

**ECOPHYSICS: The Application of Physics to Ecology** by James Paul Wesley, *Univ. of Missouri, Rolla*. Looking at ecology with a knowledge of physics yields a broad insight into the fundamental mechanisms that actually determine the behavior of an ecosystem. A brief review of thermodynamics is presented in which the concepts of order, complexity and information are clearly delineated because of their relationship to ideas of life. The strategy of how to optimize the utilization of a source of energy realistically at a finite rate is considered for the first time. Life is defined physically, thereby permitting an analysis of the thermodynamic role of life in the ecosphere. Entropy production per unit time and the rate of mass transport yield a necessary measure of the potential of an environment to support life. Since life needs to degrade high utility energy to low utility energy in order to survive, all possible sources of energy are surveyed. Evolution of life is seen to be just part of the general cosmological evolution of the stars, planets and the earth. '74, 368 pp., 39 il., 8 tables, cloth-\$19.75, paper-\$13.75

**LIVING CLOCKS IN THE ANIMAL WORLD** by Mariam F. Bennett, *Colby College, Waterville, Maine*. Discussions of studies focused on the clocks of animals with which the author has had direct experience emphasize these points: the possible adaptive natures and functions of timing, temporal relationships between organisms and their environments, what has been learned from particular animals, how the knowledge has been gleaned, the aspects of biochronometry elucidated by specific information, what remains to be learned about the clocks of animals, and how such new findings might help solve problems of biochronometry. A summary chapter underlines the unanswered questions about living clocks such as: Are biological chronometers all based on the same phenomena? Are the clocks endogenous? Are they modulated by exogenous factors? How can we explain the time-compensation of living chronometers truly adaptive to their possessors? '74, 236 pp., 53 il., \$11.75

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His body has become bloated, and he is unable to read or write. His wife and others feel that his condition is perilous. Plyushch was mentioned in the statement by Sakharov in connection with the latter's hunger strike during President Nixon's visit. There is no doubt that the committee (I) will continue its efforts on behalf of Plyushch.

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#### Notes

1. A partial list of members of the International Defense Committee of Mathematicians for Shikhanovich and Plyushch includes S. Agmon (Jerusalem); L. V. Ahlfors (Harvard); M. Berger (Paris); L. Bers (Columbia); A. Borel (Institute for Advanced Study); R. Bott (Harvard); R. Brauer (Harvard); M. Broue (Paris); H. Cartan (Paris); C. Chevalley (Paris); G. Choquet (Paris); J. Dieudonné (Nice); A. Douady (Paris); B. Eckmann (Zurich); S. Eilenberg (Columbia); L. Garding (Lunds); I. Halperin (Toronto); H. Hironaka (Harvard); S. Iyanaga (Tokyo); N. Jacobson (Yale); M. Kuranishi (Columbia); E. E. Moise (Queens); C. B. Morrey (Berkeley); M. Morse (Institute for Advanced Study); Louis Nirenberg (Courant); L. Schwartz (Paris); A. Selberg (Institute for Advanced Study); J. P. Serre (Paris); I. M. Singer (MIT); S. Smale (Berkeley); P. A. Smith (Columbia); D. C. Spencer (Princeton); S. Sternberg (Harvard); R. Thom (Paris); J. L. Verdier (Paris); A. Weil (Institute for Advanced Study); and O. Zariski (Harvard).

#### Monitoring Medical Care

W. Clarke Wescoe (Editorial, 18 Jan., p. 155) complains about the increasing amount of restrictive legislation against the medical profession. He cites "preoccupation with patients" as a major reason why these restrictions were able to be enacted unchallenged. Wescoe is also concerned because he feels there are no valid studies showing improper use of potent medications by the profession.

The medical profession now suffers legal restrictions because it has failed to adequately audit or monitor the quality of medical care it provides. In addition, the misuse of "potent medication" by the medical profession is thoroughly documented (1). When medical experts are horrified at the misuse of medication uncovered at university medical centers, we can hardly call such studies unexposed to "critical scrutiny." Yet the myth persists among the profession that we all have great knowledge and skill in "pharmacological therapeutics."

If some spokesmen for organized medicine now oppose professional standards review organizations, they should

remember that physicians have overutilized hospital care of patients, and that the profession itself should have been performing some monitoring function in this area right along.

The tradition of the professional person insists that we maintain standards of excellence and provide ways of ensuring such standards are maintained. Obviously, we have not done so. Further, one might suggest that an executive of a pharmaceutical firm could be biased on the issue of what is seen as "overmanagement" of medicine.

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#### References

1. H. R. Lewis and M. E. Lewis, *The Medical Offenders* (Simon & Schuster, New York, 1970), chaps. 12 and 19; P. Stolley *et al.*, *Ann. Intern. Med.* **76**, 537 (1972); H. F. Dowling, *J. Am. Med. Assoc.* **185**, 233 (1963); P. V. J. Macarog, L. Lasagna, J. R. Bianchini, *Clin. Pharmacol. Ther.* **12**, 1 (1971); A. Roberts and J. Visconti, *Am. J. Hosp. Pharm.* **29**, 828 (1972); D. Dunlop, *Med. Times* **100**, 285 (1972); Department of Health, Education, and Welfare, *The Task Force on Prescription Drugs: Final Report* (Government Printing Office, Washington, D.C., 1968); H. Faigel, *Clin. Pediatr.* **9**, 1 (1970); R. Duff *et al.*, *Pediatrics* **49**, 169 (1972).

#### Wine Capital

According to the short report "The wine industry of California" published before the 1974 AAAS Annual Meeting, San Francisco is the "wine capital of the Western Hemisphere." It should be noted that in the Argentine Republic—which is also in the Western Hemisphere—22,646,629 hectoliters (493 million gallons) of wine were produced in 1973 and that Argentina is currently the fourth largest wine producer in the world.

Mendoza, a western state of Argentina, yields 65 percent of the wine produced in this country, that is, about 320 million gallons per year. Only 240 million gallons are produced annually in California.

Thus, to be fair, Mendoza City, capital of the state that produces annually from 300 to 350 million gallons of wine, should be designated as the wine capital of the Western Hemisphere.

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