many reasons: that it captured the mood of America at the time; that it was a politically neutral project and fitted well a system of values in which technology and competitiveness are equated with progress and strength; that there was something in it for most of the influential or prestigious institutions and groups in American society: the Congress, private industry, universities, the scientific and engineering communities, unions and blue-collar workers, the mass media, especially television, the banks, and the military; that it related to a delimited goal that could be understood and achieved with existing scientific knowledge; that it was backed up by an unusually competent management team and a highly dedicated group of rocket scientists.

Whatever effect the landing on the moon may have had on American prestige and self-confidence, it has surely been overshadowed by other events: Watts, Detroit, the Democratic convention of 1968, Jackson and Kent State, and above all the Vietnam war, the last of these initiated by the same administration that earlier had fixed our gaze on "the challenge in space." Which is more indicative of the quality of our political decision making? Why have we had an Apollo but not, for example, a decent health care or welfare system? Why can there be such agreement, so much energy and innovativeness, and so many resources devoted to one and not the other? It is certainly legitimate to choose to present a history of this decision within the limited framework adopted in this book. It is less legitimate to tout this decision as evidence of a political system operating at its best. Or, if it is its best, we may well worry for the future.

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Drugs against Tumors

Single Agents in Cancer Chemotherapy. ROBERT B. LIVINGSTON and STEPHEN K. CARTER. IFI/Plenum, New York, 1970. x, 406 pp., illus. $20.

At the present time, cancer chemotherapy can induce cures in only a few rare neoplasms, such as choriocarcinoma and Burkitt's lymphoma; however, significant palliation of symptoms and prolongation of useful life expectancy are being attained for patients with a wide variety of more common malignancies. Oncologists are generally aware of the major indications for use of many of the drugs, but the large body of clinical reports on individual agents has not until now been collated in a coherent form. Livingston and Carter, who as staff members of the National Cancer Institute have been closely involved in the administration and evaluation of the nationwide program, begun in 1955, for clinical evaluation of anti-tumor agents, have undertaken the sizable job of succinctly summarizing the various clinical trials in tabular form.

The title of their book accurately describes the contents. It does not deal with radiation therapy, with surgery in cancer, or with "adjuvant" therapy in which various approaches are combined. The authors have limited their analysis to 16 major drugs that are commercially available plus nine that still remain investigational. The chapter devoted to each drug includes a brief outline of relevant pharmacology, the authors' critical analysis of the drug's current and projected role in cancer therapy, and—the most valuable and lengthy component—a series of documented tables that give comprehensive data concerning the various tumors in which the agent has been tried, the dosages and schedules used, and objective responses and major toxicities observed.

A number of surprises become apparent to the specialist in the tabular data. As C. Gordon Zubrod points out in his foreword, ". . . some drugs are more active against certain tumors than had been realized; . . . evidence for the activities of certain drugs against specific tumors is sometimes tenuous; [and] some highly active agents have never been tried against some of the fairly common tumors." Examples can be ferreted out from the tables in this book. Additionally, in some instances it becomes clear that the generally recommended or "standard" dosage and schedule may be less than optimal (as with 5-fluorouracil) and that alternative schemes of administration cause less toxicity with equal or superior benefits.

The authors limit their tabulations to the effects of single agents; they emphasize that this information is vitally important for the development of rational forms of combination chemotherapy. Animal studies of the kinetics of tumor cell proliferation and response to treatment have shown that in many tumors individual drugs destroy a constant fraction of the cell population. In contrast, use of combination chemotherapy may have synergistic effects on tumor cells but not on normal tissues, and thus may reduce the number of tumor cells by many orders of magnitude more than could be accomplished with the single agents—sometimes producing cures. This approach also decreases the likelihood of development of drug resistance. In disseminated neoplasms in man (where more than 10^{12} tumor cells may be present in the body), combination chemotherapy has been applied with increasing effectiveness in disorders such as acute leukemia, Hodgkin's disease, and testicular tumors. The "hard data" presented in this handbook provide the necessary background for development of new forms of combination chemotherapy and further evaluation of certain of the single agents.

This volume will be an invaluable reference tool for the practicing clinical oncologist as well as for the researcher.

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The Science of Waters

History of Hydrology. ASIT K. BISWAS. North-Holland, Amsterdam, and Elsevier, New York, 1970. xii, 336 pp., illus. $16.

There are some fields so little touched upon in the undergraduate science curriculum where most historians of science are recruited that only a practitioner has the knowledge to write their histories. This book is a practicing hydrologist's account of his own branch of earth science from antiquity to 1900. Though Biswas must be more familiar with modern developments, he has chosen to devote the first half of his volume to the period before 1500. Beginning with archeological evidence of hydraulic structures, he moves in chapters largely chronological through the written record of man's ideas about groundwater and streams, their measurements and motions. Two themes emerge.

The first is the conceptualization of the hydrologic cycle, summed up in the millennia-long argument about the origins of springs and rivers, which was not concluded until, with the rise of modern science in the 17th century,

Pierre Perrault, Edmé Mariotte, and Edmond Halley used quantitative and experimental methods to prove that the water we see flowing at the earth's surface arrived there as rain, that the earth's water moves in a closed loop between earth, ocean, and atmosphere. The second, beginning with this application of what we like to call the scientific method, is one of increasing quantification. Here Biswas's narrative dissolves into a series of isolated developments, many of them formulas whose motivation is never clearly delineated, but the reader perceives that the science of hydrology has been largely empirical, developing formulas from data gathered in the field or laboratory rather than mathematical solutions to theoretical problems.

To write about a branch of science that grew up from a number of disparate inquiries begun at different times is exceptionally difficult. At the very least one risks anachronism: the term "hydrology" dates only from the end of the 18th century, at which point we are four-fifths of the way through the book. Furthermore, like most practitioners who write historical accounts of their disciplines, Biswas uses positive accomplishments, in other words what we believe today, as the touchstone for his judgments of the past. Thus he has written that old-fashioned kind of history (known as Whig history) which is rapidly becoming out of date in the history of science as it has long been in general history. What one seeks in a historical account is a narrative in which events unfold in their own context. Though he knows how the story comes out, the historian must write as if the people whose lives or work he presents had real choices to make. The recent works of W. E. K. Middleton in the related field of meteorology show how such a genuinely historical work might look.

Biswas has not provided such a history. There is almost no discussion of the social or intellectual environments within which hydrology developed. The notes to the text are insufficient to lead the reader to the original passages; those to the pictures do not make clear what is original and what is reconstruction. Yet Biswas has provided a copiously illustrated guide to the literature of hydrology, and he has furnished it with a set of references which shows a command of the sources and secondary works in many languages. He has done for hydrology nearly what Rouse and Ince have done for the related subject of hydraulics, and geologists and engineers will find this book useful for background. Historians of science and technology will hope that Biswas's foundations in the history of hydrology can be built upon.

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New Journals Received

Electrical Engineering Review. Vol. 1, No. 2, 1970. Semiannually. Editorial board chairman: K. A. Ahmad (Lahore). Published by the Department of Electrical Engineering, West Pakistan University of Engineering and Technology, Lahore. Rs. 11.

Human Biology in Oceania. Vol. 1, No. 1, February 1971. Twice yearly. Editor: R. J. Walsh (University of New South Wales). Published by the University of Sydney, New South Wales, Australia. $8.50.

Medical Socioeconomic Research Sources. Vol. 1, No. 1, January 1971. Monthly, with annual cumulation. American Medical Association, 535 North Dearborn St., Chicago, Ill. 60610. $20.

Physiological Plant Pathology. An International Journal of Experimental Plant Pathology. Vol. 1, No. 1, January 1971. Quarterly. Editors: T. F. Preece (The University, Leeds, U.K.) and B. J. Deverall (Wye College, Ashford, Kent, U.K.). Academic Press, 111 Fifth Ave., New York. $19.50.

Russian Ultrasonics. Vol. 1, No. 1, January–March 1971. Quarterly. Editors: B. R. V. Hughes and J. M. D. G. Parry. Multi-Science Publishing Co., 33 South Drive, Brentwood, Essex, England. $50.

Surface Wave Abstracts. Vol. 1, No. 1, January–March 1971. Quarterly. Editors: B. R. V. Hughes and J. M. D. G. Parry. Multi-Science Publishing Co., 33 South Drive, Brentwood, Essex, England. $56.

Theory and Decision. An International Journal for Philosophy and Methodology of the Social Sciences. Vol. 1, No. 1, October 1970. Five or six issues a year. Editors: W. Leinfellner (University of Nebraska, Lincoln), A. C. Michalos (University of Guelph, Guelph, Ontario), and others. D. Reidel Publishing Company, P.O. Box 17, Dordrecht, Netherlands. $19.55 for a volume of four issues; to individuals, $11.15.

Books Received

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Addendum 1971 to the British Pharmacopoeia 1968. Published on the recommendation of the Medicines Commission pursuant to the Medicines Act 1968. Pharmaceutical Press, London, 1971. xviii, 142 pp., illus. $11.

Advances in Morphogenesis. Vol. 9. M. Abercrombie, Jean Brachet, and Thomas J. King, Eds. Academic Press, New York, 1971. xii, 328 pp., illus. $18.50.

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Advances in Solid-Liquid Flow in Pipes and Its Application. Iraj Zandi, Ed. Pergamon, New York, 1971. viii, 298 pp. + plates. $21.50.

Advances in the Study of Behavior. Vol. 3. Daniel S. Lehrman, Robert A. Hinde, and Evelyn Shaw, Eds. Academic Press, New York, 1970. xiv, 264 pp., illus. $12.

Adventures in Medical Writing. Robert H. Moser and Erwin Di Cyan, Eds. Thomas, Springfield, Ill., 1971. xii, 68 pp. $6. American Lecture Series, No. 794.

The Agricultural Potential of the Middle East. Marion Clawson, Hans H. Landsberg, and Lyle T. Alexander. Elsevier, New York, 1971. xx, 316 pp., illus. + loose maps. $19.50. The Middle East, Economic and Political Problems and Prospects, vol. 1.

American Medicine in Crisis. Edward P. Luongo. Philosophical Library, New York, 1971. 194 pp., illus. $9.95.

Anatomy and Physiology of Speech. Harold M. Kaplan. McGraw-Hill, New York, ed. 2, 1971. xii, 528 pp., illus. $12.95.

The Animals Next Door. A Guide to Zoos and Aquariums of the Americas. Harry Gersh. Fleet Academic Editions, New York, 1971. xii, 176 pp., illus. Cloth, $6.95; paper $3.50.

Annual Review of Pharmacology. Vol. 11. Henry W. Elliott, Ronald Okun, and Robert H. Dreisbach, Eds. Annual Reviews, Palo Alto, Calif., 1971. x, 560 pp., illus. $10.

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The Astrological History of Masha'allah. E. S. Kennedy and David Pingree. Harvard University Press, Cambridge, Mass., 1971. xvi, 206 pp., illus. $10.

An Atlas of Mammalian Chromosomes. T. C. Hsu and Kurt Benirschke. Springer-Verlag, New York. Vol. 3, 1969, 50 folios, $9.40; vol. 4, 1970, 50 folios, $14.80; vol.

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