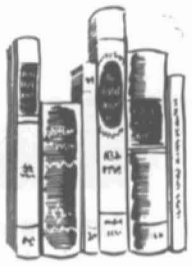

books reviewed

Human Engineering Guide for Equipment Designers, 2d Ed.

By Wesley. E. Woodson and Donald W. Conover. Published (1964) by University of California Press, Berkeley, Calif., 471 pages. 10½ by 8. Price $10.00.

Readers familiar with the first edition of this book are in for a pleasant surprise, for the second edition is considerably enlarged and is in hard-cover form. As a happy hunting ground for hundreds of useful facts and figures on such things as optimum console heights, chair sizes and indicator lamp colors, this book is unsurpassed. The chapters on working environment have been particularly enlarged, and the motion-picture or television equipment designer will find a wealth of information to enable equipment to be used in the most comfortable and effective manner possible.

The book now includes sections on the minimum-sized hole through which an average technician can remove a hot tube or adjust a small control, and the minimum aisle size required to permit the maintenance staff to lie full length and undo that last screw. Layouts of dials, lamps, signs, printed materials and even books are referred to with examples of good and bad design. Lighting, heating, ventilation, sound levels and even radiation protection are all included in a factual, well-indexed presentation with many references for further study. Much work has been done in space medicine since the first edition was published, and some of the results are included here — such as the correct orientation for rack-mounted equipment in rotating space stations!

All the contents are referred to the "average" human, with tolerances, and perhaps the key sentence for the designer is found early in Chapter One; "YOU don't necessarily represent the user!" Attention to this point could save many operational and maintenance headaches; this book should be required reading for all equipment designers and users.—*M. W. S. Barlow*, Canadian Broadcasting Corp., 7925 Cote St. Luc Rd., Montreal 29, Que.

Documentary in American Television: Form-Function-Method

By A. William Bluem. Published (1965) by Hastings House Publishers, Inc., 151 E. 50 St., New York, N.Y. 10022. 312 pp. incl. index. Illus. 6 by 9 in. Price $8.95.

This excellent critique of the television documentary gives a chronological survey

and evaluation of the development of this form of communication. The author places the television documentary in historical perspective, relating it to its predecessors and contemporaries: radio, the photo-essay and the motion-picture newsreel and documentary film. In the preface the author declares as his intention that of "attempting to set into some limited context that aspect of television in America which has properly and honorably reached beyond the easy and merely enjoyable." This he has admirably done. The book is a valuable addition to the serious literature of television.

An insight into the almost terrifying power of the documentary is gained from a discussion of the news documentary (Chapter 6): "The words and actions of men recorded in actual circumstances may be so arranged by either heightening or intensification, that a viewer might assume motivations and characteristics at variance with the truth. It is this power of editing which enabled Frank Capra and Leni Riefenstahl to turn the same film sequences of Adolph Hitler toward entirely contrary purposes . . ."—*Ed.*

Beginnings of the Biograph

The Story of the Invention of the Mutoscope and the Biograph and Their Supplying Camera

By Gordon Hendricks. Published (1964) by The Beginnings of the American Film, G.P.O. 2552, New York, N.Y. 10001. 78 pp., 24 ills. 6¼ x 9 in. Price $4.75.

Beginnings of the Biograph tells the fascinating facts about the invention of the Biograph camera and projector, and the photocard-flipping device, the Mutoscope, which gave the viewer an illusion of motion pictures. A relatively small number of authoritative books have been published about the events surrounding the early development of the motion picture camera and projector. Very few of these books contain documentary reference to original source material. Therefore the value of this book and of another also by Hendricks, *The Edison Motion Picture Myth*, University of California, 1961 (reviewed in the *Journal*, October 1962, p. 797), is that the author has included many references to or actual quotations from original sources, so that, as he says ". . . the reader may see how I have reached such conclusions as I have — and may, if he feels so compelled, form his own differences."

The book now under review covers the period of late 1894 to the spring of 1897, during which W. K. L. Dickson (who several years earlier with T. A. Edison developed the Kinetoscope and Kinetograph) joined with Harry Marvin, Herman Casler, and Elias Koopman to design and produce the Biograph and other devices. Described for the first time in authenticated detail is the screen debut of the Biograph in Pittsburgh in September 1896. Hendricks also tells in some detail how the camera was taken to Canton, Ohio, on September 18, 1896, where it was used to record for the first time motion pictures of a candidate for the Presidency of the United States, William McKinley. Cited are many other incidents of photographing interesting subjects and projecting the resulting films.

Because of the frequent use of inserts of source material, the book requires careful reading to follow the details. In that respect it is not a relaxing book to read but is somewhat like reading a textbook. The author deserves much credit for the extensive and painstaking searches he has made to focus the light of accurate reporting on his subject matter. For example, anyone who has worked on older model projectors will enjoy Billy Bitzer's description (page 47) of his experience operating the Biograph projector at Hammerstein's Olympia in New York in October, 1896. The uncorrected notes read in part as follows:

". . . I would gingerly start the somewhat large motor controller my left hand reaching up to help guide the film at its start My right hand when she got up to speed quickly clutched at a rod which controlled the picture upon the screen. as the beater cam movement which pulled the pictures down into position was uneven pictures would gain or lose in the aperture frame the lever which operated a friction disk controlled this my foot would push down the pedal which opened the light gate. I had hung a mirror in a wooden frame on the front drape at an angle which enabled me to intermittently observe how the film was feeding on. if it was trying to creep toward the edge of the feeder pulley. I would give it a push back with my forehead or nose . . . ."

Bitzer, a well-known figure in the early days of motion pictures, did most of the projection of the Biograph pictures.

Nearly all the 24 illustrations are reproduced here for the first time. Appendices contain brief biographies of Casler and Dickson. A useful six-page index is included.—*Glenn E. Matthews*, 55 Stoneham Rd., Rochester, N.Y. 14625.

Cinemicrography In Cell Biology

Edited by George G. Rose. Published (1963) by Academic Press Inc., 111 Fifth Ave., New York, N.Y. 10003, and Academic Press Inc. (London) Ltd., Berkeley Square House, London, W1, England. 500 pp., tables, 248 photographs and diagrams, indexes, 5⅞ by 9 in. Price, $18.50.

Note: This notice and description of contents is published for the interest of *Journal* readers. The delay in obtaining a true review is regretted; when such is received, it will be published.—*Ed.*

Cinemicrography In Cell Biology is both international and interdisciplinary in character. It includes reports from 18 laboratories in seven countries, and treats cinemicrography from three different approaches: equipment, applications, and data. The editor describes the book as containing "(1) factual information on the cine apparatus and techniques, (2) special methods of analysis possibly only with the use of cine equipment, and (3) a broad array of data on tissues and cells derived from the permanent records of film strips."

The volume is very well put together, with excellent reproduction of the many halftones, extensive reference lists following each article, and indexes covering authors and subjects. The editor, George G. Rose, is a member of the Department of Biology of the University of Texas M. D. Anderson Hospital and Tumor Institute, of the De-

partment of Medicine (Periodontics), The University of Texas Dental Branch, and of the Tissue Culture Laboratory, Hermann Hospital, Houston, Texas.

Of major interest to SMPTE members is *Part I: Techniques*, which includes the following articles:

Modular Design for Time-Lapse Cinemicrography, by C. G. Lefeber, Pasadena Foundation for Medical Research, Pasadena, Calif.

General Design of a Comparative Cinemicrographic Equipment for Tissue Culture, by Wilton R. Earle, Tissue Culture Section, Laboratory of Biology, National Cancer Institute, Bethesda, Md.

Instrumentation for Cinemicrography from a General Purpose Viewpoint, by Arthur T. Brice, Department of Bacteriology, University of California, Davis, Calif.

Flying Spot Television Microscopy, by P. O'B. Montgomery Jr., and William A Bonner, Department of Pathology, The University of Texas Southwestern Medical School, Dallas, Texas

Flying Spot Cytospectrophotometry of Living Cells, by Jerome J. Freed and James L. Engle, Department of Genetics, The Institute for Cancer Research, Fox Chase, Philadelphia, Pa.

The Use of the Interference Microscope for the Study of Cell Movements and the Quantitative Analysis of Changes in Growing Cells, by E. J. Ambrose, Chester Beatty Research Institute, Institute of Cancer Research, Royal Cancer Hospital, London, England

Analyses of Variations in Intermitotic Time, by Jesse E. Sisken, Department of Experimental Pathology, City of Hope Medical Center, Duarte, Calif.

In *Part II, Tissues*, specific applications of cinemicrographic techniques are discussed in the following articles:

Dynamics of the Development of Myogenic Tissue under Conditions of Explantation and Transplantation, by A. N. Studitsky, A. N. Severtsov Institute of Animal Morphology, Academy of Sciences of the USSR, Moscow, USSR

Experiments on Induction and Effect of Gamma Radiation in Mouse Lung Developing *in Vitro*, by E. Borghese, Institute of Topographic Anatomy, University of Naples, Italy, and T. Alescio and A. Cassini, C.N.E.N. Laboratory of Animal Biology, La Casaccia (Rome), Italy

Some Tissue Culture Studies Concerning Bone Resorption, by Paul Goldhaber, Department of Oral Histopathology and Periodontology, Harvard School of Dental Medicine, Boston, Mass.

Part III: Cells, includes articles on:

Motion Picture Studies of the Osteoclast, by Norman M. Hancox, Department of Histology, The University, Liverpool, England

Cleavage of Mouse Egg, by E. Borghese and A. Cassini (see above)

Phagocytosis and Pinocytosis, by Alfred Gropp, Pathologisches Institut, University of Bonn, Germany

The Morphological and Structural Features of Neurons *in Vitro* Studied by Phase-Contrast and Time-Lapse Movies, Giovanni Godina, Instituto di Anatomia

deglia animali domestici, Università di Torino, Italy

Hormonal Influence on Goldfish Pigment Cells *in Vitro*, by Funan Hu, Department of Dermatology, Henry Ford Hospital, Detroit, Mich.

Cine Analysis of Some Aspects of Mitosis in Endosperm, by A. Bajer and J. Molè-Bajer, Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Warsaw, Poland

Cytological Studies on Parasites and Host Cells, by Clay G. Huff and A. Burns Weathersby, Division of Parasitology, Naval Medical Research Institute, Bethesda, Md.

Considerations on Nucleolar Physiology; The Importance of Time-Lapse Cinemicrography, by Jorge González-Ramírez, Instituto de Estudios Médicos y Biológicos de las Universidad Nacional Autónoma de México, México, D.F.

Mosaic Patterns of Stromal Cells in Tissue Cultures, by George G. Rose and Martin Cattoni, Department of Medicine, The University of Texas Dental Branch, Houston, Texas

Intercellular Interchange, by George G. Rose.

Mass Media and National Development:

The Role of Information in the Developing Countries

By Wilbur Schramm, with a chapter on institutional and legal problems of the mass media in new countries by Fernand Terrou. Published (1964) by Stanford University Press, Stanford, Calif., and the United Nations Educational, Scientific and Cultural Organization, Place de Fontenoy, Paris 7. 333., tables, appendixes, extensive bibliography, index, 5½ × 8½ in. Paper-bound, $6.00, cloth-bound, $7.50.

SMPTE members concerned with the promotion or installation of motion-picture or television equipment in the underdeveloped areas of the world will find that this book puts their activities into a larger scheme. Instructors in engineering schools will also find this book valuable for showing their students the social uses of their engineering knowledge.

Like Jawaharlal Nehru, most leaders of the underdeveloped lands have opted "to make their static traditional society something 'dynamic and vital . . . adventurous and new," and mass media must provide the channels of communication between the leaders and those whom they propose to lead into these new adventures. Wilbur Schramm, Director of the Institute for Communication Research at Stanford University, believes that simultaneously with development of their agriculture, industry, and "social overhead" (transport, irrigation, communications, etc.), the underdeveloped lands must mobilize their human resources. None of these sectors can improve by itself. Most aspects of the mobilization of human resources — e.g., education, literacy training, mechanical skill training, health improvement — can be accomplished most speedily and effectively by utilization of the mass media, of which the underdeveloped lands have pathetically little (Dr. Schramm gives the figures). Dr. Schramm urges the developing countries to study their communications and how best to build up their means of distributing information. "The stage is set," he reports, "for the manufacture of the very low-cost but rugged [radio] receiver (ten dollars or less). A design has been made and Unesco is trying to get it manufactured."

Dr. Schramm, whose book was commissioned by Unesco, points out that "professional organizations can also have a significant influence on information handling. Traditionally, these organizations are the custodians of professional standards of conduct, and often they are the continuing force behind professional improvement. In many cases, they have contributed substantially to in-service training. Therefore, a new nation, building its mass media, should consider very carefully whether it should not also encourage the formation of vigorous and active associations of newspapermen, broadcasters, film makers, printers, communication engineers, and the like."

Essentially, *Mass Media and National Development* is a book of sociology. But there are lessons in it for everyone.—*Ed.*

Teaching Machines and Programmed Learning in the Soviet Bloc (A Survey of the Published Literature, 1962–1963)

Prepared by Arlo A. Schultz. Published (1964) by the Joint Publications Research Service, Building T-30, Ohio Drive and Independence Avenue, S.W., Washington 25, D.C., of the Office of Technical Services, U.S. Department of Commerce. Typewritten report, 24 pp. 8 by 10½ in., paper-bound, 13 figures. Price, $.75.

Moscow in May 1963; Education and Cybernetics

An interchange of Soviet and American ideas concerning education, programed learning, cybernetics, and the human mind. A Joint Report by Oliver J. Caldwell and Loren R. Graham. Published (1964) by U.S. Department of Health, Education, and Welfare, Office of Education, OE-14106, Bulletin 1964, No. 38, for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. vii + 49 pp., 5⅞ by 9⅛ in., paper-bound. Price $.25.

B. F. Skinner, "Father" of programed instruction in this country, apparently has "fathered" it in the Soviet Union also, for when he lectured there on the subject of teaching machines in 1961, he felt that "the general response was that of surprise." Since then, several machines have been developed in Russia, and the subject of programed and cybernetic learning has been examined and written about to the extent that Arlo A. Schultz is able to list 58 Russian articles. Some of these articles have been translated and are available from the Joint Publications Research Service at the above address.

Mr. Schultz's pamphlet outlines current Soviet trends and reproduces, unfortunately very poorly, photographs of machines made in Russia. The most sophisticated of the machines illustrated makes use of a digital computer and serves 25 students simultaneously; service to 120 to 150 students of four different subjects simultaneously is contemplated.

Oliver J. Caldwell, Acting Associate Commissioner and Director of the Bureau

of International Education, and Loren R. Graham, Assistant Professor of Russian History and of the History of Science at Indiana University, spent two weeks in Moscow exchanging views with Russian educators and visiting several schools. Their pamphlet reports on the discussions they engaged in regarding cybernetics and programed learning; they saw or heard about several machines of which they make mention. One machine which they were shown, and of which they were given a photograph, is a testing device which "answers only 'yes' or 'no' to 15 different questions which had been programed into it through a film, which, in turn, is threaded in a complicated way so that it forms a Mobius strip." The visitors were told that the machine possesses 5,000 memory units, but it nevertheless appeared to them to be limited in its capabilities. At the First Moscow Pedagogical Institute of Foreign Languages, Caldwell and Graham observed what they took to be highly sophisticated equipment for analyzing spoken language. SMPTE members might find clues in this pamphlet that could lead them to more extensive information from other sources.—*Ed.*

School Scheduling by Computer: The Story of GASP

By Judith Murphy and Robert Sutter. Published (1964) by Educational Facilities Laboratories, Inc., 477 Madison Avenue, New York, N.Y. 10022. 60 pp., illus., 7¼ by 8¼ in., paper covers. Available on request.

Audiovisual and computer engineers involved in the variety of applications that can be found for computers will be interested in "The Story of GASP." *G*eneralized *A*cademic *S*imulation *P*rograms was devised primarily by Robert Holz of MIT, in response to the problem facing that institution when its veteran scheduler was preparing to retire. GASP "harnesses a large digital computer [IBM 7094] to school scheduling," producing a master schedule from information prepared by school administrators on punch cards from IBM 1401. This master schedule provides for students, instructors, time, and rooms, the booklet states, thus going much further than "simply the assignment of students to classes, or 'sectioning,' as it is sometimes called." IBM's CLASS has been "sectioning" for some time, while school schedules have continued to be "handmade."

Although the pamphlet cites one school administrator who maintains that his GASP schedule is "more human" than his old handmade one, since "the scheduler working with the computer can take much fuller account of the human element than any scheduler working alone," the limitations of computerized scheduling are emphasized. A schedule will be only as good as the data fed to the computer. Furthermore, the computer cannot make possible the impossible; for instance, it cannot fit eight 40-minute periods into 5 hours. But described are the experiences of four high schools in building their master schedules last year and this. Results are claimed to be satisfactory and to improve with increasing experience of the administrators.—*Ed.*