

LETTERS

Glendale

EDITOR:

I have just finished reading Robert A. Rosenstone's article, "A Look at the Radical Right Today," in the March issue of *E&S*. I vehemently object to the manner of including this article. Although the contents and its slant are repugnant to me, this is not the basis of my objection. I object because the author was in no way identified as to his relationship to Caltech, which would have allowed placing the article in its proper perspective. I believe in freedom of opinion and expression, even use of editorial prerogatives, but do not believe in foisting biased opinions upon a captive audience without identification of the source.

What body of opinion does Mr. Rosenstone represent? Or is this an aliquot of our expanded humanities curriculum, which is helping to broaden Caltech's undergraduates today? After perusing a myriad of Caltech bulletins, reports, and alum-

ni directories, I stumbled on a clue that Mr. Rosenstone might be a visiting assistant professor of history—even maybe a student of Charles DeGaulle. Or am I stooping to his mastered technique of all-inclusive guilt by association?

As a life member of the Caltech alumni who contributed his way into the Golden Beaver Club, I feel that I have some stake in what comes out of C.I.T. I am not a member of the John Birch Society or the radical right, but if I were, I would not accuse everyone to the left of me as being part of the radical left.

GRIFFITH C. BARLOW, M.D. '48

Dr. Barlow's comments give us an opportunity to restate the editorial policy established by this magazine more than 20 years ago: Every article in Engineering and Science has a direct connection with the California Institute of Technology. Either it is written by a staff member, a faculty member, a student, or an alumnus, or it is adapted from a lecture given on campus by a guest

of the Institute, or it is about research being done at Caltech.

*Dr. Barlow's letter also reminds us to take nothing for granted—including the fact that we regularly identify our authors in a column called "In This Issue." On page 4 of the March *E&S*, "In This Issue" identified Robert Rosenstone as assistant professor of history at Caltech. It can now be added that Dr. Rosenstone has a new book, *Protest From the Right*, published this month by Glencoe Press.*

San Marino

EDITOR:

A great piece of art work accompanying "The Kingdom of Good!" (March *E&S*, p. 24). Do you have a new staff artist not listed in your masthead?

MRS. THEODORE COMBS

*Teresa Woodward did not sign her illustration, unfortunately, and *E&S* did not list her in Credits—even more unfortunately.*

BOOKS

Town Origins

by John F. Benton

D. C. Heath and Company

Paperback\$1.95

reviewed by Bettyann Kevles

The sprawling metropolises of contemporary civilization trace back to forces that led men away from fief and farm to create the towns of medieval Europe. Had medieval man been able to peer forward through time to today's urban glut or been aware of the seamy side of life in ancient Rome, perhaps he would have remained on the land. But he was largely oblivious of the past and mercifully unaware of the future. In any case, he had his reasons for becoming a townsman.

What these reasons were is a matter of historical controversy. John F. Benton presents the many sides of this question in his book, *Town Origins*, the newest addition to the distinguished Heath series, "Problems in European Civilization." In his lucid introduction Dr. Benton, who is associate professor of history at Caltech, discusses the major theories of medieval town origins as put forth by eminent historians from Western Europe, America, and the USSR. Then, following the format of the series, he introduces excerpts from some of their writings in which the historians offer opposing solutions to the puzzle of why towns—particularly medieval English towns—began.

These excerpts are followed by an extraordinarily broad and imag-

inative sampling of historical source material. They range from archaeological, numismatical, and etymological evidence to statistical data culled from ancient city gate and bridge toll receipts and the *Domesday Book*, to literary evidence in poetry and prose. Finally, Dr. Benton has prepared a set of maps which, if superimposed upon each other, reveal a vivid tale of change in medieval England. With this information, the reader can vie with the experts and decide for himself which forces were most responsible for the genesis of modern, urban civilization.

Bettyann Kevles is the wife of Caltech's assistant professor of history, Dan Kevles, and herself a high school teacher of European history.

Responsible Individualism

by Wallace Johnson '35

The Devin-Adair Company\$4.50

reviewed by Theodore C. Combs '27

Wallace Johnson is a successful manufacturer and businessman. He owns a working ranch in northern California, where he and his son raise registered Hereford cattle. He is mayor of the city of Berkeley, and is a Caltech alumnus.

In this book, Mr. Johnson discusses the application of responsible individualism to current international, national, and even local issues. He cites a number of incidents confronting the city of Berkeley and describes how he conducted his "responsible" role in each case.

Readers of Mr. Johnson's book will be inspired to emulate his own conduct.

Scientific Progress and Human Values

Edited by Edward and Elizabeth Hutchings

With a preface by Lee A. DuBridge

American Elsevier Publishing Co., Inc.\$7.50

Reviewed by Burton H. Klein,
professor of economics

This is a fascinating book in which 20 distinguished physical and social scientists speculate about science and society. The book consists of the proceedings of the conference celebrating the 75th anniversary of the California Institute of Technology on October 25-27, 1966. It is not an easy book to summarize—and I shall not try. Instead, I shall say something about the ideas I found most interesting and about the ideas I failed to understand.

One of the most interesting sections of the book is "The Speculations of Science." Murray Gell-Mann leads off with a wonderfully clear statement on the need for a unified theory of particles. Then follows a discussion by Jesse L. Greenstein on the need for better observations and better theories about the stars and systems of stars. What he wants to know is where the planets come

from, why they were formed, and whether solar systems are common. Again, the arguments are very persuasive. Equally interesting are Robert P. Sharp's speculations about the earth, which we seem to know almost as little about as the stars.

Another section of the book asks "Where is Biology Taking Us?" The two most interesting papers here are Robert P. Morison's and Robert L. Sinsheimer's. Morison presents some convincing arguments why we can "no longer keep our system of moral values and our system of scientific expertise in separate watertight compartments." Sinsheimer discusses the implications of DNA for science and for mankind.

Finally, there is an interesting panel discussion on "What Are the Urgent Problems?" by Don K. Price, Jr., James Bonner, Murray Gell-Mann, Carl Kaysen, and Simon Ramo. But before taking up some of their points I want to take up some other matters.

One thing I fail to understand is the apparently widespread belief that progress in scientific matters must be justified in terms of practical results. For example, Dr. Greenstein seems to be concerned about the terrible catastrophe that would be involved if, in the event of a nuclear war, neither the knowledge nor the means existed for evacuating the earth's remaining population to another planet. I too am concerned about this contingency, however small the probability of its occurrence. But I also believe that in planning for the worst that might occur, one must consider the effect of such planning on the *probability* of these things occurring. One wouldn't want to take out so much life insurance that he starved to death. And in our national security planning, I wonder if the emphasis given to preparing for the worst things has not already had a very unhealthy effect on the probability of their occurrence. Might we not do much better with a massive reallocation of resources to the *best* things that might happen? And this leads me to the question of the necessity of taking this kind of practical consideration into account in studying the stars. What's wrong

with studying the stars just for the purpose of studying the stars?

Another example of emphasis on practical considerations is in Dr. Sinsheimer's article "The End of the Beginning," in which he says: "How will you choose to intervene in the ancient designs of nature for man? Would you like to control the sex of your offspring? It will be as you wish. Would you like your son to be six feet tall? Seven feet? What troubles you—allergy, obesity, arthritic pain? These will be easily handled. Viral and microbial disease will be easily met. Even the timeless patterns of growth and maturity and aging will be subject to our design."

At first this all sounds very appealing. But why in the world would anyone want to control the sex of his offspring? How can one really know beforehand whether he would like a boy, a girl, or twins? To put the question more generally, is science to become so powerful that nothing will be left to divine providence, experimentation, or just pure chance? May it not be quite impractical to contemplate such practical benefits?

SPACE BENEFITS QUESTIONED

In the case for the manned space program, I must confess serious difficulty in understanding *either* the scientific or the practical benefits. This case is put forth by George E. Mueller, NASA's Associate Administrator for Manned Space Flight. He argues, for example, that "the influence of our scientific and technological progress and prowess is and has been one of the deciding factors in keeping the peace over the past 20 years." I wonder whether too much reliance on such prowess hasn't been one of the principal causes of our difficulties—whether we would be in Vietnam if it were not for such heavy reliance on technological solutions to problems. Mueller goes on to claim that the space program has produced substantial benefits for the U.S. economy and that it could be of enormous help in connection with the problems of hunger and disease in underdeveloped countries. "For example," he says, "a doctor in a

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remote region, with few diagnostic facilities at his disposal, might 'call in' a patient's symptoms, via satellite, to a computerized data bank at one of the world's great clinics."

I don't deny that the space program *could* produce such a benefit. But I wonder whether the actual and potential benefits of the space program aren't in the nature of a new freeway from Pasadena to Newport Beach that would carry us through St. Louis en route.

Another of Dr. Mueller's arguments is that the space program is having an enormous effect on the education of scientists and engineers. I agree, but has the effect been a good one? It used to be that the commonly accepted definition of an engineer was someone who could make for a penny what it took a fool to make for a pound. Has the effect of advanced technological thinking been to turn that definition around?

It can be agreed, of course, that it would be better to compete with the Russians in space achievements rather than in missile and antimissile hardware. But wouldn't it be even better to compete in terms of real scientific achievements and in real economic benefits? And better still, instead of competing, work hard to find more ways to broaden our cooperation with them?

BLUEPRINT OF THE FUTURE

Let me turn more explicitly from issues of science and technology to issues involving the shape of our future society. Unfortunately, the only "blueprint" of future society we are given in the book is Daniel Bell's "The Post-Industrial Society: A Speculative View." I say "unfortunately" because if our society comes to accept his blueprint, I fear that we shall have a society that has not learned how to solve its more difficult problems. All will look neat, tidy, and well managed; but it will not be so. His is a picture of a society in which the scope of government has been greatly enlarged and which is ruled by members of a new technocratic elite who "with their new techniques of decision-making (systems analysis, linear program-

ming, and program budgeting) have now become essential to the formulation and analysis of decisions on which political judgments have to be made."

To my way of thinking, Dr. Bell's advocacy of such a concept represents a fundamental misunderstanding of either what the real problems of government are or the role that systems analysis and other planning techniques can play in solving them.

CREATIVE DESTRUCTION

The fundamental problems of government are not in doing better what is already being done; they are, rather, in pursuing quite different objectives. In fact, to an alarming degree, the government is a series of highly inadequate monopolies which seem to regard as their main objective the protection of long-outdated, ideological crusades. Systems analysis, on the other hand, is mainly useful for finding better ways to implement existing objectives. It *can* be used to help bring about changes in objectives, but for that purpose it has very serious limitations.

The particular few pages in this book that I happen to like best occur in the final discussion entitled "What Are the Urgent Problems?" In it Dr. Gell-Mann points out that if society is to go forward we cannot continue to use science and technology for everything they might be used for, but rather that it will be necessary to be much more selective and have the courage to renounce a whole series of projects—"the project to build large, noisy aircraft, for example; or the project to fill the Rocky Mountain trench with water and carry all the water that falls onto Alaska into the Southwest; or the making of a huge population in addition to the one we have already." However, he is not very optimistic about the possibility of our being more sensible, because "the military and commercial rivalry of the Great Powers massively impedes these acts of renunciation. . ." and because "the structure of business and govern-

ment, the pattern of our habits and traditions, our ways of thinking, our favorite metaphors and similes are such that it is very difficult to abandon these old drives which impel us to master, control, and destroy the environment around us. Without some change in our ways of thinking, without some kind of religious or spiritual revolution, it seems difficult to believe that we really can alter our direction within the next fifty or hundred years."

I would argue, in a somewhat different vein, that for society to move forward in more sensible directions there are some important jobs of creative destruction that have to be done: the cigarette industry; the advertising industry; an automobile industry which, when its bad effects are fully taken into account, may contribute nothing to the GNP other than in a job-creating sense; a kind of military establishment that puts far too much emphasis on large-scale violence (and because of that may one day get us all killed); the foreign service monopoly; and NATO, which stands in the way much more than it contributes to a solution to the problems of Central Europe. And I would not like to see these tasks of creative destruction left for a future generation to accomplish; the longer we wait the more difficult they will become.

SHREWD—BUT MORAL

How do we go about it? What will it take? A religious or spiritual revolution? I quite agree. But I think that something else will be required too; namely, a society that learns to build much more adaptive public and private organizations and that learns how to supply a much larger number of men and women who not only have a high sense of moral values and practical wisdom but who are also shrewd operators—men like Lincoln, Wilson, Roosevelt, and Truman. Perhaps the biologists can be of some help. But, on the other hand, the problem may be a simpler one of getting rid of some old-fashioned middle-class mores—and hence an appropriate task for the humanities people.