarre to the twentieth-century scientist. These publications are especially important to North American botanists and zoologists. Unfortunately for Rafinesque, his contemporaries were more concerned with his large ego than with his possible contributions to science, and little attention was paid by them to his works.

D. M. PORTER


Unlike the tropical regions of South America, Patagonia is so hostile and uninviting that it remained unexplored until the last century. Darwin in the 1830s was the first European naturalist to explore there.

Not until the 1880s and 1890s did Argentinian based scientists make extensive fossil bone collections in Patagonia. Following their discoveries, it was felt at Princeton that the USA ought to have a collection of these extinct monsters; hence Hatcher was dispatched with financial backing from Pierpont Morgan to remedy the deficiency.
John Hatcher was a farmer's boy from Iowa who, with the aid of scholarships, got to Yale. His forte lay in fieldwork and this book comprises a narrative of the expeditions, mostly the first which was the longest and most successful of the three he ran between 1896 and 1899. Although Argentinian laws in Hatcher's time (and now) prohibit the export of fossils, he seems to have had no difficulty in circumventing the law, even while enjoying the company of the local governor, though noticeably avoiding the director of the national museum in Buenos Aires.

Hatcher gives vivid accounts of the altiplano with its sparse vegetation and fauna, its cold winds and hardships, made worse by his obstinacy in travelling during the southern winter and over long distances solo with little food and no spare horse. I cannot help feeling, as I do with Scott's narrative of polar exploration, that with better planning he could have achieved more and with greatly reduced hardship. The first expedition did make an enormous collection of fossils but the second and third expeditions produced very little scientifically at the expense of prolonged suffering. It is all very heroic, but as Scott was not Nansen, so Hatcher was not Darwin.

The book lacks two vital ingredients to make it historically useful. Without a large scale map of Hatcher's journeying it is impossible to follow the text. Without an index it is impossible to cross-check.

R. J. G. SAVAGE


The author's interest in navigation began with his service as a World War II Royal Navy instructor and has since broadened to include matters relating to Pacific exploration.

His book begins by explaining early Polynesian navigational methods and how by the aid of natural phenomena (wave patterns, celestial movements and bird migration) they came with simple sailing craft to populate the scattered Pacific island groups.

When Europeans first explored that ocean in the sixteenth and seventeenth centuries they came with a more advanced ship design in their carracks (Spanish) and caravels (Portuguese). They also had use of the astrolabe, quadrant and cross-staff to measure altitude of the sun and subsequently determine latitude together with the early compasses with which they could navigate.

By the early eighteenth century ships had become galleon-type and navigational instruments refined. The astrolabe, etc., had been replaced by the sextant and the log-line (for estimating the ship's speed) and precision time KEEPERS (chronometers) had by then both been invented. All these together enabled latitude and longitude to be calculated fairly accurately.

After describing the achievements of Magellan, Drake, Dampier, Tasman and others in one chapter, the author then deals with the eighteenth century voyagers, both French and English, in more detail. Bougainville and La Perouse get a chapter each. Cook, whose three voyages contributed more to Pacific history than any other, has been allocated six chapters. These are followed by one in which Vancouver's charting of the Pacific Northwest American shore is explained. The investigations made at the turn of the nineteenth century by Baudin, Flinders and Dumont D'Urville around the Australian coastline are then described in Chapters 17-19. The final chapter deals with the achievements of the Russians Bellinghausen and Kotzebue, together with those of Darwin in Beagle.

The various appendices are topped with a sizeable bibliography and the whole book well illustrated with reproductions from early published voyages along with some modern photographs, both in colour and black-and-white.

A pleasing book to read and one that can be well recommended to any reader wishing for an overview of Pacific exploration history, before perhaps moving on to the more detailed literature that has become increasingly available on the many explorers mentioned.

E. W. GROVES


The name of Hiroshi Hara is, perhaps, better known in the West than that of almost any other contemporary Japanese botanist. That his reputation is on a par with those of Jisaburo Ohwi, Fumio Maekawa and even the 'Father of Japanese botany', Tomitaro Makino, has resulted largely from his collaborative work on the Himalayan flora.

In a short foreword, W. T. Stearn emphasises the considerable collaborative effort that underpinned many of Hara's publications, in particular those on the flora of Nepal. The historical association of the British Museum (Natural History) with Himalayan botany dates back to Buchanan-Hamilton and Wallich in the mid-nineteenth century. It was at Stearn's suggestion that the co-operation between Hara and his colleagues in Japan, and staff of the Natural History Museum in London was established. The joint publication, between 1978 and 1982, of the three-part Enumeration of the flowering plants of Nepal was the outcome.
It is clear from the present publication, however, that Hara’s high profile in Himalayan botany represents only one facet of a most productive life. Indeed, in Stearn’s words, Hara “stands with Tomitaro Makino and Takenoshin Nakai as one of Japan’s foremost botanical taxonomists.”

A chronology of Hara’s life is divided into sections on his personal life and career, his academic activities and his fieldwork. A full list of his publications starts with a note for his high school scientific society’s journal, written at age 17, and extends to 60 pages. In the course of this prolific activity, he was responsible for some 2,400 new botanical names and combinations, the citation of which occupies a further 141 pages. A 22-page list of new Japanese vernacular names proposed by Dr Hara illustrates the methodical nature in which the Japanese apply such names, something not always appreciated in the West. A comprehensive index to genera concludes the book.

This Catalogue stands alongside Hara’s own publications as an appropriate memorial to a great botanist.

P. G. BARNES


Dr Winifred Curtis is synonymous with Tasmanian botany; her as yet incomplete The student’s flora of Tasmania (1956–1980) is the only available handbook of the island’s vascular plants, while the six magnificent volumes of The endemic flora of Tasmania (1967–1978), with illustrations by Margaret Stones, form a florilegium of outstanding importance to botanists in Tasmania and horticulturists in western Europe; that the work was subsidised by an Irish plantsman is a matter of considerable pride in my country.

This festschrift includes a bibliography of Dr Curtis, a Londoner who studied botany with Francis Oliver at the University of London. Miss Curtis was appointed Demonstrator and Research Scholar in the Biology Department of the University of Hobart in 1939; she was promoted steadily until by 1956 she was appointed Reader, and is widely acknowledged to have been an outstanding teacher; she retired in 1966. Her unequalled knowledge of Tasmania’s flowering plants is now recognized in such diverse taxa as Winifredia Johnson & Briggs (a monotypic genus of Restionaceae from Tasmania), Epilobium curtisiae Raven (Onagraceae), and Richaea curtisiae A. M. Gray (Epacridaceae).

The bulk of this book comprises taxonomic papers, dealing with Tasmanian plants from fungi to Eucalyptus, and as is often the case many of these have historical biases—for example, Monks and Mills note the rediscovery of a fungus Camarophyllus rodwayi (Hygrophoraceae) originally described by George Massee in 1899. There are several contributions which treat the vegetation of important regions such as the Tasmanian World Heritage Area—these also contain historical notes. The principal historical contribution is Dr Sophie Ducker’s chronicle of Ronald Gunn’s visit to Port Phillip in 1836, including a transcript of Gunn’s diary for the voyage which started at Launceston (Tasmania) on 19 February 1836. Gunn landed on several islands in Bass Strait and everywhere noted plants and animals.

E. C. NELSON


This somewhat eccentric book will be of great value to all those interested in the techniques of seventeenth-century microscopy. The core of the work—and its very original and intriguing contribution—is a report describing the results of the many labours undertaken by the author in examining the specimens prepared by Antoni Leeuwenhoek in the seventeenth century (which Ford discovered at the Royal Society over a decade ago; his initial report is in Notes and Records of the Royal Society, 1981). Ford is especially to be commended for having made clear photographs of the specimens through original Leeuwenhoek instruments, modern single lens devices, and compound and electron scanning microscopes. The author also presents detailed information, including physical descriptions, of the letters in which the specimens were contained. An additional descriptive section examined in detail the Leeuwenhoek microscopes, both those lost from the Royal Society in the 1820s and those still extant. What he says about the making of the microscopes is plain, and on how Leeuwenhoek made his lenses Ford follows the excellent work of J. van Zuylen (Journal of Microscopy, 1981): on p. 179, Ford even has one of van Zuylen’s drawings redone. From the physical evidence, he proves beyond a shadow of a doubt that Leeuwenhoek was indeed an excellent investigator, who could not only see the things he said he saw, but prepare instruments and specimens with remarkable deftness. This reviewer is not competent to judge whether Ford has milked every bit of data possible from the specimens, but it certainly appears to be the case. To take just one observation: electron scanning of the specimen of elder pith revealed erythrocytes; these must have come from Leeuwenhoek himself via the shaving razor which he used to prepare the sample, suggesting that he shaved with a dry blade.
But the part of the book that ranges beyond a close inspection of the physical evidence is less convincing, mainly because the author is less familiar with Leeuwenhoek's Dutch milieu. In the first major chapter (after an introduction paying homage to Clifford Dobell, Leeuwenhoek's most thorough English biographer) Ford builds a case all his own: that "the Dutchman's earliest work with microscopes was directly inspired by" Robert Hooke's *Micrographia*. His best evidence is the specimens of cork, pith of elder, quill, and optic nerve sent to the Royal Society in a letter of 1674. Ford noticed that these are all items discussed in Hooke's *Micrographia*, in the same order. He would be convincing if he argued that in this letter (Leeuwenhoek's fourth to the Royal Society), the Dutchman carried on a dialogue with Hooke's work. But he stretches his case further, arguing that Leeuwenhoek must have become captivated by Hooke's book when he visited London around 1668, and therefore that it was the direct inspiration for his microscopy. As Ford himself is aware, however, Leeuwenhoek's microscopical studies began in the early 1670s rather than just after his visit to England, and his first three letters contain no clear or implicit references to Hooke's work. According to Jan Swammerdam's *Bijbel der Natuur*, Leeuwenhoek learned to make a single lens microscope from Johannes Hudde, an Amsterdam burgomaster, and then improved upon Hudde's method. Perhaps Hudde himself was inspired by Hooke's book. But the only way of knowing will be to investigate Dutch microscopy further. For anyone interested in Leeuwenhoek's microscopical technique, however, Ford's book will be a 'must read' and a standard reference.

H. J. COOK


First published in 1952, the present volume includes most of Goethe's writings on botanical subjects together with several essays illustrating his views on the theory of science as a general background. It is divided into three main parts, the first comprising Goethe's morphological writings, the second his own accounts of the history of his botanical studies and the third the general essays mentioned above.

In the first part, the well-known treatise on the metamorphosis of plants of 1790 is followed by shorter occasional papers mostly written during the last years of his life, among which those on the spiral tendency of plants discovered by C. F. P. von Martius expand and to a certain degree complement his original ideas.

In the second part, one of the two longer contributions relates Goethe's development as a morphologist, the other dwells upon the influence of his writings on subsequent publications by other authors. The last part discusses several traits in contemporary philosophy, natural and other, but also includes critical comments on the value of experiments and their interpretation along with a number of other topics.

It is not easy for a translator to deal with a terminology, which was not fully developed at Goethe's time and therefore not as precise as one would expect from a later author, without a great deal of personal interpretation. Bertha Mueller, in general, succeeded in making her translation as clear as possible, while keeping as near to the original expressions as could be done; she produced a comparatively easily accessible English version of Goethe's text which is often difficult enough to understand even for one having German as a mother tongue.

The book can be recommended to everyone interested in the history of biological ideas and concepts who wants to draw information from original sources at the crest of morphological thinking in a tradition that is often considered as specifically German.

CHRISTA RIEDL-DORN


When I began reading this book I was unfavourably disposed towards one of its central premises—namely that there was a distinctively Darwinian plant ecology in the nineteenth century. It has been maintained by several commentators that the emerging science of ecology owed a significant debt to Darwin. But this argument has never been fully articulated, and has often seemed to stem merely from an assumption that a substantial link must have existed because of the apparent similarity between the subject matter of ecology and many of Darwin's concerns. How could early ecologists not have been inspired by such a seminal figure in a cognate field? There was, however, always the inconvenient fact that, while they accepted the theory of descent, many pioneer ecologists were avowedly Lamarckian with regard to the mechanism of evolution. Moreover, ecology became a self-consciously distinct discipline at precisely the time when Darwin's reputation and the popularity of his theory were at their nadir. Cittadino, however, convincingly demonstrates that an important group of late nineteenth-century German botanists were indeed avowedly selectionist and that their work was a significant contribution, if not to ecology per se, at least to the specialities from which the new science was derived. Stahl, Haberlandt and their colleagues form a bridge therefore between *The origin of species* and studies which one can regard as self-consciously ecological.
The central argument of the latter part of the book is that the appearance of a formal science of ecology in the early twentieth century can be viewed "as the result of an integration... of the causal-functional approach to botanical science (as embodied in the work of Haberlandt et alii) with the phytogeographical tradition of identifying and classifying natural plant communities."

Cittadino's essay on botany in Germany, 1850-1880, fills in the background nicely and will be a useful source for further work in this area. Perhaps the book loses direction and becomes a little repetitive toward its end—but overall Nature as the laboratory is a very readable and well-constructed text, which no one interested in the history of ecology can afford to ignore.

M. NICOLSON


Anton Dohrn (1840-1909) was founder of the once world-famous zoological station at Naples, "a permanent international congress of zoologists."

Heuss's book has a long history. In 1900 Dohrn himself started to write the history of his own work. His widow continued, but after she died in 1918, the material was lost until 1939. Heuss completed the book in 1942; a second edition appeared in 1948, was reprinted in 1962, and has now been translated.

Dohrn started his studies in biology in 1860. Haeckel's lectures on Darwinism had a decisive influence on him. In 1865 Dohrn accompanied Haeckel to Helgoland, his first encounter with marine life. In 1867 and 1868 he went to visit David Robertson in Millport where Robertson's summer house was used for biological observations of marine animals. Transportable aquaria, brought from England, were used in Messina in 1868, where Dohrn started planning the building of a permanent station for marine zoologists.

After his father refused to provide Anton's part of the heritage for the building of this station, Dohrn got the bright idea to combine it with an aquarium open to the public to cover the costs. Naples would attract more visitors than Messina. Despite many problems the station was opened in 1872. Another invention by Dohrn was the so-called working tables to be hired by different nations to enable their biologists to work in Naples. This proved most fruitful for the success and international position of Naples station.

This book clearly indicates that the foundation of the Naples station needed the perseverance and diplomacy of a man like Dohrn. Its success paved the way for marine stations all over the world, yet Naples remained the meeting place for marine biologists for many years.

Written as a classic 'life and letters', A life for science may prove too detailed for the modern reader, but it gives an excellent description of an interesting scientist in touch with the leading biologists of his time. Added are chapters on the history of the station after Dohrn's death to the early 1980s. This is a welcome addition to the history of marine science.

G. C. CADÉE


This is a very readable book that draws together the considerable developments that have taken place in the last twenty years in genetics, evolutionary theory, and molecular biology. It is written in a lively way, full of anecdotes and stories about the people involved in the subject, a book that looks backwards to the ideas and discoveries of the past as much as it points towards the exciting potential of genetic engineering; a book that is prepared to speculate about the possibilities of resurrecting the dinosaurs at the same time as pointing out that the American physiologist Walter Cannon developed his ideas about homeostasis while working as a field doctor with the American Expeditionary Force in 1918. Indeed the title of the book is adopted from Cannon's classic The wisdom of the body. Cannon was concerned with the homeostatic mechanisms that lead to the survival of the body. Wills's book is concerned with the mechanisms that lead to the survival of the genes, the accumulated 'wisdom' of billions of years of evolution. Wills himself introduces the idea of evolutionary facilitation, the idea that in evolutionary time genes themselves have evolved, that they have been shaped and arranged in a way that increases the likelihood that adaptive mutations will arise. He describes packages of genes as molecular tool boxes, containing jumping genes, supergenes, and building block genes, tool boxes that facilitate the processes of evolution. It is a small criticism of the book that perhaps this central idea is not given as much emphasis as it might have but crops up throughout the text. The very breadth of the book and the diversity of the topics that it includes mean that some things are covered in a rather brief way, but this does make it a book that can be dipped into again and again and read with enjoyment a few pages at a time. For anyone who wants to know just how modern genetics and molecular biology contribute to our understanding of evolution this is an essential text.

R. RALPH

Don Gifford lives in Williamstown, Massachusetts, and is a Professor of English. The farther shore arose from seminars he gave in Williams College to undergraduates studying English and American literature.

The chapters are essays which interrogate the distance between the past and the present, through comparison of the world as recorded by those whose powers of observation of the natural world and whose skill as writers set them apart—Gilbert White, Henry David Thoreau, in particular. Gifford addresses a gauntlet thrown down by Edith Cobb—"What we need in ecological studies is a natural history of perception." The arbitrary year 1798, when Malthus's Essay on the principle of population, Wordsworth and Coleridge's Lyrical ballads were published, is his starting point, and Gifford brackets that "farther shore" with the closing years of the 1980s. White and Thoreau are "benchmarks".

This is not an history of natural history, but a series of elegant meditations. There is much herein that is thoughtfully provocative. Possibly Gifford's most provocative statement is that "In the last half of the eighteenth century, natural history at its best involved both science and poetics. The history of natural history begins with an unselfconscious fusion of the two in the person of the father of English natural history, Gilbert White."

How often do we bear in mind the 'distances' that separate us from our predecessors (our subjects, as historians of natural history)? The 'habitats' of Homer and White had more in common, suggests Gifford, than ours has with White's; his was still a world when people travelled at little more than walking pace, and information came into Selborne at the same speed; today we are governed more by the speed of microwaves. White's world was marked by the seasons—the annual sequence of vegetables and fruit from local gardens, for example—whereas in ours that seasonality is dissipated, little more than a different scatter of symbols on the television weather forecast. Gifford muses about the effects of, for example, the advent of photography (on the eye) and the telegraph (on the ear), and changes in perception of time (what is an antiquity?), and on the effects our inventions had on our understanding of the natural world.

I commend The farther shore; it is laden with 'food for thought'.

E. C. NELSON


"I looked into Comte some years ago, and soon found he was one of those creatures that bind the universe up into bundles, and set them all in a row like stooks in a field—one of those fellows who go up in a balloon with a lantern to examine the stars. I was soon done with him."

So Thomas Carlyle berated Auguste Comte, the philosopher who practised 'cerebral hygiene' (not wanting his thinking to be contaminated by others). George Henry Lewes, himself a disciple of Comte, was in turn criticized by the irascible Carlyle as a "being with more sail than ballast." Jane Carlyle, however, avidly read George Eliot's novels, taking the precaution of borrowing them from the London Library under the name of their (the Carlyles' and the Leweses') mutual friend, Erasmus Darwin!

What an intricate network of big names and achievements, Victorian preoccupations and Victorian scandal, Rosemary Ashton's biography explores. One would not expect the consort of the author of Middlemarch to be a nonentity. Only now, however, in this admiringly documented and judiciously argued portrait, is Lewes's energy, versatility, generosity, properly recognised. The man prepared to allow registration in his name of his wife's four children by Thornton Hunt (son of Leigh Hunt) was, by this uncensorious condiment, prevented from lawfully marrying Mary Ann Evans. Yet not only did he nurture her genius: in his own right he was a respected editor and author (A biographical history of philosophy and The life . . . of Goethe are his most successful productions) who moved as friend and intellectual equal among such scientists as Herbert Spencer, Richard Owen, T. H. Huxley, and Charles Darwin.

Those who enjoy their science and literature in the form of novels should contrive to read A. S. Byatt's Possessed: its fiction contrasts with Ashton's biography of Lewes, but each, in its handling of data, illuminates the other.

MARGARET GRAINGER


Quarterman Publications is to be congratulated on reprinting this book, tantalisingly unobtainable for about a century. It is a dissertation in delightfully readable form about the seven drugs used to induce sleep and/or intoxication. Opium, hashish, betel nut, cocaine, belladonna, the fly agaric fungus Amanita muscaria and, the author's own favourite weed, tobacco. Comments on use and misuse of these drugs are so topical it is difficult to remember that the book was published in 1860.
Cooke was an extraordinary polymath in natural history whose mission was to bring this knowledge to the people through publications and museums. In his time there were great advances in the understanding of natural medical material, Materia Medica; the first university chair in the world was established in Edinburgh where Sir Robert Christison worked on alkaloids. One of Cooke’s many quotes from Christison tells of a ‘female who had taken about a dram of solid opium daily for 10 years’ but died of consumption! A chapter on snuff has the surprising information that the best boxes were made in Laurencekirk, Angus, Scotland, but a box with lead lining could prove lethal owing to the formation of lead acetate.

In an appendix Cooke gives some hard facts—between 1857 and 1858 the Hon. East India Company’s profits from opium were over £5 million. Strangely the archetypal toadstool, the fly agaric is given little attention since it is for Cooke’s work as a mycologist after 1860 that he is best remembered. His descendant, the distinguished mycologist, Dr Mary English recently published an excellent biography of this Victorian naturalist, mycologist, teacher and eccentric and aroused new interest in The seven sisters of sleep, a book not only for mycologists and anthropologists but, as Cooke wished, for everyone.

MARY NOBLE


This unusual volume presents an attractive and highly personal account of the biomechanics of large fossil vertebrates. McGowan examines aspects of the locomotion, feeding and physiology of dinosaurs, ichthyosaurs and pterosaurs. It is an updated, enlarged version of his The successful dragons (1983).

The book is by no means a comprehensive textbook on the Mesozoic reptiles, indeed, it has little to say on phylogeny, diversity, or environments, and it excludes many groups, such as thecodontians, nothosaurs, plesiosaurs, placodonts, mosasaurs, turtles, crocodilians, mammal-like reptiles, mammals. The aim of the book is to present some aspects of the ways in which palaeontologists interpret ancient reptiles that lack obvious close modern relatives. The techniques include analogy and simple mechanical analysis, hence the ‘spitfires’ of the title.

McGowan pulls it off well. He weaves nuggets of the history of early collectors, stray observations on the remarkable skeletons—soft tissue preservation in ichthyosaurs, evidence of broken and healed ribs in a dinosaur—together with attractively argued presentations of basic mechanics—stress, strain, elasticity, aerofoils, fluid flow, drag and so on. Because of his own interests, twenty years of research on ichthyosaurs, he is best on that group, and it is refreshing to have over 70 pages devoted to them, a rare luxury. Here, we learn of the early debates, up to 1820, about what ichthyosaurs really were, how modern geochemical studies suggest that they had a layer of insulating fat beneath the skin (like whales today), their fish-like mode of swimming, evidence for a diet of belemmites and fishes from gut contents and coprolites, and the numerous astonishing fossils of females carrying embryos at all stages of development.

Another recently-published book, Alexander’s Dynamics of dinosaurs and other extinct giants (New York: 1989; see Archives of Natural History 19 (1992): 123) has similar aims, but the two books complement each other. McGowan has more space to explore the interesting byways of vertebrate palaeontology and to consider the consequences of some of the biomechanical principles while Alexander has concentrated on a crisp presentation of selected ideas from his own work in a kind of undergraduate tutorial primer. My regrets with McGowan’s book are that he has relatively few pictures of dinosaurs and that he did not apply his pen to the plesiosaurs and some other contemporaries of the dinosaurs and ichthyosaurs. A stimulating book for anyone with biological or palaeontological leanings and the best readable introduction to biomechanics.

M. J. BENTON


In the preface to this admirable book, David Norman notes that the authors have combined two subjects that feature at the top of most interest lists—certainly those of small boys! Its publication was induced by the mistaken commemoration of the introduction of the word “Dinosauria” by Richard Owen in 1841.

Most of the book is devoted to an alphabetical, by country, catalogue of all stamps depicting fossil Reptilia and Amphibia—not just Dinosauria sensu stricto. A chronological checklist, zoological indexes, a useful bibliography and even a small feature on cigarette and trade cards, cater for other approaches. Dinosaur aficionados can enjoy themselves recognising the original sources of the designs, or emulate Dr Norman and carry out his ‘self-test’ in searching for errors of anatomy, or nomenclature. Falling in neither category, my delight was to discover the cartoon Flintstones and their pet ‘Dino’ on stamps from Mongolia and St Vincent!

Stuart Baldwin, with friends and colleagues, must be congratulated on this comprehensive, colourful book. With little technical knowledge of philately, particularly the development of thematic collecting and its more recent exploitation by political and philatelic agencies, the authors’ palaeontological background
has ensured that this compilation should satisfy everyone interested in dinosaur stamps. Even if modern electronics cause the extinction of youthful philately, this book will always remain a useful addition to any library of dinosaur publications.

Just to be sure you do not miss out on a possible rarity, send off for a copy at once—at the very least, you will be contributing to the future of British geology, for all royalties go to the Halstead Memorial Fund.

R. CLEEVELY


From childhood, I remember Glasgow as a dark, rather forbidding place, apparently not at all promising botanically. These early impressions are totally dispelled by this book.

The book is in three parts. In the four-chapter introduction, the “Glasgow area” is defined, and divided into 90 4 × 4 squares for botanical surveying. Patterns of distribution, unconventionally termed “easy-goes”, “country cousins”, etc., are mapped, described and explained. Lively pen-portraits are sketched of the life and work of key past students of the Glasgow flora: Rev. David Ure (“the walking laboratory”), Thomas Hopkirk, Roger Hennedy and John Lee.

The nine chapters of Part II describe “Selected plants of special habitats”. Besides woodlands, gardens, golf courses and wetlands, the habitats include the sort of places city-dwelling botanists delight in exploring: waste ground, canals, railways and “bongs and coups” (respectively known to non-Scots as spoil heaps and rubbish tips!). These chapters are a mine of information, enlivened by anecdote. Nuggets abound: the heart of Glasgow is a stronghold for two orchid species; Dalmarnock and Galilee have two species in common (black mustard and fig)! Thought-provoking questions arise frequently. Why does common bistort grow profusely in cemeteries established in the mid-nineteenth century, but not in those of earlier or later date? Has hemlock arisen at High Street from 250-year old seed dating back to when the University Garden was there?

This is a unique book, by a native Glaswegian obviously enthusiastic about his local flora. Well printed, and exquisitely illustrated by paintings and colour photographs, it is of especial interest to those who know Glasgow. However, every urban botanist will be stimulated to look at his own city’s flora with new eyes. Humans falling into Dickson’s “country cousin” category will discover that our cities are botanically alive and evolving. A delightful book.

R. R. MILL


In 1591 the British Isles gloried in six universities, two in England and four in Scotland. In late December of that year Queen Elizabeth authorised the founding of a college in Dublin. Four hundred years on writers in this volume survey some of the achievements.

Two years after its founding, there entered the College as a 13-year old student, James Ussher. He later became a great scholar, bibliophile and Archbishop of Armagh. We remember him for his calculation, based on biblical records, of the creation of the world in 4004 BC. Trinity College, Dublin, remembers Ussher for his library which it acquired. The collection put Trinity in the forefront of academic institutions; among its many illuminated and medieval manuscripts is the greatly cherished Book of Kells.

In 1835 the British Association met in Dublin and the university conferred an honorary doctorate on William Smith, the father of English geology—the only academic distinction he ever received. Nineteen years later a chair in geology was founded and the first occupant was Smith’s nephew John Phillips. As Gordon Harries Davies records, Trinity has since then had another ten professors and all but three have been Fellows of the Royal Society.

Neither botany or zoology are recalled, which is sad considering the contributions made by Trinity graduates. Oliver Goldsmith was a student between 1744 and 1749; twenty years later he published his History of animated nature and his statue adorns College Green.

While the College is fortunate to have remained on the same site for 400 years and erected splendid eighteenth and nineteenth century buildings, the gardens have not been so fortunate. Charles Nelson records how in the eighteenth century the gardens supplied the fellows with plentiful cabbages and artichokes while the physic garden held a wide range of species. About 1790 the garden was moved away from the campus, though on its Ballsbridge site under Mackay it had an international reputation, especially for its South American and Australian plants. The present century has seen its eclipse, with the National Botanic Garden at Glasnevin taking its place.

Ireland has played an important role in natural history studies and Trinity graduates have been key figures throughout. This college history is a well illustrated record (save for the maps) of those events.

R. J. G. SAVAGE

Oíche na Gaoith Móire, The Big Wind, blew across Ireland on the night of Sunday 6 January 1839. Perhaps as many as 300 people were killed, fewer by millions than died during the Great Famine of 1845-1848: a deadly wind is still a thing that no man can prevent, whereas a famine is a disaster that is entirely preventable or, at the very least, can be alleviated.

In recent years, meteorologists have reconstructed the sequence of events that created this storm (see e.g. Shields, L. & Fitzgerald, D., 1989 The night of the Big Wind in Ireland 6–7 January 1839. Irish Geography 22: 31–43). A deep depression (2,725 mm) west of the Hebrides was its principal cause; the wind gusted ferociously, and the storm reached its height about 2.00 a.m. on 7 January. Trees were felled by the hundreds of thousands, thatched houses burst into flame, boats were wrecked, children and farm animals (especially hens) were "blown away", crows were virtually exterminated in many counties.

Peter Carr has assembled contemporary newspaper accounts of the Big Wind; they make fascinating reading, not just for the matter-of-fact statements about deaths and damage, but also for the use of language—trees were "prostrated", but a policeman (sheltering outside the Botanic Gardens in Dublin) was "crushed", emphases that betray contemporary priorities, trees being more important than buildings, and buildings more valuable than people.

No one now can quantify the damage that this one storm caused, but it is still remembered. The Big Wind is part of Irish folklore—in 1909 when pensions were introduced for the over-70s, "if you could remember the [Big] Wind or put up a reasonable show of having been around at the time, you qualified for the ‘pinchin’" (128% of the eligible people in Ireland qualified!). Will the storm of 1987 be remembered by the English, except for its outwitting of the meteorologists? I think not. After all, the English cows survived.

E. C. NELSON


Bias of some kind is inevitable in any history book and A history of Irish forestry is no exception. That much of the historical account here is the result of lengthy and painstaking research of original documentary sources is without doubt, but passage through the social and cultural filter of one individual is equally apparent.

The book is divided into two main sections supplemented by a collection of short appendices dealing with specific items, and copious notes and references. The first section concerns the historical background, covering the 2 million years to 1900 with inevitable concentration on the more recent part of that period! Historical accounts from the Norman period to the nineteenth century are generally well researched and readable though each chapter would benefit from a closing summary to tie together key events. The opening section dealing with the geological and geomorphological background and sections drawing on archaeological sources are, by contrast, rather simplistic and prone to error especially where scientific detail is concerned.

Part two deals with forestry in modern Ireland presenting a chronological coverage of the present century together with some closing thematic chapters. The historical material is very readable and draws on a wide range of material to examine bureaucratic and political influences on forestry, though it is perhaps generous on length and occasionally repetitive. Where the author considers environmental issues, however, a distinct impression of pro-official policy and 'pro-conifers' bias emerges and contrary views, though presented, are dealt with narrowly. The short section on global environmental issues in the closing chapter is again somewhat simplistic and lacking in scientific rigour and could have been omitted.

Overall this is a readable book that presents much useful information. However, those with sympathies towards 'broad leaves' and the wider environment would be well advised to consider the cover illustration carefully before venturing inside.

R. ALEXANDER


This xerox facsimile comprises 32 pages from Dr John Rutty’s An essay towards a natural history of the county of Dublin (Dublin 1772), with a modern introduction, index and concordance to botanical names. The extract is Rutty’s account of some dye-yielding plants employed in Ireland during the latter part of the eighteenth century. Dr Hill’s introductory essay gives details of Rutty’s life—he was a native of Wiltshire (b. 1698, d. 1775), a Quaker, a graduate of the medical school at Leiden who was promoted for his docto-
rate by Hermann Boerhaave. Rutty settled in Dublin in 1724 and practised as a doctor in Dublin; he was an active field botanist, yet an eccentric recluse.

The Department of Continuing Education, Bristol, produced this facsimile cheaply, but that is not a criticism; it is a very adequate A4 booklet, with historical commentary and enlarged facsimile pages. There was no need to spend more on a plusher book.

E. C. NELSON


Willem Daniel’s translation of Olivier Langrand’s Guide to the birds of Madagascar is an outstanding work which should prove not only of value, but also of great interest to ornithologists in the English-speaking world.

Two main points should perhaps be stressed about this work: its good review of the fascinating bird life of Madagascar, and the inferences which can be drawn from it about the affinities between the ornithological faunas of Madagascar and of the archipelagoes of the south-west Indian Ocean. It should therefore engage the attention of ornithologists studying the birds of the Comoros, the Mascarenes and the Seychelles. As far as the Seychelles are concerned this book is of great interest in retracing the affinities between the birds of the Aldabra atoll, a UNESCO World Heritage Site since 1982, and those of Madagascar.

This excellent edition should therefore be prized by all ornithologists.

G. LIONNET


Subscription correspondence to Editions Rodopi BV, Keizergracht 302-4, 1016 EX Amsterdam, Netherlands.

Tractrix is the journal of the Dutch Society for the History of Medicine and Science; like Archives of Natural History it is issued free to members. While the emphasis is on papers about Dutch science and medicine, this journal accepts articles on these subjects from other nations. The issue sent for review, volume 3, contains five papers (occupying more than 170 pages), with three essay reviews (40 pages), and a list of history of science and medicine theses completed during 1991 in Dutch universities; with advertisements and a contents list for Clio Medica, there are over 220 pages. The cover design is modern, while the layout is traditional with footnotes at the bottom of almost every page.

It is inappropriate to review articles that have been subject to peer review already, so a recitation of the authors and titles of the five papers in this issue will suffice to indicate the range of subjects covered—J. G. Yoder, Christian Huygens’ great treasure; M. Franssen, The ocular harpsichord of Louis-Bertrand Castel: the science and aesthetics of an eighteenth-century cause célèbre; P de Clercq, Exporting scientific instruments around 1700; the Musschenbroek documents in Marburg; H. Listen and R. Steenard, Steen and polders, Belgium and the Netherlands, 1790–1850; and A. C. van Helden, The age of the air-pump.

One of the essay reviews is a commentary on the twelve volumes of The collected letters of Antoni van Leeuwenhoek (Amsterdam, 1939–1989).

In my opinion Tractrix is worth ‘keeping an eye on’ for histories of natural history.

E. C. NELSON


ISSN: 0007-0874.

This special issue of the British Journal for the history of science contains three papers, read to the Geological Society of London on 31 October 1988 commemorating a paper by Darwin read to the same society on 7 March 1838. The full version of Darwin’s contribution, published in 1840, was entitled ‘On the connection of certain volcanic phenomena in South America; and the formation of mountain chains and volcanos, as the effect of the same power by which continents are elevated’. None of the papers pretends to be a complete overview of Darwin’s geological work, but taken together they offer some balance to the vast number of contributions which deal with his biological work.

Secord’s paper narrates Darwin’s earliest geological experiences, concluding with a look at this first really original piece of work: the unravelling of the tectonic history of Sao Tiago in the Cape Verdes. Secord does much to revise Darwin’s own claim that he did little geology in Edinburgh in the period 1825–1827, and convinces me that the importance of those years in Darwin’s life, and especially the influence of the Huttonian chemistry lecturer Thomas Charles Hope, has hitherto been underestimated by historians.
Secord's paper overlaps with Sandra Herbert’s elegant analysis of Darwin's rapid maturation as a geologist during the Beagle voyage. Herbert traces the development of Darwin's writings at three stages: on Sao Tiago in 1832 as an enthusiastic young Lyellian finding his uniformitarian 'sea-legs'; in 1834 having become convinced of the gradual and still-continuing elevation of the Patagonian plains, and in 1835–1836 as he starts to prepare for publication his multifarious notes on aspects of global tectonics ranging from earthquakes to coral reefs.

Frank Rhodes's study centres on Darwin's 1838 paper as the basis for what he claims was Darwin's attempt to construct a general theory of crystal mobility. Rhodes's analysis is perhaps overlong, given the negligible impact of the paper on Darwin's contemporaries. Rhodes does, however, clarify the chief weakness of Darwin's theory (its lack of a mechanism, its severely constrained observational basis) and in so doing illuminates the strengths of Darwin's approach to the problems of biological evolution.

This issue also contains an obituary of Jacques Roger, an essay review of Leviathan and the air pump: Hobbes, Boyle and the experimental life by Steven Shapin and Simon Schaffer, plus 23 shorter book reviews. As one would expect, the quality of reproduction is first-class.

G. R. CHANCELLOR

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The Bulletin comprises five separate series—botany, zoology, entomology, geology (incorporating mineralogy) and history (Bulletin of the British Museum (Natural History) Historical Series). In effect each series is a separate journal, issued twice a year, by the British Museum (Natural History), recently renamed The Natural History Museum. The two issues of the Historical Series, volumes 18 (2) (29 November 1990) and 19 (1) (27 June 1991), noted here contain a miscellany of papers of considerable interest to historians of natural history in several disciplines, including Darwinists.

In 18 (2) Charles Darwin's St Helena model notebook is transcribed and edited by G. R. Chancellor; R. W. Jones discusses the Challenger Expedition (1872–1876), particularly Henry Bowman Brady's work on Foraminifera; Lady Edith Blake's collection of paintings, now in the Museum's Department of Entomology, of Jamaican butterflies is catalogued by C. V. Ellwood and J. M. V. Harvey. The issue comprises over 110 pages.

There are two papers in 19 (1) which amounts to 160 pages. British mosquitoes and the work of John Frederick Marshall are discussed by K. Snow and S. Snow. 'A short history of the Museum of the Geological Society of London, 1807–1911, with a catalogue of the British and Irish accessions, and notes on surviving collections' by D. T. Moore, J. C. Thackray and D. L. Morgan occupies over 100 pages.

The quality of printing is excellent; there are numerous illustrations, well reproduced throughout the issues. In short, this is an excellent periodical with the advantage that you can obtain only the parts you are interested in because they are separately priced.

E. C. NELSON