

material tend to be less informative. Some (although not all) of the introduction relies on secondary and tertiary materials, resulting in a few inevitable errors. (The authors repeat the hoary myth that the "earliest recorded medical use of the plant occurs in a Chinese pharmacopoeia, c.2700 B.C." Actually, the *Treatise on Medicine* referred to was compiled about the 2nd century B.C., and it was not written by the supposed emperor—actually a god of agriculture in ancient China—Shen Nung, as is generally believed.) A few minor errors creep into the figures taken from other sources. (Jamaicans spent slightly under 40 million Jamaican dollars on alcohol consumption in 1965, not 15 million, as the authors write.) Some of the most interesting assertions are undocumented. They claim that "no differences in libido between smokers and controls were found on medical examination." How was this determined? What, specifically, were the findings? On the whole, the sociological and anthropological aspects of the study are sketchy, anecdotal, unsystematic, poorly documented, and unsatisfying. The authors claim that seven communities were studied by the project team, and yet only one is reported on. Why only one? The statistics and figures for the medical studies are detailed, even meticulous. Why are they so sketchy and infrequently presented for the sociological aspects of the study? Why were careful surveys of these villages not taken, recorded, and published in the book? Why was a house-to-house interview study not done? (It is practically impossible to do such a study in the United States, but entirely feasible in Jamaica, where the use of *ganja* is partly tolerated by the authorities.) The authors make a number of observations, assertions, and estimates without documentation; many could have been documented in the field, within the scope of the study they did, with relatively little more effort. The authors deny that cannabis is used as an alternative to alcohol (contradicting the claim of Raymond Shafer in the foreword), since *ganja* smokers also often drink rum. The research could have determined specifically what proportion of drinkers smoke and what proportion of smokers drink. Users claimed to smoke more during work periods than while idle. Why wasn't a week-by-week tabulation of the specific quantities consumed during both circumstances actually conducted? Gaps in the data such as these prevent this excellent study from becoming a classic.

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## Settings and Outcomes of War

**Military Deterrence in History.** A Pilot Cross-Historical Survey. RAOUL NAROLL, VERN L. BULLOUGH, and FRADA NAROLL. State University of New York Press, Albany, 1974. lxii, 416 pp. \$20.

Although farsighted scholars as far back as Condorcet or Buckle or de Bloch have urged the applicability of the scientific method to macrosocial and political conditions, it is only in the past few decades that anything like a tradition of scientific research on subjects such as war and diplomacy has begun to develop. The volume at hand falls squarely into this tradition. It is dedicated to Thomas Milburn, a social psychologist who, as director of Project Michelson in the late 1950's and early 1960's, made a valiant effort to bring high-quality social science research to bear on the U.S. Navy's strategic deterrence role. In that enterprise, he brought 20-odd researchers (including this reviewer) into individual and collaborative studies that might add to understanding of international influence and the role of force therein.

Naroll, Bullough, and Naroll begin their ambitious empirical investigation by selecting at random one decade from each of 20 different "intellectually influential higher civilizations" between 125 B.C. and A.D. 1585; in each of those spatial-temporal realms they identify the dominant nation or major power (called the Conspicuous Actor) and its chief rival. While the title of the book suggests that military capabilities and doctrines are the main predictor variables, the authors actually examine the effects of 27 different variables. Further, they seek to account not only for the frequency of war in the 20 epochs sampled but also for some of the outcomes of war, including territorial losses and gains.

The predictor (or, more precisely, post-dictor) variables are essentially descriptive of the dominant power or its rival or both, or of the relationships between the two. They fall into five groups: (i) military, reflecting relative capabilities and postures; (ii) geographical, reflecting the proximity and geography of the actors; (iii) diplomatic, reflecting previous war between the two, their alliance and diplomatic activity levels, and whether or not the war they fought, if any, during the sampled decade was initiated by surprise attack or an announced declaration; (iv) administrative, reflecting types of regime, experience of rulers, and presence or absence of civil war; and (v) cultural, reflecting trade, exchange, and tribute between the major power and its rival.

After specifying the cases to be exam-

ined and the variables to be used in this comparative historical exercise, Naroll *et al.* turn to the matter of operationalizing the variables. And while the effort to articulate the coding and scaling rules has certainly been made, these procedures remain far from satisfactory. Part of the problem is the exclusive reliance on dichotomous categorization, in which the codes are "present," "absent," or "no data," when most of these conditions could vary along an ordinal or interval scale. Equally serious are the absence of an explicitly worded coders' manual and the apparent failure to use multiple and naive coders. It appears that the investigators themselves, fully aware of the theoretical focus and armed with less-than-operational coding rules, handled the data-making operation. The systematic and reproducible conversion of reported historical facts and traces into machine-readable numbers is the very heart of research of this type, and while the authors clearly appreciate this, they in effect tell us to do as they say, not as they do.

Leaving aside these matters of data quality control (Raoul Naroll has authored a book of that title), we look at the analyses and results. In table C-2, we find the correlations: product moment coefficients for the covariations among the interval-scaled outcome variables; phi coefficients among the qualitative (dichotomous) predictor variables; and point biserial coefficients for the relationship between the predictor and outcome variables. The latter, of course, are what interest us here, but there seem to be very few strong associations. To quote, of the 56 correlations, only "four were significant at the 10% level, one-tailed." But none of these four reflect the association with which the book is primarily concerned: the extent to which these background variables account for the amount of war experienced by the major power and its chief rival during the sample decades.

From this point of view, the study is of course disappointing. It would have been exciting to discover that certain conditions and events have been consistently associated with the incidence of war over so broad an empirical domain. But even had robust patterns emerged, we would have to regard them skeptically. Not only is there the possibility of data contamination noted above, but (despite a valiant effort on the part of the authors to avoid the problem) a mere 20 episodes embracing every region of the globe and a span of 16 centuries just cannot be accepted as representative; the diversity is just too great. This leads, quite naturally, to the obvious question: why not examine a larger set of cases (preferably the entire population of them) within a spatial-temporal setting that has, on its

face, more in common with the current and near-future global system? Working, for example, from the Napoleonic Wars and the Congress of Vienna up to the present (as in the reviewer's Correlates of War project), though it may not eliminate the problem of comparability, certainly reduces it dramatically.

Another consideration, when we examine a study that purports to make a policy-relevant contribution, is how solid a base for prediction it provides. While I disagree with the proposition that accurate prediction is the ultimate test of a body of knowledge (we often achieve prediction much more easily than explanation) any policy usefulness will rest on such predictive power. The payoff is the extent to which the results permit us to make contingent predictions of the sort that say, "If government X takes this decision S and acts on it, government Y will respond with action R (or R' or R'')." While these predictions are inherently probabilistic ones, they may nevertheless be of two basic types. The less desirable, but more easily achieved, is essentially simple projection; if certain outcomes are highly correlated with certain stimuli over time and over cases, one assumes that that relationship will—with the observed probability—continue into the future.

This is certainly a more reliable type of prediction than is normally used in the foreign ministries of the world, but it is nevertheless far from satisfactory. Because it is basically mechanistic and atheoretical, mere projection remains insensitive to the extent to which relationships between and among variables in social systems can (and often do) change from epoch to epoch and decade to decade. To put it another way, correlational knowledge is a more solid basis for prediction than selective recall and political folklore, but explanatory knowledge is more solid still. On the basis of an explanatory model, we not only can say that when S, then R, but also can say that if certain background conditions (such as the international system's bipolarity index) change, then the S-R relationship can be expected to change in a specified direction. Thus, social scientists must keep explanatory knowledge as their ultimate objective, for reasons of applicability as well as for purely scientific reasons. The study at hand, as already intimated, makes virtually no effort in that direction. Rather, it is limited to the acquisition of a historical base from which projections into the future can be made with a modicum of confidence.

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## Books Received

**Aboriginal Tribes of Australia.** Their Terrain, Environmental Controls, Distribution, Limits, and Proper Names. Norman B. Tindale with an appendix by Rhys Jones. University of California Press, Berkeley, 1975. xii, 404 pp. + plates + loose maps. \$50.

**Advances in Electronics and Electron Physics.** Vol. 37. L. Marton and Claire Marton, Eds. Academic Press, New York, 1975. xii, 346 pp., illus. \$34.

**Beyond Sexual Freedom.** Charles W. Socarides. Quadrangle (New York Times), New York, 1975. x, 182 pp. \$7.95.

**Biological Anthropology.** Readings from *Scientific American*. Solomon H. Katz, Ed. Freeman, San Francisco, 1975. viii, 494 pp., illus. Cloth, \$14.95; paper, \$6.95.

**Biology.** Helena Curtis. Worth Publishers, New York, ed. 2, 1975. xxvi, 1066 pp., illus. \$14.95. Study guide, Vivian Manns Null. x, 312 pp., illus. Paper, \$4.25.

**BMDP: Biomedical Computer Programs.** W. J. Dixon, Ed. University of California Press, Berkeley, 1975. xii, 792 pp. Paper, \$10.

**Children and Dying.** An Exploration and Selective Bibliographies. Sarah Sheets Cook with additional essays by 12 others. Roberta Halporn, Ed. Health Sciences Publishing Corp., New York, ed. 2, 1974. vi, 106 pp. Paper, \$4.95.

**Computer Solutions of Ordinary Differential Equations.** The Initial Value Problem. L. F. Shampine and M. K. Gordon. Freeman, San Francisco, 1975. xii, 318 pp., illus. \$13.95.

**Creativity in Organic Synthesis.** Vol. 1. Jasjit S. Bindra and Ranjna Bindra. Academic Press, New York, 1975. xiv, 322 pp., illus. \$11.50.

**Dictionary of Nutrition.** Richard Ashley and Heidi Duggal. St. Martin's Press, New York, 1975. xxxiv, 236 pp. \$8.95.

**EMG Primer.** A Guide to Practical Electromyography and Electroneurography. F. Láhoda, A. Ross, and W. Issel. Translated from the German edition (Frankfurt, 1973). J. Payan, Transl. Ed. Springer-Verlag, New York, 1974. x, 62 pp., illus. Paper, \$11.50.

**National Politics and International Technology.** Nuclear Reactor Development in Western Europe. Henry R. Nau. Johns Hopkins University Press, Baltimore, 1974. xvi, 288 pp. \$12.50.

**The Nature of Physics.** Peter J. Brancazio. Macmillan, New York, 1975. xvi, 768 pp., illus. \$14.95.

**Numerical Solutions of Boundary Value Problems for Ordinary Differential Equations.** Papers from a symposium, Baltimore, June 1974. A. K. Aziz, Ed. Academic Press, New York, 1975. x, 370 pp., illus. \$18.50.

**Onshore Planning for Offshore Oil.** Lessons from Scotland. Pamela L. Baldwin and Malcolm F. Baldwin. Conservation Foundation, Washington, D.C., 1975 (distributor, Universe Books, New York). 186 pp., illus. Cloth, \$10; paper, \$5.

**Personality Development and Deviation.** A Textbook for Social Work. George H. Wiedeman and Sumner Matison. International Universities Press, New York, 1975. xvi, 524 pp. \$20.

**Physics and Mathematics of the Nervous System.** Proceedings of a summer school, Trieste, Italy, Aug. 1973. M. Conrad, W. Güttinger, and M. Dal Cin, Eds. Springer-Verlag, New York, 1974. xiv, 584 pp., illus. Paper, \$18.50. Lecture Notes in Biomathematics, vol. 4.

**Potential Fuel Effectiveness in Industry.** Elias P. Gyftopoulos, Lazaros J. Lazaridis, and

Thomas F. Widmer. Ballinger (Lippincott), Cambridge, Mass., 1974. x, 92 pp., illus. Cloth, \$7; paper, \$2.50.

**Radiation Physics and Chemistry of Polymers.** F. A. Makhlis. Translated from the Russian edition (Moscow, 1972). Halsted (Wiley), New York, and Israel Program for Scientific Translations, Jerusalem, 1975. xii, 288 pp., illus. \$32.50.

**Reading and Understanding Applied Statistics.** A Self-Learning Approach. Sidney M. Stahl and James D. Hennes. Mosby, St. Louis, 1975. xviii, 318 pp., illus. Paper, \$5.95.

**Le Rêve-Eveillé Dirigé et l'Inconscient.** Jacques Launay, Jacques Levine, and Gilbert Maurey. Dessart et Mardaga, Bruxelles, Belgium, 1975. 456 pp. Paper, 470 BF. Psychologie et Sciences Humaines, No. 54.

**Reviews of Physiology, Biochemistry and Pharmacology.** Vol. 71. R. H. Adrian and 13 others, Eds. Springer-Verlag, New York, 1974. iv, 166 pp., illus. \$40.20.

**Science since Babylon.** Derek de Solia Price. Yale University Press, New Haven, Conn., ed. 2, 1975. xvi, 216 pp. Cloth, \$15; paper, \$3.45.

**Season on the Plain.** Franklin Russell. Penguin, New York, 1975. viii, 314 pp. Paper, \$2.95. Reprint of the 1974 edition.

**Settlement of Structures.** Papers from a conference, Cambridge, England, Apr. 1974. Halsted (Wiley), New York, 1975. xii, 812 pp., illus. \$65.

**Sexual Issues in Marriage.** A Contemporary Perspective. Leonard Gross, Ed. Spectrum, New York, 1975 (distributor, Halsted [Wiley], New York). xviii, 290 pp. Cloth, \$13.95; paper, \$5.95. Reprinted from *Sexual Behavior*, 1971-1972.

**Small Fragment Set Manual.** Technique Recommended by the ASIF-Group. Urs Heim and Karl M. Pfeiffer in collaboration with H. Ch. Meuli. Translated from the German by R. Kirschbaum and R. L. Batten. Springer-Verlag, New York, 1974. xii, 302 pp., illus. \$54.20.

**Soviet Penetration of Latin America.** Leon Gouré and Morris Rothenberg. University of Miami Center for Advanced International Studies, Washington, D.C., 1975. viii, 204 pp. Cloth, \$9.95; paper, \$6.95.

**Synthetic Peptides.** Vol. 3. George R. Pettit. Academic Press, New York, 1975. viii, 438 pp. \$39.50.

**Teaching-Learning Guide for Odum's Fundamentals of Ecology.** Roger L. Kroodsmas. Saunders, Philadelphia, 1975. viii, 168 pp. Paper, \$4.50.

**Theory of Lepton-Hadron Processes at High Energies.** Partons, Scale Invariance, and Light-Cone Physics. Prodir Roy. Clarendon (Oxford University Press), New York, 1975. xii, 172 pp., illus. \$19.25. Oxford Studies in Physics.

**Thermodynamics I.** An Introduction to Energy. John R. Dixon. Prentice-Hall, Englewood Cliffs, N.J., 1975. xviii, 458 pp., illus. \$15.95. Prentice-Hall Series in Engineering of the Physical Sciences.

**Topics on Tropical Neurology.** R. W. Hornabrook, Ed. Davis, Philadelphia, 1975. xii, 304 pp., illus. \$35. Contemporary Neurology Series, 12.

**Tropical Ecological Systems.** Trends in Terrestrial and Aquatic Research. Papers from a meeting, Caracas, Venezuela, 1973. Frank B. Golley and Ernesto Medina, Eds. Springer-Verlag, New York, 1975. xvi, 398 pp., illus. \$24.80. Ecological Studies, vol. 11.

**Vicious Circles and Infinity.** A Panoply of Paradoxes. Patrick Hughes and George Brecht. Doubleday, Garden City, N.Y., 1975. xiv, 106 pp. + plates. \$6.95.