REVIEWS AND NOTICES OF PUBLICATIONS

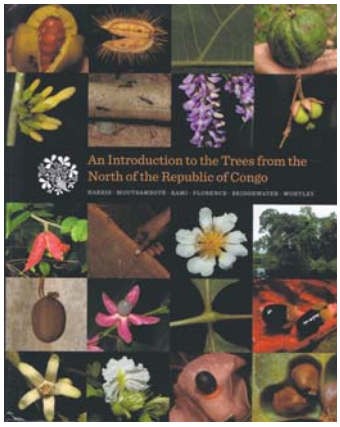
Edited by Rudolf Schmid

Notices—topic areas: Reviews are cross-referenced.

■ REVIEWS

Harris, David J.; Moutsambote, Jean-Marie; Kami, Emile; Florence, Jacques; Bridgewater, Samuel G.M. & Wortley, Alexandra H. Oct. 2011. *An introduction to the trees from the north of the Republic of Congo.* Royal Botanic Garden Edinburgh, Edinburgh (www.rbge.org.uk). 208 pp., ill. (most col.), 193 × 151 mm, ISBN 9781906129804 HB, £20.00. [Fr. ed. (not seen): **Idem & al.** Oct. 2011. *Une introduction aux arbres du nord de La Republique du Congo.* Ibid. 256 pp., ill. (most col.), 210 × 150 mm, ISBN 9781906129811 PB, £20.00.] — With foreword by S. Blackmore, intro, tax. pt., biblio., glossary, index. ≺

Tree guidebooks for Europe or North America are a dime-a-dozen, or even ten-a-penny. That plethora makes this Congolese gem even more exceptional, although it needs a tad polishing. Compact (193 × 151 mm), copiously illustrated, and beautifully executed, this little book treats 93 tree species in 186 pages, with descriptions and B&W linework (by Rosemary Wise) on the versos and fine color photos (mostly by Harris) on the rectos. Descriptions include brief summaries of ecology, distribution, and, often, "human use." There are no keys; hence identification is by illustration and text notes on distinguishing characteristics, which should have been accentuated in bold or italics.



The 93 species treated are eclectic. The authors omitted "the very commonest and most easily recognisable species … as well as the most important commercial species … because these species are covered well in other books" (pp. 9–10). In all, 37 families are accessed, many tropical and with exotic names: Huaceae, Putranjivaceae, Achariaceae, Irvingiaceae, Thomandersiaceae, etc. Fide the back-cover blurb, "all [93] species occur beyond the borders of the Republic of Congo, especially in Cameroon, Central African Republic, Democratic Republic of Congo and Gabon." That being the case, the restrictive title "north of the Republic of Congo," or "nord de La Republique du Congo" in the French edition, seems unfortunate. — Rudolf Schmid, UC

McPherson, Stewart & Schnell, Donald. Sep. 2011. *Sarraceniaceae of North America.* Redfern Natural History Productions, Poole (www.redfernnaturalhistory.com). xv, [i], 810 pp., ISBN 9780955891861. **McPherson, Stewart; Wistuba, Andreas; Fleischmann, Andreas & Nerz, Joachim.** Sep. 2011. *Sarraceniaceae of South America.* Ibid. xi, [i], 561 pp., ISBN 9780955891878. *Each:* w/ foldout col. map, ill. (most col.), 238 × 165 mm, HB, £34.90. — *Each* w/ intro, tax. pt., societies/suppliers, appendix (conversion tables; new taxa), unill., glossary, biblio., index, bionotes. ≺

On May 2012 I received an email from Stewart McPherson: "Dear Everyone in my Address book, I am going to the Antarctic in February … and … am chartering a steel hulled ice breaker [the Hans Hansson] to make the journey." Having already scoured six continents for carnivorous plants, was Antarctica, the Earth's seventh continent, to be the site of a new species of carnivorous plant, if not a live one, then perhaps a fossil species buried under hundreds of meters of ice? I fantasize, of course. McPherson "will be visiting Antarctica, South Georgia, Elephant Island and Deception Island, and possibly other locations" in order "to film a documentary series, and photograph for a wildlife book, both on remote islands in the far South." This teaser does illustrate, however, the elaborate means this gifted and indefatigable researcher will take to achieve his research ends.

I have already received from this prolific young (born 1983) author five thick titles on carnivorous plants involving seven volumes, 4023 pages, and nearly 28 cm of shelf space (see my previous reviews in *Taxon* 56: 630–631, 57: 1384–1385, 58: 1031–1032, 59: 1949–1950), I was warned that more was coming. Nevertheless, I was surprised when the two latest titles arrived in a light blue Royal Mail sack (it will make a nice souvenir for this Anglophile—thanks). The latest two books involve 1399 pages that will take another 11.5 cm of bookshelf space. All of McPherson's titles are done in uniform style: in black (see also his extensive website) and 238 × 165 mm for the hardbound versions, which have a colorful

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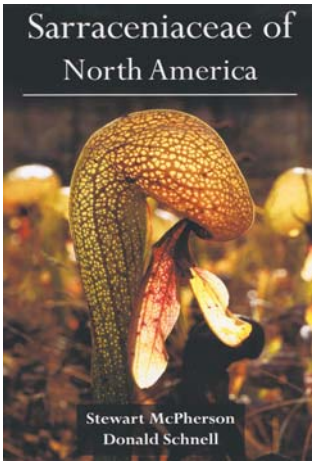
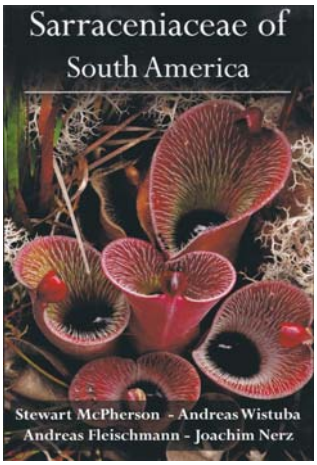
Unless noted otherwise, "Notices" are by Rudolf Schmid, prices are in U.S. dollars and exclude postage, and illustrations (ill.) are all black-and-white (B&W) versus partly or all in color (col.). Abbreviations usually follow Botanico-periodicum-Huntianum, 2nd ed. (BPH2, 2004), but "HB/PB" = hard-/paperbound and "ep." = endpaper ("ep." is used for HB and PB items). ***Note:*** *Full snail-mail addresses are given for publishers only if no website or e-mail address is indicated.*



dust jacket protecting the black boards. Illustration is copious and superb.

The Sarraceniaceae are a New World family of three genera: the monotypic *Darlingtonia californica* endemic to California and Oregon, *Sarracenia* with 8 species endemic to eastern North America (United States and Canada), and *Heliamphora* with 23 species endemic to northeastern South America (Guayana or Guiana Highlands). McPherson and coworkers detail these in separate volumes, one for each continent. The taxonomic account for each genus involves: distribution; botanical history; plant structure; habitats and ecology; species; naturally occurring hybrids (for *Sarracenia* and *Heliamphora*); traditional uses; associated life; cultivation requirements; and conservation status. Treatment is descriptively extensive and pictorially lavish: 72 pages for *Darlingtonia,* 614 for *Sarracenia,* and 486 for *Heliamphora*. A 15-page introduction and 571 numbered images occur in the northern volume, versus a 17-page introduction and 488 numbered images in the southern volume. Concluding each book are a chapter on societies and recommended suppliers (33 versus 8 pages, respectively, north versus south), a 1-page appendix for conversion tables, an extensive appendix for new taxa (30 versus 16 pages), an unillustrated 7-page glossary (identical in each volume), a bibliography (24 versus 9 pages), an index (8 versus 5 pages), and bionotes.



The South American volume has a valuable 44-page discussion of Sarraceniaceae (pp. 18–61) that should not be overlooked by users of the North American volume. Especially helpful is the list of taxa recognized (pp. 24–26), a list that should have been duplicated in the North American volume. McPherson & Schnell treat the monotypic *Darlingtonia,* with 2 forms (1 new), and the traditional 8 species of *Sarracenia* recognized (*S. alata, S. flava, S. leucophylla, S. minor, S. oreophila, S. psittacina, S. purpurea,* and *S. rubra*), with many infraspecific taxa: 41 subspecies, varieties, and forms (18 new), plus 1 "incompletely diagnosed taxon" of *S. rubra*. McPherson & al. treat 23 species (5 new) of *Heliamphora,* including 2 varieties, plus 3 "incompletely diagnosed" taxa. The new taxa are described in an appendix in each volume. There are also 18 naturally occurring hybrids of *Sarracenia* and 11 of *Heliamphora*. I was surprised to find on Wikipedia (http://en.wikipedia.org/wiki/heliamphora and http://en.wikipedia.org/wiki/sarracenia) lists of species recognized in these two volumes, the list for *Heliamphora* being especially comprehensive with information for species, authority, year, distribution, and elevational range. McPherson, Fleischmann, Nerz, and especially Wistuba authored 16 species of *Heliamphora* from 2000 to 2011; the other 7 species in the genus date from 1840, 1931 (2), 1939, 1951, and 1978 (2).

These two volumes comprise a superb monograph of Sarraceniaceae. Stewart McPherson and coworkers deserve many kudos. I eagerly await what the next Royal Mail sack brings. — Rudolf Schmid, UC

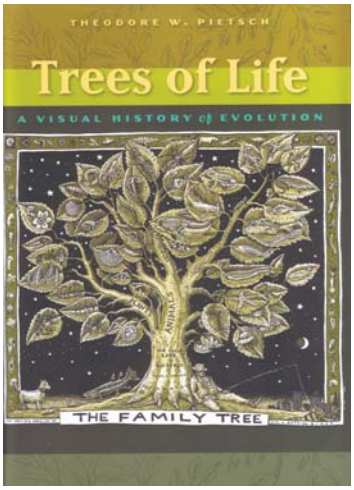
The panoply of trees of life: 1554 to 2010
Rudolf Schmid, UC

Pietsch, Theodore W. Apr. 2012. *Trees of life: A visual history of evolution*. The Johns Hopkins University Press, Baltimore (www.press.jhu.edu). xi, [ii], 358 pp., ill., 261 × 187 mm, ISBN 9781421404790 HB, $69.95. — With 20 chaps. (intro; 19 chron arr. chaps—see review), 5-p. glossary, 10 pp. notes, 20-p. biblio., 4-p. index. With 230 figs. ≺

Trees of life is the sort of book that instantly fascinates, starting with Ray Troll's (www.trollart.com) evocative "family tree" (1994) on the dust jacket. Then flipping through the 230 "trees" figured inside one can indulge in one's remembrance of trees past, from the famously arborescent, as Carl Linnaeus's (1707–78) "sexual system" (1735; p. 18), Ernst Haeckel's (1834–1919) "Stammbäume" (1866; pp. 102–110), or Charles Bessey's (1845–1915) "cactus" (1915; p. 164), to the much more obscure, as Bessey's exotic diagram for dicotyledons (1897; p. 148), John Henry Schaffner's (1866–1939) botanical trees (1934; pp. 204–205), or telomist Walter Zimmermann's (1892–1980) proto-cladogram (1931; p. 201) that foreshadowed Willi Hennig's (1913–76) phylogenetic trees (1950, 1966; pp. 266–268). Then one can check the book for bibliographic thoroughness; yes, the 20-page bibliography cites the classic 1936 and 1952 papers by Herman J. Lam (1892–1977) and Edward G. Voss (1929–2012).

After the game playing let the reading begin. However, it may be hard to stop looking at the trees and start reading about them because the 318 main text pages involve a whopping 238 pages for the 230 trees figured, but only 80 pages of descriptive and analytical text.

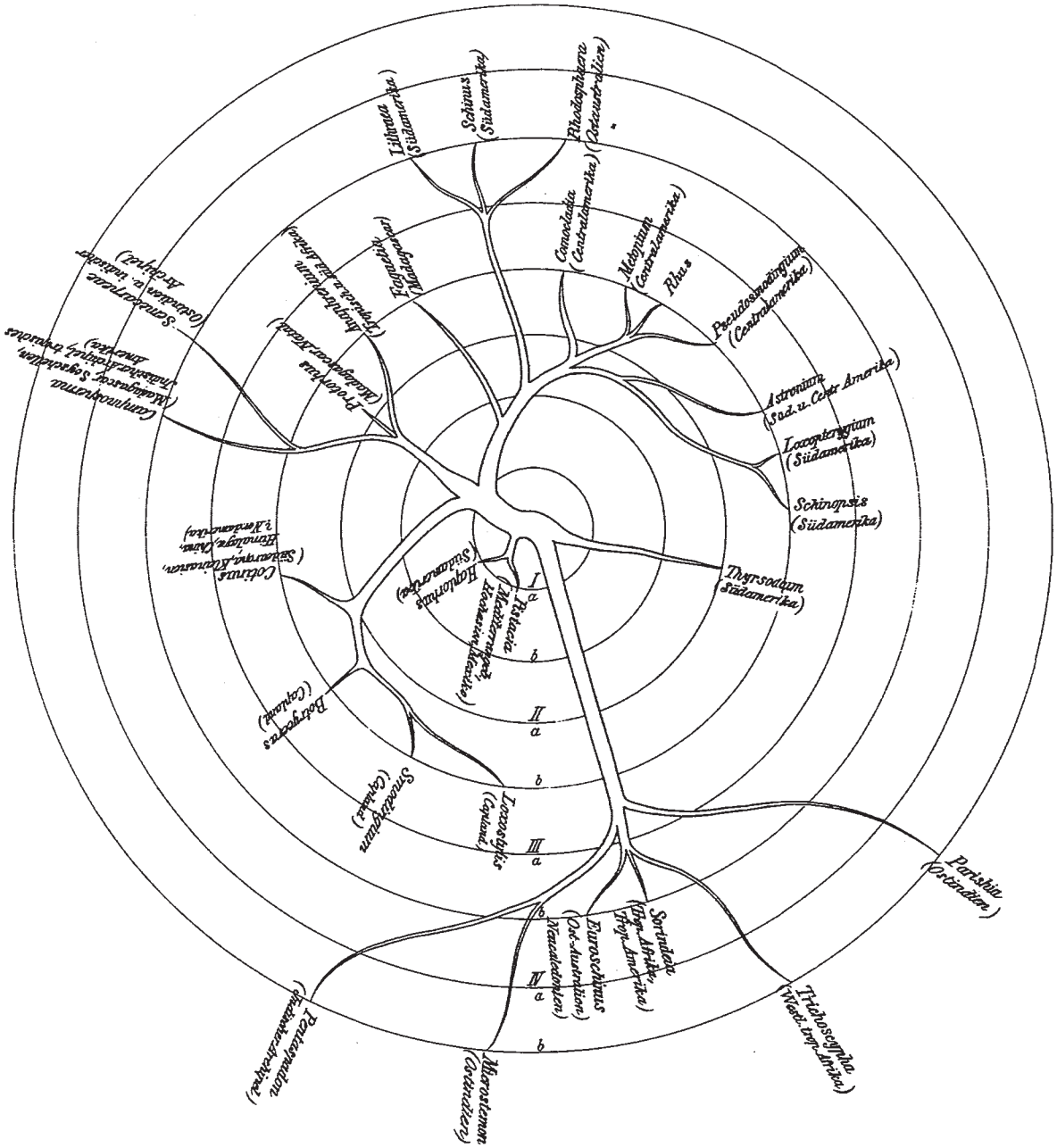
Pietsch selected 230 trees from thousands published over the past 450 years. A six-page introduction develops the theme that the tree was a pre-Darwinian metaphor to understand and display graphically relationships (Figs. 1–2: 2T). The 19 chronologically arranged, but unnumbered chapters that follow discuss various topics or biologists represented by 228 figures (Figs. 3–230) [Abbreviations: *B,* botanical (including fungi); *Z,* zoological (including humans); *I,* interdisciplinary (including bacteria); *T,* theoretical (hypothetical groups)]:



Bracketed tables (e.g., Linnaeus cited above) and circles arranged as maps (*1:* 1554–1872; Figs. 3–17: 7B, 8Z) and "early botanical

networks and trees" (*2:* 1766–1815; Figs. 18–22: 5B) were the forerunners of "the first evolutionary tree" (*3:* 1786–1820; Figs. 23–25: 2Z, 1I) by Jean-Baptiste Lamarck (1744–1829). Then follow examples of weird trees of the early 1800s (*4:* 1817–34; Figs. 26–34: 5B, 3Z, 1I) and the even weirder notion of quinarian relationship, namely, that taxa existed in related groups of five (*5:* 1819–54; Figs. 35–45: 1B, 10Z). "Pre-Darwinian branching diagrams" (*6:* 1828–58; Figs. 46–57: 10Z, 2I) influenced Charles Darwin (1809–82).

Darwin's evolutionary (and revolutionary) trees resulted (*7:* 1837–68; Figs. 58–65: 5Z, 3T). "Flamboyant" Darwin-disciple Haeckel (see above) with his "Stammbäume" and other schemes "was the first great tree-maker" (*8:* 1866–1905; Figs. 66–85: 2B, 15Z, 3I). Post-Darwinian retrogrades persisted, including quinarian "spin-offs" (*9:* 1868–96; Figs. 86–91: 4B, 2Z). Additional trees of the late 1800's (*10:* 1874–97; Figs. 92–105: 3B, 11Z) include two innovations by botanists: Bessey noted above presenting "a strange-looking tree in a style not seen before" (1897) and Adolf Engler (1844–1930) publishing "what may well be the first three-dimensional tree" representing "a bird's-eye view … of branches from a central axis … [with] concentric circles, each corresponding to a morphological feature" of Anacardiaceae (1881). Engler's scheme (see diagram) is remarkably like Warren L. Wagner's (1920–2000) ground-plan divergence method (1961; see S.P. Churchill & al., 1984, *Taxon* 33: 212–224; Pietsch does not cite Wagner).



A. Engler (*Bot. Jahrb. Syst.,* 1881), Anacardiaceae

The next chapter treats 23 trees from the early 1900s (*11:* 1901–30; Figs. 106–128: 6B, 16Z, 1I), including Bessey's "cactus" noted above and Ludwig Eduard Theodor Loesener's (1865–1941) "imaginative" chubby *Ilex* (1908). The saga continues with "the next great tree-marker," Alfred Sherwood Romer (1894–1973), paleontologist and comparative anatomist at Harvard University (*12:* 1933–66; Figs. 129–141: 13Z). A botanical influence Pietsch might have cited is Harlan Parker Banks's (1913–98) well-known scheme dividing the vascular plants into two lines that originated in the Devonian (p. 79 in Banks's *Evolution and plants of the past,* 1970). "Additional trees from the mid-twentieth century" (*13:* 1931–43; Figs. 142–156: 3B, 8Z, 3I, 1T) includes examples from Zimmermann, Schaffner, and Lam mentioned above, plus botanist Herbert F. Copeland's (1902–68) four-kingdom classification (1938): Monera (after Haeckel, i.e., prokaryotes), Protista (after Haeckel, and including the fungi), Plantae, and Animalia. Next comes zoologist William King Gregory (1876–1970) of Columbia University, the champion tree-marker, "by far eclipsing" Haeckel and Romer (*14:* 1938–51; Figs. 157–173: 17Z). "Hints of new approaches" (*15:* 1954–69; Figs. 174–182: 4B, 4Z, 1I) includes selected trees: Thomas Harper Goodspeed (1877–1960) on *Nicotiana* (1954); Ronald D'Oyley Good (1896–1992) on bubbles of monocotyledons (1956); Oleg Lysenko (1931–85) & Peter Henry Andrews Sneath (1923–) on Enterobacteriacaea (1959); Robert Harding Whittaker (1920–80) giving equality to fungi in his five-kingdom system (1969): Monera, Protista, Plantae, Fungi, and Animalia; and Elmar Emil Leppik (1898–1978) on rust fungi and their plant hosts (1965), who, I should note, also has many papers graphing the co-evolution of pollinators and floral types of angiosperms.

Hennig (see above) and the "grams" ("phenograms and cladograms") finally appear (*16:* 1958–66; Figs. 183–197: 11Z, 4T), followed by "early molecular trees" (*17:* 1962–87; Figs. 198–206: 8Z, 1I). Both sections exemplify the commonplace, usually dichotomously branched, "computer generated and typically not very attractive" (p. 255) phenogram and especially cladogram. However, modern-day cladists should consult these sections for alternatives to dullness, that is, for "more interesting-looking diagrams" (p. 256). I assume there are no modern-day phenetists. Hennigian methodology (Figs. 190–192) so prevailed that it is "represented by most all [*sic:* "almost all"?] of the remaining trees [Figs. 193–230] presented" (p. 257) by Pietsch. "Notable trees of the past four decades" (*18:* 1970–2010; Figs. 207–224: 15Z, 3I) involves all zoological examples, with plants and fungi appearing only in Lynn Margulis's (1938–2011) and Raik-Hiio Mikelsaar's (1939–) interdisciplinary efforts (respectively, 1982, 1987). The final section entitled "primeval branches and universal trees of life" (*19:* 1997–2010; Figs. 225–230: 6I) focuses on the three domains of life (Archaea, Bacteria, and Eucarya) resulting from molecular work and causing "the abandonment of Whittaker's five-kingdom system" (p. 311—see above).

The 230 trees illustrated and discussed are nearly four times more zoological than botanical in number. A tally of the B (botanical), Z (zoological), I (interdisciplinary), and T (theoretical) codings above gives these numbers:

0B, 0Z, 0I, 2T = 2 introductory (1512)

18B, 33Z, 4I, 0T = 55 pre-Darwinian (1554–1858)

9B, 33Z, 3I, 3T = 48 Darwin (1837–68) and post-Darwinian (1866–97)

13B, 58Z, 5I, 1T = 77 classic: pre-phenetic-cladistic-molecular (1901–69)

0B, 34Z, 10I, 4T = 48 modern: phenetic-cladistic-molecular (1958–2010)

40B, 158Z, 22I, 10T = 230 trees total

There are many more "bird trees" than "insect trees." Although ichthyologist Pietsch's net snared a reasonable number of old botanical trees, it missed recent botanical efforts from the microsystematic to macrosystematic levels, including Rolf Dahlgren's (1932–87) Dahlgrenograms. In botany there are "notable trees of the past four decades." Incidentally, notably odd but not oddly notable is Pál Greguss's (1889–1984) depiction of the "triphyletic evolution of the landplants" [*Acta Biol. (Szeged),* n.s., 10: 3–50, 1 pl., 1964].

The lack of a final "summing-up" chapter allows the charge of missing the forest because of the trees. Edward R. Tufte's stunning books on *The visual display of quantitative information* (1983), *Envisioning information* (1990), and *Visual explanations* (1997; for reviews see R. Schmid, *Taxon* 38: 451, 46: 606) might have been relevant here.

In summary, this exemplary work is an important contribution to the history of evolution. The blurb on the dust jacket nails it: "a visually breathtaking and intellectually brilliant history of the form."

Retrograde biogeography

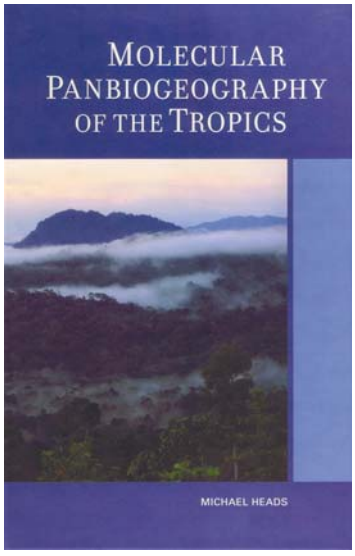
Patrick M. O'Grady, UC Berkeley <ogrady@drosophilaevolution.com>, Gordon M. Bennett, UC Berkeley <gbennett@berkeley.edu>, Vicki A. Funk, US <funkv@si.edu> & Tasha K. Altheide, San Diego, CA <tasha.altheide@gmail.com>

Heads, Michael. Jan. 2012. *Molecular panbiogeography of the tropics.* University of California Press, Berkeley (www.ucpress.edu) (series: *Species and systematics,* vol. 4). ix, 565 pp., ill., ISBN 9780520271968 HB, $75.00. — With 10 chaps. [(see also review) evol. (E) in space; E in time; E, biogeogr. (B) primates—a new model based on mole. phylogenetics, vicariance, pl. tectonics; B monkeys New World; primates Afr., Asia; B cen. Pac.—endemism, vicariance, pl. tectonics; B Hawaiian Is.—global context; distr. w/in idem; B pantrop., global groups; evol. in space, time, form—beyond centers of origin, dispersal, adaptation], 3-p. glossary geol. terms, 76-p. biblio., 28-p. index, bionote. Vols. 1–3 in series, resp. (see *Taxon* 59: 333, 683, 60: 309): J.S. Wilkins, 2009, *Species: A history of the idea;* L.R. Parenti & M.C. Ebach, 2009, *Comparative biogeography;* D.M. Williams & S. Knapp (ed.), 2010, *Beyond cladistics: The branching of a paradigm.* ≺

> *Or they asserted that all those landlubbery creatures had walked dry-shod across a natural bridge, or had swum short distances between stepping stones, and that one such formation or another had since disappeared beneath the waves. But scientists using their big brains and cunning instruments had by 1986 made maps of the ocean floor. There wasn't a trace, they said, of an intervening land mass of any kind.*
>
> Kurt Vonnegut, *Galápagos: A novel* (1985)

The table of contents of Michael Heads's new book, *Molecular panbiogeography of the tropics,* provides an enticing cross section of topics in tropical biogeography. This book summarizes a number of studies from disjunct regions and will be a useful resource for

biogeographers, provided they are able to look past the philosophical biases of the author. Heads sets the tone in the first two chapters, "Evolution in space" and "Evolution in time." He critiques "most" molecular studies for making assumptions favoring only a single biogeographic hypothesis and then adopting methods that support only this underlying assumption (p. 3). Heads then goes on to review what he considers the four major processes of biogeography: vicariance, normal ecological dispersal, sympatric differentiation, and founder dispersal, only to discard out of hand the latter two processes as being either too rare or controversial to have had an impact on biogeography (p. 11). The immediate explanation for doing so is unclear and supported by cherry-picked examples, including primates in America or weeds in a garden. Neither case offers a proper analogy or serious counter-example to the vast endemic biotas of remote island archipelagos, or the strongly supported scientific understanding that accounts for their existence by dispersal. This dismissal is ironic, especially considering the importance that Heads seemingly places on page 2 of chapter 1 on a "method of multiple working hypotheses." Heads thus proves himself to be nothing more than a vicariance-centric version of the Puritanical "plug-and-play" biogeographer that he so despises (pp. 2–3).



The approach Heads takes is analogous to the wedge strategy proposed by creationists and advocates of intelligent design. First, a case is made that dogmatic thinking has overtaken good science due to researchers viewing their data only with a single lens, eliminating hypotheses because of institutionalized biases within the field. Then, a "theory" is presented as a reasonable alternative on equal footing with the current dogma. In Heads's case this theory is vicariance and metapopulation dynamics applied to all biogeographic studies, even those focusing on remote, geologically recent island archipelagoes. Yet, as in the case of intelligent design and the blind watchmaker, this really is not a theory at all. No explicit tests comparing vicariance with long-distance dispersal are presented. Furthermore, a plethora of data, such as the well-understood geological processes involved in the formation of the Hawaiian Archipelago and the lack of any significant connections between these remote islands and the mainland, are ignored. This is because, like creationists, Heads has decided upon the explanation of the patterns before the debate even starts: vicariance due to the breakup of large metapopulations. Heads is adamant at several points in his book (p. 11, etc.) that founder events should be categorically rejected to explain any biogeographic pattern.

A central tenet of Heads's perspective on biogeography is that most patterns observed can be explained by the breakup or intercalary extinction of widespread metapopulations, rather than by long distance dispersal. Metapopulations, or "populations of populations" (Levins 1969), are spatially separated populations that cycle more or less independently of one another, although interaction via migration occurs at some level (e.g., natural ecological dispersal). Under such a scenario, long distance disjunct distributions between sister taxa, such as Hawaiian silverswords and California tarweeds, are formed in three steps: *(1)* a widespread ancestral taxon exists as a metapopulation in Hawaii, California, and suitable intervening habitats, *(2)* extinctions of intervening populations create an allopatric distribution, disrupting any gene flow that might occur between these extremes, and *(3)* subsequent divergence generates one or more species located in the central Pacific and west coast of North America. This view does not eliminate all dispersal events in favor of vicariance. In fact, "normal ecological dispersal" is prevalent and the mechanism by which metapopulations form. The distinction between what constitutes "local" versus long distance dispersal is not at all clear. Furthermore, metapopulation theory, at least as Heads presents it, fails to explain how taxa may persist for millions of years on terrestrial real estate that has yet to exist. Geologically, most oceanic archipelagos have formed intermittently, with periodic lulls leaving large evolutionary time between emergences. The Hawaiian Islands are an example of this phenomenon. There have been times during the past 60 million years where few or no islands existed. For example, a 1–2 million year period just prior to the formation of the current high islands, which started forming about 5 million years ago, provides an example of such a time (Price & Clague 2002). Our well-supported understanding of the geologic processes underlying island formation precludes the panbiogeographic persistence of metapopulations in any real sense. Furthermore, it is a fantastical conjecture to propose that single metapopulations have existed perpetually, or that island biotas on a remote island group such as Hawaii have been entirely derived in the last half-million years—a condition required by metapopulation dynamics.

Much of this book addresses the biogeography of the Pacific (chapters 6–8), particularly the Hawaiian Islands. We thus will restrict the bulk of our critique to these sections. The other sections (chapters 3–5) focus on biogeographic patterns observed in primates at several different taxonomic and geographic levels. It is clear that Heads, a botanist by training, carefully selected primates as a focal example for his book because the older divergences within this lineage (e.g., haplorhine-strepsirhine split, divergence between Old and New World monkeys, colonization of Madagascar) originating with the breakup of Gondwana, may fit well with a vicariance model (chapter 3). However, it is also equally clear that Heads's biased approach of excluding any events of long distance dispersal has a negative impact on discussions of many recent groups (chapters 4 & 5), some of which may have undergone long distance dispersals (Goswami & Upchurch 2010).

Heads attempts to make a case for vicariance in the formation of the flora and fauna of remote island archipelagoes (chapters 6–8). Chapter 7, "Biogeography of the Hawaiian Islands: The global context," lists nine assumptions of the standard model of Hawaiian biogeography. Many of these "assumptions" are not assumptions at all but long standing and well supported scientific theories. For example, one cited "assumption" is that the Hawaiian Islands have never been connected to other lands masses, despite all the data supporting these islands as a young, volcanic hotspot archipelago. Heads proposes the alternative hypothesis of an "island hopping" path that an ancient metapopulation might have taken to arrive in

Hawaii using now submerged seamounts and atolls. Heads points to Johnson Atoll and the Line Islands in the southwest, the Musicians Seamounts to the northeast, and the northwest Hawaiian Islands, presenting two figures (pp. 315–316) in support of the presence of multiple stepping-stones across the Pacific. These figures show isobaths at 5000 m, 4000 m, and 2000 m that supposedly support broad connections of now disjunct land masses in the Pacific. This is more than slightly disingenuous, however, because sea level in the past half billion or so years has not been even close to 5, 4 or even 2 kilometers below its current level (Haq & al. 1987; Miller & al. 2005). In fact, low sea stands larger than 100 m (±50 m) below current levels are not supported by the available evidence. This particular fact is not addressed by Heads, nor is sea level mentioned in detail in this book.

Chapter 8, "Distribution within the Hawaiian Islands," summarizes the biogeographic studies focusing on Hawaiian plants and animals to date. It might be considered a companion to the excellent reviews that have examined biogeographic patterns in a phylogenetic context (Funk & Wagner 1995; Price & Wagner 2004; Cowie & Holland 2008) were Heads not so biased in his approach. He takes exception to the use of the progression rule as the null hypothesis for many biogeographic studies in Hawaii, a null that is being rejected more and more with the advent of DNA sequence data. This, however, is not the only hypothesis that has been proposed or tested. Funk & Wagner (1995) provided an elegant summary of the various hypotheses that could explain the patterns seen circa 1995; it is unfortunate that Heads did not take the opportunity to update that work based on data from the last 17 years. Comprehensive molecular studies have demonstrated "back dispersals" in phylogenetically derived Hawaiian taxa (Jordan & al. 2003; Magnacca & Danforth 2006; Lapoint & al. 2011), and other lineages that have left the archipelago entirely (Harbaugh & Baldwin 2007; O'Grady & DeSalle 2008). Ironically, the rejection of the progression rule only introduces further evidence for dispersal-associated speciation among islands and long distance dispersal out of the archipelago.

Perhaps the most frustrating aspect of chapter 8 is that the reader must be able mentally to edit out Heads's habit of taking single word quotes from the original papers ("mysterious," "bizarre," "extraordinary") and snidely inserting them into the text without explanation. The reader must patiently wait until the last section of chapter 8 (p. 402) to discover the punch line of this private joke. It turns out that the original authors would not be so baffled if their overly narrow worldview would only allow them to consider the panbiogeographic hypothesis of widespread connectivity across the paleo-Pacific via metapopulations inhabiting a series of Atlantean archipelagoes, the view that Heads espouses. The point that seems to escape Heads is that many authors fail to consider vicariance in this region as a viable alternate hypothesis to dispersal, not because of their biases, but rather because of lack of evidence for intervening populations and suitable island habitat in the region.

Modern biogeography has been revolutionized by a multi-disciplinary, synthetic approach; well-supported geologic theory combined with molecular phylogenetic methods has allowed rigorous hypothesis testing to provide contexts for the evolution and distributions of species (e.g., Avise 2000; Mantooth & Riddle, 2008; Riddle & al. 2008). This book attempts to foment the same revolution by interpreting panbiogeographic theory through the lens of molecular phylogenetic analyses. Unfortunately, Heads's approach is largely a failure because of the narrowly defined and biased theory upon which the field of panbiogeography is built. Heads's retrograde attempt to apply panbiogeography to oceanic islands, an attempt that has been rejected by generations of natural historians, geologists, biogeographers, and evolutionary biologists, is counter-productive at best. We agree with Cowie & Holland's (2006) assertion that island biogeography, and biogeography in general, must continue to embrace a true multidisciplinary approach based on evidence and leave "unbalanced, vicariance-only thinking" in the past. Zimmerman (1948) pointed to a scientific literature with "a multitude of records concerning the many ways and means of occasional transport by which plants and animals are spread about the world" (p. 102). This literature has grown extensively since the 1940s and been enhanced by new techniques and technologies. We are as puzzled as was Zimmerman 64 years ago when he wrote: "In spite of this great body of information, there are those who still fail to accept the evidence and who refuse to recognize that overseas dispersal to islands is fact and not theory" (p. 102).

Literature cited: **Avise, J.C.** 2000. *Phylogeography: The history and formation of species.* Harvard University Press, Cambridge. **Cowie, R.H. & B.S. Holland.** 2006. Dispersal and vicariance in Hawaii: Submarine slumping does not create deep inter-island channels. *J. Biogeogr.* 33: 2155–2156. **Idem & Idem.** 2008. Molecular biogeography and diversification of the endemic terrestrial fauna of the Hawaiian Islands. *Philos. Trans. Roy. Soc. London,* B, 363: 3363–3376. **Funk, V.A. & W.L. Wagner.** 1995. Biogeographic patterns in the Hawaiian islands. Pp. 379–419 *in* W.L. Wagner & V.A. Funk (ed.), *Hawaiian biogeography: Evolution on a hot spot archipelago.* Smithsonian Institution Press, Washington. **Goswami, A. & P. Upchurch.** 2010. The dating game: A reply to Heads (2010). *Zool. Scripta* 39: 406–409. **Haq, B., J. Hardenbol & P. Vail.** 1987. Chronology of fluctuating sea levels since the Triassic. *Science* 235: 1156–1167. **Harbaugh, D. & B. Baldwin.** 2007. Phylogeny and biogeography of the sandalwoods (*Santalum,* Santalaceae): Repeated dispersals throughout the Pacific. *Amer. J. Bot.* 94: 1030–1042. **Jordan, S., C. Simon & D. Polhemus.** 2003. Molecular systematics and adaptive radiation of Hawaii's endemic damselfly genus *Megalagrion*. *Syst. Biol.* 52: 89–109. **Lapoint, R.T., A. Gidaya & P.M. O'Grady.** 2011. Phylogenetic relationships in the spoon tarsus subgroup of Hawaiian *Drosophila:* Conflict and concordance between gene trees. *Molec. Phylogenet. Evol.* 58: 492–501. **Levins, R.** 1969. Some demographic and genetic consequences of environmental heterogeneity for biological control. *Bull. Entomol. Soc. Amer.* 15: 237–240. **Magnacca, K.N. & B.N. Danforth.** 2006. Evolution and biogeography of native Hawaiian *Hylaeus* bees (Hymenoptera, Colletidae). *Cladistics* 22: 393–411. **Mantooth, S.J. & B.R. Riddle.** 2010. Molecular biogeography: The intersection between geographic and molecular variation. *Geogr. Compass* 5: 1–20. **Miller, K.G. & 9 al.** 2005. The Phanerozoic record of global sea-level change. *Science* 310: 1293–1298. **O'Grady, P.M & R. DeSalle.** 2008. Out of Hawaii: The biogeographic history of the genus *Scaptomyza* (Diptera: Drosophilidae). *Biol. Lett.* 4: 195–199. **Price, J.P. & D.A. Clague.** 2002. How old is the Hawaiian biota: Geology and phylogeny suggest recent divergence. *Proc. Roy. Soc. London,* B, 269: 2429–2435. **Price, J.P. & W.L. Wagner.** 2004. Speciation in Hawaiian angiosperm lineages: Cause, consequence,

and mode. *Evolution* 58: 2185–2200. **Riddle, B.R. & 6 al. 2008.** The role of molecular genetics in sculpting the future of integrative biogeography. *Progr. Phys. Geogr.* 32: 173–202. **Schmid, R.** 1986. Léon Croizat's standing among biologists. *Cladistics* 2: 105–111. **Zimmerman, E.C. 1948.** *Insects of Hawaii.* Vol. 1. *Introduction.* University of Hawaii Press, Honolulu.

[*Ed. note:* The back-cover blurb of this book touts it as "a new perspective on Croizat's vision of Earth and life evolving together," but Croizat (1894–1982) cited on only four pages (pp. 4, 47, 58, 74) hardly supports this claim. I take the opportunity to include my favorite quote from the many made by this outspoken botanist (see Schmid 1986): "To loathe spaghetti but to dote on macaroni is no real difference in taste."—Léon Croizat, *S.W. Naturalist* (1964).]

■ NOTICES

FLORISTICS, BIOGEOGRAPHY, AND SYNECOLOGY

Under "Reviews" see: Harris & al.; titled review "Retrograde."

Gardner, R.O. (Rhys Owen). 2011. *Trees and shrubs of Niue: An identification guide to the island's indigenous and naturalised woody plants.* [Katsura, Waitakere.] 244 pp., ill., ep. index gen., ISBN 9780473172916 spiral bound, price unknown (from rhyso gardner@hotmail.com). [Limited ed. of 100. In lib. cats. as "2010" but copy seen w/ "2011" pasted label.] — With intro, use of book, list taxa treated, biblio., tax. pt., unill. glossary, indices. On 50 fam. (Agavaceae, *Cordyline fruticosa*–Viscaceae, *Korthalsella platycaula*), 91 gen., 107 spp. alpha. arr., each sp. each nicely ill. by Gardner on a recto, descr. (habitat, morph.; distr.; notes) on facing verso. On "the tropical Polynesian island of Niue [pop. ca. 1200], the world's largest raised coral atoll. … Omitted … are most of the common village trees and shrubs" (p. 7).

John, David M.; Whitton, Brian A. & Brook, Alan J. (ed.). Dec. 2011. *The freshwater algal flora of the British Isles: An identification guide to freshwater and terrestrial algae.* 2nd ed. "With an accompanying DVD prepared by Alan Donaldson, Brian A. Whitton and Peter V. York containing articles and a photo catalogue of algal images and habitats compiled by Peter V. York, David M. John and Chris F. Carter" (t.p., t.p. verso). Cambridge University Press, Cambridge (www.cambridge.org), in collab. w/ the British Phycological Society and The Natural History Museum, London. xvii, 878 pp., 8 pp. pls. (col.), text ill. (B&W), ep. co. lists, B&W maps, 304×215 mm, DVD, ISBN 9780521193757 HB, US$199.00. [Ed. 1 2002, xii, 702 pp., CD-ROM; see *Taxon* 52: 168.] — Dedic. to J.W.G. Lund, w/: forewords by Lund; intro. sect. by eds. [intro; scope of flora; distr., ecol.; hist. freshwater algal studies in Brit. Isles; field methods; lab idem; water framework directive (by J. Krokowski); cultures Brit. freshwater algae (J.G. Day); class.; key to phyla]; 8 col. pls.; Cyano- (Whitton); Rhodo- (R.G. Sneath & A.R. Sherwood); Eugleno- (K. Wołowski); Crypto- (G. Novarino); Dino- (previously as Pyrro-; J.M. Lewis & J.D. Dodge); Raphido- (A. Pentecost); Hapto- (H.R. Preisig); Chryso- (J. Kristiansen & Preisig); Xantho- (Johnson); Eustigmato- (John); Bacillario- (M.G. Kelly & E.Y Haworth); Phaeo- (J.D. Wehr); "Prasino-" (Ø. Moestrup); Chloro- (John & al.); Glauco- (Whitton); 9-p. ill. glossary (eds.); forms authors's names (John); 43-p. biblio.; indices. On 2400+ (1700+ in ed. 1) spp. (excl. diatoms) in flora; w/ notes on ecol., world distr., tax. or ID problems; well ill. w/ 11 B&W figs., 193 full-p. B&W, 8 full-p. col. pls., plus DVD that "provides a comprehensive colour photo catalogue, highly illustrated articles, a full list of references and a coded list of British freshwater algae" (from website).

Kawecka, Barbara. 2012. *Diatom diversity in streams of the Tatra National Park (Poland) as indicator of environmental conditions.* W. Szafer Institute of Botany, Kraków (www.ib-pan.krakow.pl). 213 pp., ill., ISBN 9788389648914 HB, €26.00. — With abstr., intro, site, hist. algol. studies, methods, results, discussion, conclusions, biblio., appendices (8 tables; 17 figs.; 32 SEM pls.); no index. On 414 taxa.

Kelloff, Carol L.; Alexander, Sara N.; Funk, V.A. & Clarke, H. David. 2012. *Smithsonian plant collections, Guyana: 1995–2004, H. David Clark.* Smithsonian Institution Scholarly Press, Washington (www.scholarlypress.si.edu) (series: *Smithsonian contributions to botany,* no. 97). iv, [iv], 307 pp., ill. (most col.), 280×218 mm, ISSN 0081024X PB, price unknown, ISSN 19382812 online (gratis PDF from website). — With abstr., lists ill., intro (by VAF & CLK), exped. narratives and maps, coll. sites 23 trips, colls. by no., colls. by det. taxa, 4 col. pls., index. Clarke was the eighth and last full-time resident pl. collector (1995–97) in the Smithsonian's Biological Diversity of the Guiana Shield program.

Mirek, Zbigniew; Flakus, Adam; Krzanowski, Andrzej; Paulo, Andrzej & Wojtusiak, Janusz (ed.). 2010. *The nature and culture of Latin America: Review of Polish studies = Naturaleza y cultura de América Latina: Reseña de los estudios Polacos.* W. Szafer Institute of Botany, Kraków (www.ib-pan.krakow.pl). 487 pp., ill. (most col.), 3D glasses, ISBN 9788389648853 HB, €44.00. — Conf. held 2007 in Kraków, w/ 2-p. bilingual intro by Mirek, 38 papers (w/ Eng., Span. abstrs., fig. captions) in 2 topic areas: nature (25 papers: 10 abiotic environ., 9 bot., 6 zool.), culture (13 papers); no index. With many fascinating B&W, col. photos; some interesting papers. I could not see for what 3D glasses are supplied.

Nelson, Gil. 2011. *Botanical keys to Florida's trees, shrubs, and woody vines: A guide to field identification.* Pineapple Press, Sarasota (www.pineapplepress.com). 208 pp., ill., ISBN 9781561644995 PB, $19.95. — With intro, format of book, unill. glossary, ill. terms, biblio., tax. pt., indices. On 127 fam., 968 spp.: "508 trees, 628 shrubs, and 132 woody vines" (p. 6). Only 2 pp. ill.

Pearman, D. (David) A.; Preston, C.D.; Rothero, G.P. & Walker, K.J. 2008. *The flora of Rum: An Atlantic island reserve.* The authors, Algiers, Feock, Truro, Cornwall TR3 6RA, UK (dpearman4@aol.com). 479 pp., ill. (some col.), ISBN 9780953811137 HB, £25.00. — See previous issue (*Taxon* 61: 491) for contents and comments, that of "no clear stats" needing rectification: The 133-p. intro. sect. is so rich that I somehow missed a detailed 4-p. stat. "enumeration." Christopher D. Preston informed me (7 Apr. 2012) that "the enumeration (pp. 111–114) sets out on p. 112 the number of stoneworts (3), bryophytes (471), vascular plants (700), dividing the last total into species, microspecies and hybrids. Totals for the major groups of vascular plants and bryophytes are also given, as are subtotals for natives and aliens (the latter divided into British natives introduced to Rum and plants introduced to Britain as a whole). The commentary on this table points out that Rum is very unusual in a British context in having more native bryophytes [469 spp.] than native vascular plants [434 spp.], an indication of the wet, acidic nature of much of the terrain. A further table on p. 113 gives

the number and proportion of species in each group recorded since 2000." On 9 Apr. 2012 only 10 copies were unsold.

Popiela, Agnieszka; Porembski, Stefan; Schiefelbein, Ulf; Tanneberger, Franziska & Wieczorek, Anetta (ed.). 8 Nov. 2011. *Flora, vegetation and landscape of Pomerania.* Schweizerbart Sciences Publishers, Stuttgart (www.schweizerbart.de) (series: *Plant diversity and evolution: Phylogeny, biogeography, structure and function,* vol. 129, nos. 3–4). Pp. 217–336, ill. (some col.), ISSN 18696155 PB, €109.00 (issue price). — Sym. held 6–8 Sep. 2007 in Szczecin, Poland, w/ 11 papers, no index. Sym. 2 to be held 6–9 Sep. 2012 in Wartin, Germany (www.flora-pomeranica2012.org). Pomerania is the historic Baltic coastal area of Germany and Poland, incl. the city of Gdańsk (formerly Danzig), site of Günter Grass's 1959 novel *Die Blechtrommel* (*The tin drum*) and Volker Schlöndorff's 1979 film adaptation.

OTHER TOPICS

Under "Reviews" see: McPhersson & al.; titled review "The panoply."

Doyle, Richard. May 2011. *Darwin's pharmacy: Sex, plants, and the evolution of the noösphere.* University of Washington Press, Seattle (www.washington.edu/uwpress) (series: *In vivo: The cultural mediations of biomedical science,* unnum.). [x], 358 pp., ill., ISBN 9780295990941 HB, $70.00, ISBN 9780295990958 PB, $35.00. — With intro, 7 chaps., epilog, notes, biblio., index. With descriptors like "hallucinogenics," "psychedelics," "gaia hypothesis," and "noösphere" (fide V.I. Vernadsky, "the thinking stratum of the earth, the realm of consciousness feeding back onto the biosphere"—from website), chap. titles like "The transgenic involution" or "From zero to one: Metaprogramming noise …," and an index w/ as many entries for Timothy Leary or Aldous Huxley as for Darwin, you know what you are in for—far-out!

Gascoyne, Kevin; Marchand, François; Desharnais, Jasmin & Americi, Hugo ("The Camellia Sinensis Tea House"). 2011. *Tea: History terroirs* [*sic*] *varieties.* Trans. from the Fr. Firefly Books, Richmond Hill (www.fireflybooks.com). 271 pp., ill. (most col.), ISBN 9781554079377P PB (Fr. flap), $24.95. [Fr. ed.: *Thé: Histoire, terroirs, saveurs,* 2009, Éditions de l'Homme, Montréal.] — With pref. ("foreword"), intro, 14 chaps. in 4 topic areas (from garden to cup; 6 regions; from cup to plate; tea, health), index, biblio.

Gupta, Rajni (ed.). 17 Feb. 2012. *Plant taxonomy: Past, present, and future: Dr Prithipalsingh festschrift.* The Energy and Resources Institute (TERI), New Delhi (www.teriin.org). xxi, 349, [2] pp., ill. (most col.), ISBN 9788179933596 HB, Rs995.00 India, US$35.00 foreign. — Festschrift for Prithipalsingh for his 65th birthday, w/ foreword by K.M.M. Dakshini, dedic. by N.N. Bhandari, biogr. Prithipalsingh by R.E. Nayar, and 15 papers: S. Chandra on a ethnobot. Noah's ark; B. Bhattacharyya on pl. nomen.; N.P. Malkani on pls. Delhi—sci. names, their meaning; M.A. Khalid on spp., speciation; ed. & Ruchitra Gupta on modern tools to ID pls.; A. Pandey & al. on pl. tax. in pl. genet. resource management; P.K. Sharma on indigenous knowledge pls., biopiracy in India; S.K. Aggarwal on herbaria, data info systems in pl. tax.; M.M. Lekhak & al. on phylogenetic syst.; ed. & K. Shukla on pl. anat. vs. tax.; A. Sonkar & S.M. Sonkar on chemotax.; P. Sharma & P.L. Uniyal on cytotax. evol. Orchid., Cyper.; M. Prajneshu on palynol.; M. Kaur & al. on role mole. markers to evaluate pl. diversity; G. Singh on e-flora—future floristic doc.; no index. An exemplary production that is valuable as an Indian perspective on syst.

Hall, Barry G. Apr. 2011. *Phylogenetic trees made easy: A how-to manual.* 4th ed. Sinauer Associates, Publishers, Sunderland (www.sinauer.com). xiv, 282 pp., ill. (some col.), ISBN 9780878936069 PB, $51.95. [Eds. 1–3 2001, 2004, 2008.] — With 16 chaps. [read me first; tutorial—est. a phylogenetic tree (PT); acquiring sequences; aligning them; major methods to est. PTs; neighbor-joining trees; drawing PTs; parsimony; max. likelihood; Bayesian inference PTs w/ MrBayes; various computer platforms; advanced alignment w/ GUIDANCE; reconstructing ancestral sequences; detecting adapt. evol.; P networks; learn to program], 3 appendices (file formats, their interconversion; add. programs; FAQs), biblio., indices. With 5 new chaps., 221 ill. (many screen shots, now in col.); ca. 75% text completely rewritten. AKA: "Cladistics for dummies."

Hines, Pamela J. & 7 al. 27 Apr. 2012. Wildlife, wildlands, water, and more. *Science* 336: 414–417 (www.scimag.org). [Revs. 9 environ. films.]

Hirooka, Yuuri; Rossman, Amy Y.; Samuels, Gary J.; Lechat, Christian & Chaverri, Priscila. 15 Mar. 2012. *A monograph of Allantonectria, Nectria, and Pleonectria (Nectriaceae, Hypocreales, Ascomycota) and their pycnidial, sporodochial, and synnematous anamorphs.* CBS-KNAW Fungal Biodiversity Centre, Utrecht (www.cbs.knaw.nl) (series: *Studies in mycology* 71). [v], 210 pp., ill. (most col.), 298 × 210 mm, ISSNs 01660616 (print), 18729797 (online), ISBN 9789070351908 PB, €65.00. — With intro, methods, results, discussion, tax. pt., appendix (specimens for ill.), biblio. On 3 gen., 56 spp., w/ descrs., keys, 154 figs.; cladistic analysis DNA sequence data from 6 loci (act, ITS, LSU, rpb1, tef1 and tub) integrated w/ morph. chars. ana-, teleomorphs.

Kingsbury, Noel. 2009. *Hybrid: The history and science of plant breeding.* The University of Chicago Press, Chicago (www.press.uchicago.edu). xiv, [i], 493 pp., unill., ISBN 9780226437040 HB, $35.00. — With note on names, intro, 15 chaps. in 2 topic areas (from birth agr. to birth genet.; flowering of a technol.), techn. notes, 14-p. biblio. essay, 25-p. biblio., 17-p. index. Unill. book needs some pics to ease one along.

Mori, Scott A.; Berkov, Amy; Gracie, Carol A. & Hecklau, Edmund F. (ed.). 2011. *Tropical plant collecting: From the field to the Internet.* TECC Editora, Florianópolis (www.tecceditora.com). xvii, [i], 332, [2] pp., ill., ISBN 9788565005005 PB, Brl$60.00 Brazil, US$34.95 foreign. — With dedic. to J.D. Mitchell, 7 chaps. (Mori on his career as a trop. botanist; Berkov on her yr. in the rain forest; Mori on tips for trop. biologists; Mori on from the field; Mori on into the herb.; Mori on onto the Internet; Mori on rain forests trop. Amer.—any hope for the future?), 4 appendices by Mori (adopt-a-forest strategy; funding for syst. bot.; personal field supplies; essential coll. equipment), 20-p. biblio., 14-p. index, bionotes. An amazing work: interesting, engaging, invaluable.

Wołowski, Konrad; Kaczmarska, Irene; Ehrman, James M. & Wojtal, Agata Z. 2012. *Current advances in algal taxonomy and its applications: Phylogenetic, ecological and applied perspective.* W. Szafer Institute of Botany, Kraków (www.ib-pan.krakow.pl). 301 pp., ill. (some col.), ISBN 9788362975037 PB, €29.00. — Dedic. to Jadwiga Siemińska, w/ Wołowski & M. Łukaszek on Siemińska, 1 rev. (G. Novarino on 200 yrs. cryptomonad tax.), and 18 papers in 3 topic areas (tax.; ecol.; applications); no index.