BOOK REVIEWS

Miserable Success

Where the Wasteland Ends: Politics and Transcendence in Post Industrial Society. By Theodore Rozsak. Pp. xxxiv +492. (Faber and Faber: London, April 1973.) £3.75.

THIS is a book from the enemy camp: ". . . it is the culture of science from which we must liberate ourselves if we are to be free spirits" (page 73).

But it is a book so fair, so engaging, so disarming in its candid admission that the "counter culture" has little to offer but vague dreams and it is so well written that I can recommend it to my fellow-scientists, though when they have waded through his rich prose, embellished by much poetry, they will find little in it that was not said before, for example by Lewis Mumford or Aldous Huxley. Certainly, the following passage, on the last page but one, will appear familiar to many: "We 'progress' only towards technocratic elitism, affluent alienation, environmental blight, nuclear suicide. . . . But there is another progress which is not a cheat and a folly; the progress that has always been possible at every moment of time. It goes by many names. St Bonaventura called it 'the journey to the mind of God'; the Buddha called it the eight-fold path; Lao Tzu called it 'finding the way'."

Perhaps only a great poet or a mystic could offer more, and Theodore Rozsak is not a poet, though he has a great affinity with poetry, as shown by his beautiful analyses of Blake (his favourite source), Wordsworth and Goethe. Neither is he a mystic; there is hardly an obscure or visionary passage in the whole book. Nor is he a revolutionary for revolution's sake like Marcuse. He is far too honest to suggest that all we have to do is to revolt, to smash up what he calls the "*suave* technocrat" system, and everything will come right.

Yet, unsatisfactory as Rozsak's message is when it comes to practical advice, it conveys in its many passionate chapters some deep truths about human nature. Man is not just a tool-making or symbol-making animal, he is also a myth-making animal. Tools and symbolic thought have led to the triumphs of technology, culminating in the "systems approach", which Rozsak fears and distrusts. They have also led to the malaise in civilization, to the alienation which can be dulled but not cured by hard work and buzzing about in jet planes. But the beautiful myths, with which man used to round off his unsatisfactory real world, these have not kept pace with technical progress. Their decay has left a deep longing, which occasionally turns into hate and revolt. Rozsak, like most other honest intellectuals, recoils with terror at the prospect that science might satisfy man's irrational cravings by conditioning or by drugs.

If one takes this "misery of success" as seriously as it deserves to be taken, it comes almost as a relief that the advent of the perfect "suave" technocratic society, which satisfies all material cravings, is more remote than Rozsak seems to think. Though he is aware of the ecological limits, he appears to have been, at the time when he wrote this book, only a little time ago, like almost everybody else, ignorant of the grave fuel and energy crisis which is now about to hit the highly developed countries with the force of an express train. The crisis finds us so unprepared that it can hardly be overcome in less than two decades, and even then probably at the price of a temporary suspension of participatory democracy. Thus, for the next twenty years or so, we shall find ourselves in an archetypal situation for which our evolution has admirably prepared us; slipping down by our folly and then scrambling up again from the bottom. Perhaps, when this crisis is over, the "counter culture" will have something more positive to offer. Or perhaps the crisis will break our *hubris* sufficiently to make us ready for accepting alternatives to the affluent technocratic society.

DENNIS GABOR

Petrology

The Interpretation of Geological Phase Diagrams. By E. G. Ehlers. Pp. 280. (W. H. Freeman: San Francisco, 1973.) £5.40.

IGNEOUS and metamorphic petrology became a quantitative science when detailed mineralogical and chemical analytical studies of natural rocks were integrated with phase equilibrium experimentation. The technical demands of the latter have included pressures in excess of 5×10^6 N/m^2, temperatures in excess of 2,000 K and, frequently, control of a gas phase composition. It has taken nearly seven decades to establish a reasonably coherent picture of the sub-crustal and crustal genesis of the more important types of igneous melt and of the subsequent crystallization, and to define the physical chemistry of metamorphic recrystallization of rock masses.

Ehlers's book progresses from a discussion of high temperature equilibria at atmospheric pressure to topics such as systems at high pressures, systems containing water as a component, systems in which are encountered changes in oxidation state and systems with two volatile components. There is a great deal here, including a selective bibliography and a large number of illustrations, that offers welcome help to the student.

Many problems are posed by such a display of phase diagrams. For example, why does the system CaO-Al_2O_3-SiO_2 exhibit so many phase fields, and why are immiscible liquids encountered within it? Why does the SiO_2-Mg_2SiO_4-$CaAl_2Si_2O_8$ system exhibit non-ternary behaviour? The present volume does not attempt to answer such questions. It caters for the conventional geologist, who seldom asks for more than an empirical account of the chemical phenomena that he observes. Seemingly capricious behaviour, such as the incongruent melting of enstatite, can be made understandable, very simply, in terms of relationships between the free energies of liquid and of solid phases. It is a pity that an introductory account of such matters should be withheld.

The title of the book raises some misgivings. A whole range of geological aqueous equilibria has featured in recent studies[1], the relevant phase boundaries appearing as functions of variables such as *Eh* and *p*H. Low temperature solution chemistry lies outside the scope of the present volume, but of this the title conveys no hint.

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[1] Garrels, R. M., and Christ, C. L., *Solutions, Minerals and Equilibria* (Harper and Row, New York, 1965).