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Fig. 1.

Fig. 1A.

Fig. 12.

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<td>Discussion of what can be done to prevent the worker from feeling alienated from himself, his work, and his employer. Emphasis on the relationship between technology and humanization, including case studies of specific experiments.</td>
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<td>Examination of institutional arrangements for enforcing population control as they are known from societies where such control has been practised, and the implications for our own society.</td>
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<td>Examination of the advantages versus the limitations of using space astronomy platforms.</td>
<td>A probing and innovative picture of some dimensions of man's violence and its redirection including discussion of Kent State and &quot;Public Reactions to the Calley Trial.&quot;</td>
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<td>Discussion of attempts and possibilities of establishing objective assessment of shifts in environmental quality through the use of biological indicator species as monitors thereof.</td>
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<td>Comparison of an array of research programs which have successfully utilized experimental manipulations of natural ecosystem components.</td>
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<td>Environmental Sources of Human Destructiveness: R. C. North, R. A. Falk, et al.</td>
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Biological and Cultural Bases of Sex Role Differentiation: A. Alland, Jr., L. Tiger, M. Mead, et al. Review of material on the formation of behavior associated with sex roles with an attempt to delimit the biological and social factors which result from sex-defined roles.

Smoking and Health: A. M. Lillienfeld, T. D. Sterling, et al. The exact relationship between smoking and health. Is there an etiological role of smoking for several diseases?

Environmental Noise: J. F. Pizzirusso, R. L. Bannister, et al. Analysis of major environmental sources which tend to cause an ecological problem, and the technology which can be used to control them.

How Valuable is Human Health: R. W. McNeur, E. B. Howard, S. Chisholm, et al. Panel discussion of public's assumptions about health as an attempt to encourage further public consideration of this matter.


Encounter Groups: K. W. Back, M. A. Lieberman, I. Yalom, et al. Examination of the encounter group as a lasting therapeutic treatment, a one-time experience, and as a social phenomenon.

Environmental Sciences and International Development: D. Bajracharya, M. T. Farvar, et al. Discussion of the failures of science and technology to deal with development in the natural environments of developing countries and a re-evaluation of such priorities.

Heavy Metals as an Environmental Hazard to Fish, Birds, and Man: G. J. Lauer, W. Fulkerson, et al. Analysis of current procedures used in aquatic toxicology as applicable specifically to toxic metals, and the effects of these toxins on fishes, birds, and men.

A Search for the Recognizable Goals and Constraints of the Steady State Earth: P. L. Blackshear, Jr., A. Kantrowitz, G. Bugliarello, et al. Several proposals to constrain human population and activity as a steady state society so that man may survive on this planet.


Women in Academia: A. Y. Lewin, E. Wasserman, et al. Focus on problems faced by universities in complying with President Nixon's executive order prohibiting sex discrimination by government contractors, and exploration of ways and means toward achieving full equal opportunity for women in the university.

Can We Develop an Index for the Quality of Life?: S. F. Singer, M. R. Gainsbrugh, M. L. Olson, et al. Concerned primarily with the question: How to define and measure the quality of life. This entails an exact examination of the phrase "quality of life."


Communications Technology and Its Effect on People: W. S. Baer, E. S. Mason, et al. Presentation of current research and policy studies brought to bear on such questions as: To what uses will the new communication capacity be put? Who will use and control it? How will it affect people, if at all?

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SCENE TWO
You’re a medical photographer filming an operation. You set up two Hasselblad 500 EL/Ms on tripod mounts, each covering a different angle. Again you use a 70-exposure magazine on each camera with different film, but this time you change to Zeiss Sonnar 150mm f/4 lenses, with appropriate filters. You preset the controls, then plug the two cameras into a single command unit (this unit can handle four Hasselblads at once).

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nual transits, about the same number that would be permitted by a sea-level canal; (iii) no new treaties would be required since all the construction would take place in the canal zone, which is already owned and controlled by the United States; and (iv) the cost would be about $850 million compared to $2.88 billion for a sea-level structure.

Conservation-minded biologists and other informed citizens, who are concerned about the unnecessary elimination of unique species and the corresponding damage to intricate ecosystems, need to stand up and object. There is an attractive alternative. Let's get behind it.

JOHN C. BRIGGS
Office of Graduate Studies, University of South Florida, Tampa 33620

Reference

Major contributions to the present-day fauna of the tropical eastern Pacific shores can be traced to relatively recent Caribbean origins. However, the faunas brought into contact by the Suez canal and by the Erie and Welland canals have disparate origins and evolutionary ages. One would intuitively think that the longer the duration of uninterrupted (isolated) evolution of faunas (and the subsequent appearance of organisms having increased levels of adaptation and modes of life), the more serious would be interfaunal changes and adjustments.

The extreme differences in physical conditions along both shores of Panama suggest that the exchange of inshore faunas through the proposed sea-level canal would be low. Tacit assumptions by other authors (and indirectly by Aron and Smith) without prior study, that certain faunas are “in equilibrium” or are supporting “optimal” numbers of species, are untenable. If such situations ever exist, they are ephemeral phenomena in the evolutionary and geological context.

The relative success of field and laboratory studies made prior to the construction of a sea-level canal will only appear in retrospect. Since the cases reported by Aron and Smith were not adequately studied, and the authors admit we can’t predict what will in fact happen, how do biologists convince governments that the necessary data can be obtained and judiciously interpreted? Do we know what basic predictive principles to apply when major faunas meet? Do we know why there appears to be a time lag in faunal changes after first contact? Biology is still in its infancy as far as predicting effects of faunal interactions is concerned. This, not implied threats of faunal disasters, is the major reason why such studies should be made both before and after construction of a sea-level canal connecting recently isolated faunas.

THOMAS H. FRASER
J. L. B. Smith Institute of Ichthyology, Rhodes University, Grahamstown, South Africa

Moderation, as expressed by Aron and Smith, seems to be an endangered species. Many North Americans have loudly protested the proposed sea-level canal in Panama, the Bayano Dam, the Inter-American Highway, copper development, and the felling of Panama’s forests. Many of the lamented could have been written by Grant Swinger himself.

Panama, nearly as large as South Carolina, has the highest per capita income in tropical Latin America, yet a relatively low population. Progress is a magic word in Panama. It is difficult to sound the pollution alarm to a developing nation that is enraptured with engineering, yet scarcely familiar with the design-with-nature concept. Few Panamanians have learned the environmental headaches associated with progress. It is not politic to hinder progress; politicians usually decry pollution only when their constituents are crying pollution. Such is true in few, if any, developing countries. Progress, si; pollution control, mañana!

Does generosity or avarice dictate that the developed nations hinder the development of underdeveloped nations with environmental considerations? Should the land of the Welland Canal, the Tennessee Valley Authority, Copper Hill, Tennessee, and the Dust Bowl hamstring the republic that has none of these? Perhaps Panama, anticipating the economic returns of a sea-level canal, feels that sea snakes and starfish are Uncle Sam’s problems.

JAMES A. DUKE

8210 Murphy Road,
Fulton, Maryland 20759

The process of deterioration of the Great Lakes is traced back to its beginnings in the late 1800’s by Aron and Smith. Among the programs currently aimed at protecting the Great Lakes from further degradation, perhaps the most ambitious is the Pure Waters Pro-
gram of Monroe County, New York, with $0.4 billion committed to upgrading regional sewage collection and treatment and to phosphate removal. The conservation council of that county and a local science information group, the Rochester Committee for Scientific Information (RCSI), were instrumental in creating the public demand for a cleanup that made this program possible. Now the RCSI wishes to encourage the next step in the reclamation of the lake, as suggested by J. H. Hubschman (12 Feb. 1971, p. 536).

The Rochester Prize for Environmental Management will be awarded in 1972 for a proposal to aid the recovery of Lake Ontario.

The prize of $1000 will be awarded to the authors of a manuscript proposing a way to improve water quality at swimming beaches on the south shores of Lake Ontario. In judging merit, the jury of scientists will favor methods that would increase species diversity in the lake, increase the consumption of algae, and lower the standing crop of Cladophora. A copy of an article published in a scientific journal or a manuscript of an article suitable for such publication will qualify for the competition. Entries should be mailed to the secretary of the Rochester Committee for Scientific Information at the address below and must be postmarked before 1 October 1972.

ROBERT E. LEE
Rochester Committee for Scientific Information, Post Office Box 5236, River Campus Station, Rochester, New York 14627

President's Science Message

I was distressed to see Deborah Shapley (News and Comment, 24 Mar., p. 1343) take the President and his science adviser, Edward E. David, Jr., to task, and characterize the first message to Congress on science and technology as "vapid." I was impressed by the President's message. It lays the foundation for an effective teaming of the academic and industrial communities.

David, his team at the Office of Science and Technology, and James Wakelin at the Department of Commerce should be complimented for originating a practical plan that is not a multibillion-dollar handout to those who prefer to sit on their tails and bemoan the fate of science at the hands of the Philistines. Instead the message sets a note of high challenge and proposes mechanisms by which those who prefer positive thinking can take action. It deserves the support of all of us in science.

Let's stop attacking our friends in office. Soon we will wonder where they also went.

Aden B. Meinel
Optical Sciences Center, University of Arizona, Tucson 85721

Cans

The comment by Savas (Editorial, 22 Oct., p. 365) that the island of Jamaica is coming to be represented throughout the United States by a "layer of aluminum beer cans" is a fair statement of the case. His qualitative remarks can be easily quantified, for according to the U.S. Department of Commerce the number of "throwaway" aluminum beverage containers produced in 1969 was 3.2 billion; in 1970, 4 billion; in 1971, 6 billion; and in 1972, 8 billion will be produced. Since more than 90 percent of the bauxite used is imported into the United States, and since we have an increasingly unfavorable balance of trade, one might think that this importation could be curbed; that is a problem for the economists.

What is more important than economics is the fact that it takes 17,000 kilowatt-hours of electricity to convert 5 tons of bauxite to 1 ton of aluminum, which may then be fabricated into 40,000 cans. There is considerable lip service given today to the concept of recycling, especially of cans. According to the Wall Street Journal (1) about 3 percent of the aluminum cans fabricated last year were recycled. Industry (2) disputes this figure and estimates that 12.5 percent of the cans produced in 1971 were collected for recycling. Even if the collection of aluminum cans continues at that rate in 1972, there will still be 175,000 tons of aluminum reduced from bauxite and dissipated over the landscape. Put in more general terms, the electricity required would be sufficient to supply the city of Washington, D.C., for about 20 months.

Ellis L. Yochelson
12303 Stafford Lane, Bowie, Maryland 20715

References
2. J. C. Dale (The Aluminum Association, 750 Third Avenue, New York 10017), personal communication.
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