and indexed. If the editors' promise holds good, others will follow and will be in demand by the growing body of students who are finding that forest science contains intellectual challenges of first magnitude. A major value in the series is its international coverage, long needed in forest science.

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Communications Facilities

Data Transmission. William R. Bennett and James R. Davey. McGraw-Hill, New York, 1965. xii + 356 pp. Illus. $14.50.

This book presents a survey of the development and current technology of data transmission; attention is focused on techniques applicable to transmission over band-limited channels, with special emphasis on voice-band telephone circuits.

The central problem of data transmission over such channels is the intersymbol interference that results from band-limiting and nonuniformity of channel amplitude and phase. Efficient transmission requires a signal design suited to the bandwidth limitations of the channel and equalization of the channel characteristics to reduce channel-induced perturbations to an acceptable level. The authors focus their attention on the question of signal design for band-limited channels; in particular, for each of a number of modulation-detection systems, received-signal spectra are derived which result in zero intersymbol interference. Results are obtained for the low-pass, or "baseband," channel and for amplitude, frequency, and phase modulation. The spectra derived are directly applicable for signaling over an ideal, band-limited channel. The effects of perturbations inherent in real channels are considered only qualitatively. Although the results presented are interesting in their own right, the degree of mathematical detail tends to emphasize the differences between the various signaling systems rather than the underlying principles that lead to zero intersymbol interference. It should also be noted that the "raised-cosine" shape which forms the basis for most of the spectra considered is only one of a class of spectra that lead to the desired result; omitting consideration of alternatives results in a biased picture of their relative importance.

Considering the book as a whole, great emphasis is placed on the question of signal design, whereas questions of channel equalization, carrier recovery, and synchronization are given comparatively brief treatment. The potential for much more efficient utilization of band-limited channels, which has been demonstrated in recent work on error correction techniques and adaptive receivers, is mentioned only in passing.

In summary, this book presents a useful compilation of contributions to the problem of signal design for data transmission and includes a brief survey of other topics relating to data transmission by telephone line.

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Note

Biographical Memoirs of the Fellows of the Royal Society, vol. 10 (Royal Society, London, 1964. 394 pp. $6) contains biographical memoirs of 21 Fellows: Kenneth Bailey by A. C. Chibnall; Gordon Herriot Cunningham by J. Ramsbottom; Gerhard Domagk by L. Colebrook; Claude Gordon Douglas by D. J. C. Cunningham; Herbert Spencer Gasser by Lord Adrian; Reginald Ruggles Gates by J. A. Fraser Roberts; George Ridsdale Goldsbrough by J. Proudman; Alan Arnold Griffith by A. A. Rubbra; Maurice Pascal Alers Hankey, First Baron Hankey of the Chart by Sir Basil Schonland; Edward David Hughes by Sir Christopher Ingold; David Keilin by T. Mann; David Keith Chalmers MacDonald by K. Mendelssohn; Sisir Kumar Mitra by J. A. Ratcliffe; Joseph Lade Pawsey by Sir Bernard Lovell; Carl Johan Fredrik Skottsberg by Sir Edward Salisbury; Edgar William Richard Steacie by L. Marion; Otto Struve by T. G. Cowling; Edward Charles Titchmarsh by Mary L. Cartwright; William Ernest Stephen Turner by R. W. Douglas; Ojvind Winge by M. Westergaard; and Sidney William Wooldridge by J. H. Taylor.

Each memoir includes a photograph of the Fellow and a bibliography of his published works.

New Books

Biological and Medical Sciences

Actions chimiques et biologiques des Radiations. M. Haissïnsky, Ed. Masson, Paris, 1965. 250 pp. Illus. F. 86. Three papers: "Dissociation processes in electronically excited molecules" by K. Funabashi and J. L. Magee; "Attachement électronique en phase gazeuse" by F. Fiquet-Fayard; and "Primary physical and chemical effects associated with emission of radiation in nuclear processes" by S. Wexler.

The Adrenals and Resuscitation. Mikhail Grigor'evich Kolpakov. Translated from the Russian edition (Moscow, 1964) by Basil Haigh. Consultants Bureau, New York, 1965. 113 pp. Illus. Paper, $17.50.

Advances in Fluorine Research and Dental Caries Prevention. vol. 3. Proceedings, 11th Congress, European Organization for Research on Fluorine and Dental Caries Prevention (Sandefjord, Norway), July 1964. J. L. Hardwick, Hans R. Held, and Klaus G. König, Eds. Pergamon, London; Macmillan, New York, 1965. 289 pp. Illus. $17.50. Thirty papers; the majority are in English, the others in German.

The American Oyster. *Grassostrea virginica* Gmelin (*Fishery Bull. 64*). Paul S. Galtsoff. Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C., 1964. 484 pp. Illus. Paper, $2.75 (order from Superintendent of Documents, Washington, D.C.).

Annual Review of Pharmacology. vol. 5. Windsor C. Cutting, Robert H. Dreisbach, and Henry W. Elliott, Eds. Annual Reviews, Palo Alto, Calif., 1965. 554 pp. Illus. $8.50. Twenty-three papers.

Autogenic Training: Correlations Psychosomaticae. Wolfgang Luthe, Ed. Grune and Stratton, New York, 1965. 339 pp. Illus. $14.50. Fifty-four papers on the following topics: Theory and Research (18 papers); Clinical Application (21 papers); and International Perspectives (15 papers); the papers are in German, English, or French.

The Behaviour of Arthropods. J. D. Carthy. Freeman, San Francisco, Calif., 1965. 156 pp. Illus. Paper, $2.50. University Reviews in Biology Series, edited by J. E. Treherne.

Bioastronautics Data Book. Paul Webb, Ed. Scientific and Technical Information Division, National Aeronautics and Space Administration, Washington, D.C., 1964 (order from Superintendent of Documents, Washington, D.C.). 410 pp. Illus. Paper, $2.25. The contributors are Kenneth C. Back, Charles E. Billings, Jr., W. Vincent Blockley, A. Charles Bryan, Randall M. Chambers, Charles E. Clauser, Beatrice Finkelstein, John G. Fletcher, George G. Frost, Douglas Grahn, Fred E. Guedry, H. T. E. Hertzberg, Harry J. Jerison, Gerald S. Kanter, Richard W. Lawton, Mildred K. Pinkerton, Emanuel M. Roth, Norman G. Roth, John W. Senders, A. A. Thomas, Paul Webb, and William J. White.

Biochemical and Neurophysiological

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