

left for the soil microorganisms to work on. Destruction of the key organisms in the food chain destroys the community. Gully erosion on denuded land, when the rains come, completes the destruction. There is some reforestation, but this occurs at the expense of the closed forest, which includes too many species of no commercial value.

The first few chapters of *The Perpetual Forest* are strongly ecological in approach; the latter half of the book becomes almost anecdotal as group after group of animals is discussed to illuminate some part of the total picture. There is an interesting chapter on termites, driver ants, and other insects. There is a chapter on snakes and one on birds, and Collins understands and describes the dependence of animals on food niches.

He has a flair for vivid expression, but this is sometimes rendered less effective than it might have been through injudicious use of the comma. It was to have been expected that Collins, in studying the whole forest, would wander into fields in which he is not expert. His estimate of the age of the tropical forest as only a million years, when there is fossil evidence that it is 100 million years old, suggests a "blind spot." But these details do not seriously detract from the value of this book as a picture of the West African rain forest.

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**Programming for an Automatic Digital Calculator.** K. H. V. Booth. Academic Press, New York; Butterworths, London, 1958. 238 pp. \$7.50.

It is a good thing that this title reads "*Programming for an Automatic Digital Calculator*" rather than "*Programming for Digital Calculators*," for the reader will find the discussion limited to the APEXC, a computer at Birkbeck College, London.

The mathematical level of the exposition is fairly elementary. One can believe the author's statement, "the technique for programming can be acquired by anyone with a capacity for accurate detailed thinking, and a talent for solving puzzles. Moreover, it has been our experience that it is possible to train people to do useful programming in a matter of two weeks, although the acquiring of the more subtle tricks of the trade naturally takes longer." One can also say that the book will be invaluable to anyone faced with the problem of programming an APEXC computer. The relevant functional organization of the machine, detailed descriptions of various routines (such as division, square

root, matrix operations, and the solving of simultaneous linear equations), and fault-finding are discussed at length. Glimpses are also provided of more exotic topics, such as mechanical translation and automatic programming.

The book is not likely to have wide appeal for computer programmers or engineers for the following reasons: general problems of logical programming are not discussed; only the more elementary routines are considered; and much of the detailed discussion bears only on the Birkbeck machine. An experienced programmer, who can translate the discussion into a form applicable to his own machine, may find useful hints and kinks.

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## New Books

*Anatomy of the Human Body.* R. D. Lockhart, G. F. Hamilton, F. W. Fyfe. Lippincott, Philadelphia, Pa., 1959. 704 pp. \$13.50.

*The Annual of Czechoslovak Medical Literature, 1956.* National Medical Library, Prague, Czechoslovakia, 1959. 423 pp.

*Biographical Memoirs.* vol. 33. Published for the National Academy of Sciences by Columbia Univ. Press, New York, 1959. 490 pp. \$5. Contents: "Albert F. Blakeslee," E. W. Sinnott; "Isaiah Bowman," J. K. Wright and G. F. Carter; "Everette L. DeGolyer," A. R. Denison; "Leland O. Howard," J. E. Graf and D. W. Graf; "Clark L. Hull," F. A. Beach; "Dunham Jackson," W. L. Hart; "Charles K. Leith," D. F. Hewett; "Warfield T. Longcope," W. S. Tillett; "Paul D. Merica," Z. Jeffries; "Robert A. Millikan," L. A. Du Bridge and P. A. Epstein; "Thomas H. Morgan," A. H. Sturtevant; "Frederick G. Novy," E. R. Long; "George W. Pierce," F. A. Saunders and F. V. Hunt; "Josiah Royce," R. S. Woodworth; "Lyndon F. Small," E. Mosettig; "Lewis M. Terman," E. G. Boring; "Horatio C. Wood, Jr.," G. B. Roth.

*College Zoology.* Robert W. Hegner, and Karl A. Stiles. Macmillan, New York, ed. 7, 1959. 736 pp. \$7.50.

*Encyclopedia of Chemical Reactions.* vol. 8. Compiled by C. A. Jacobson. Cliford A. Hampel, Ed. Reinhold, New York; Chapman & Hall, London, 1959. 533 pp. \$14.

*High Altitude and Satellite Rockets.* A symposium. Sponsored by the Royal Aeronautical Society, the British Interplanetary Society, and the College of Aeronautics. Philosophical Library, New York, 1959. 136 pp. \$15. Contents: "The scientific applications of rockets and satellites," H. S. W. Massey; "The satellite launching vehicle," M. W. Rosen; "British upper atmosphere sounding rocket," W. H. Stephens; "Some propulsion problems of high altitude rockets," A. D.

Baxter; "Design problems of large rockets," K. J. Bossart; "U.S.S.R. rocket and earth satellite programme for the I.G.Y.," "Recovery after re-entry by the use of aerodynamic lift," W. F. Hilton; "Dynamics of a dissociating gas: non-equilibrium theory," N. C. Freeman; "High temperature materials in relation to the satellite re-entry problem," P. Murray; "Some problems of instrumentation, telemetry and guidance," A. W. Lines; "Problems of respiratory metabolism in sealed cabins," Hans G. Clamann; "Psychophysiological hazards of satellite flight," J. P. Henry; "Future developments in rocket propulsion beyond the atmosphere," L. R. Shepherd.

*Introductory Chemistry.* Lillian H. Meyer. Macmillan, New York, ed. 2, 1959. 536 pp. \$6.

*Let There Be Light.* Lillian J. Bragdon. Lippincott, Philadelphia, Pa., 1959. 91 pp. \$2.75 (juvenile book).

*Louis Pasteur, Fighting Hero of Science.* Madeleine P. Grant. McGraw-Hill, New York, 1959. 220 pp. \$3.25 (juvenile book).

*Microbiology.* Louis P. Gebhardt and Dean A. Anderson. Mosby, St. Louis, ed. 2, 1959. 476 pp. \$5.75.

*Plant Life.* Lorus J. Milne and Margery Milne. Prentice-Hall, Englewood Cliffs, N.J., 1959. 296 pp. \$6.95.

*Plant Propagation.* Principles and practices. Hudson T. Hartmann and Dale E. Kester. Prentice-Hall, Englewood Cliffs, N.J., 1959. 568 pp. \$8.75.

*Principles of Microbiology.* Walter W. Krueger and Karl R. Johansson. Saunders, Philadelphia, Pa., ed. 2, 1959. 587 pp.

*A Record of History and Evolution of Early American Bridges.* Llewellyn N. Edwards. University Press, Orono, Maine, 1959. 216 pp.

*Second Conference on Co-Ordination of Galactic Research.* International Astronomical Union Symposium No. 7. A. Blaauw, G. Larsson-Leander, N. G. Roman, A. Sandage, H. F. Weaver, A. D. Thackeray, Eds. Cambridge Univ. Press, New York, 1959. 101 pp. \$3.

*A Short Course of Organic Chemistry.* John E. Leffler. Macmillan, New York, 1959. 208 pp. \$5.50.

*The Sleep Walkers.* A history of man's changing vision of the universe. Arthur Koestler. Macmillan, New York, 1959. 624 pp. \$6.50.

*The Structure of Electrolytic Solutions.* Walter J. Hamer, Ed. Wiley, New York; Chapman & Hall, London, 1959. 453 pp. \$18.50.

*A Supplement to "Helium."* E. M. Lifshits and E. L. Andronikashvili. Translated from Russian. Consultants Bureau, New York; Chapman & Hall, London, 1959. 172 pp. \$7.50.

*Symbolic Logic and Intelligent Machines.* Edmund C. Berkeley. Reinhold, New York; Chapman & Hall, London, 1959. 208 pp. \$6.50.

*Thermodynamics.* Gordon J. Van Wylen. Wiley, New York; Chapman & Hall, London, 1959. 578 pp. \$7.95.

*The West in Crisis.* James P. Warburg. Doubleday, Garden City, New York, 1959. 192 pp. \$3.50.