Letters

Research on Social Changes

Dael Wolfle's appeal to social scientists (6 Mar., p. 999) to exploit current opportunities for the study of social change is very well taken indeed. We have shown far too little imagination and enterprise in doing what needs to be done to understand the rapidly changing age in which we live.

It must be noted that the record is not an entirely negative one. It happens that the particular event which Wolfle mentions as an opportunity for study, the cut in the federal income tax, will shortly be the subject of an intensive inquiry by the Survey Research Center. Financing from both governmental and private sources has made possible a year-long panel survey of the impact of this new legislation on the nation's taxpayers. Other examples of studies of significant events, such as the presidential elections, might also be cited. Trends in consumer behavior have been the subject of continuing study for the past fifteen years. Psychological and social factors associated with changes in the birth rate are being systematically followed. These programs are exceptional, however. In general, the flow of contemporary events is not being adequately studied.

This failure can be attributed only in part to the social scientists themselves. It is true, as Wolfle suggests, that many members of these disciplines are either uninterested or inexperienced in the study of large national issues. The prevailing format for social research is still the exploitation of opportunities which are close at hand, easily manageable, and inexpensive. But there are a good many social scientists who know very well how to study social change on a broad scale and are intensely interested in going about it. They have had their problems.

It is clear in the first place that the question of money is much more serious than Wolfle implies. It may be true that an established researcher can now reasonably expect to get support from the granting agencies if his budget is in the range of $50,000. This, however, is not the kind of budget which will support the study of social change. The tax-cut study now getting under way will cost several times this amount and any program of research which is continued through time, as of course the study of change requires, will go far beyond that. Many social scientists still have a poor man's attitude toward money. A million-dollar budget for a five-year program of research would strike most of them as grossly extravagant. Yet such budgets must come if we are to understand the ways in which society changes.

It is also evident that some of the most pressing areas of social change have virtually been ruled off limits by the granting agencies. It is a scandal, for example, that no systematic inquiry into public attitudes toward the problems of racial integration has been undertaken since the Supreme Court decision of 1954. Determined efforts have been made to launch such a program, but financing has not been forthcoming. One can understand the sensitivities of both the public and private foundations in this matter, but without their support the research does not get done. The study of solar eclipses and volcanic eruptions seems to be a good deal less threatening than the study of social revolution, especially one which is going on in our immediate environment.

I hope that Wolfle's editorial will be widely read and reflected on by social scientists, including those who serve as advisers to the granting agencies. We are indeed squandering "priceless opportunities." Fundamental changes are occurring rapidly in many basic phases of our social life; we are not fulfilling our obligation as social scientists to apply our research skills to their observation and explication. There are financial and other impediments which make the undertaking of such a program difficult, but they must be overcome. The critical importance to society of a better understanding of the nature of social change demands it.

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The editorial in your issue of 6 March opens with the question "Why do social scientists not take better advantage of major and foreseeable social changes to study the processes and effects that are involved?" To take the very example of space research referred to in the editorial, a project is now under way on "Space Efforts and Society," carried out under the sponsorship of the American Academy of Arts and Sciences and staffed by social scientists. Another example is the series of "disaster studies" carried out by Irving Janis and others. Perhaps the best examples are the large number of studies by social scientists on integration and urban renewal—surely both "major and foreseeable changes."

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. . . There are several massive changes now under way that social scientists should have been studying over the past few years and should be studying at the present time. Not all the fault, however, lies with the social scientists. The private foundations and government agencies have been reluctant to support such research, especially when it involves politically sensitive social changes (for example, the present changes in the status of American Negroes) and when it involves changes which are rather slow in unfolding (for example, the impact of automation on worker satisfaction).

The example cited in the editorial of the research on the impact of Kennedy's assassination is one which argues against putting the blame on the social scientist. The National Opinion Research Center and a score of other social-research institutes and individual researchers reacted immediately to the event by undertaking studies. It was several months before NORC could get responses from possible sources of support for our study . . . and the grants covered only about half of our costs. . . . The other investigators who conducted studies have not been as fortunate.

For some time we have been trying to get under way a long-range research on the effect of the Negro protest movement on relations between the races. So far, we have not found any one of the major sources of support sympathetic enough to make it worthwhile to submit a proposal. . . . Nor is NORC's experience unique. At a meeting on this problem last De-

cember, a score of social scientists spoke of similar difficulties. I suspect that the same experience will occur with respect to the President's war-on-poverty program. Millions will be spent for action, but very little either to plot the course of poverty over time or to evaluate the action programs undertaken. There is no dearth of social scientists willing and eager to work on the massive social changes which are under way in our time, but there is little matching enthusiasm on the part of those institutions that should be supporting basic or fundamental work on these problems.

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One week after publishing the latest in the unsatisfactory series of exchanges on the race issue between Garrett and George and the AAAS Committee on Science in the Promotion of Human Welfare (28 Feb., p. 913), *Science* asks, "Why do social scientists not take better advantage of major and foreseeable social changes to study the processes and effects . . .?" *Science* has part of the answer to its question in its own pages. The kind of "thinking" and name-calling and intimidation and appeal to faith that accompany studies in race relations explain why many social scientists stay aloof from such practical research. For what if the "good guys" (most of our colleagues) were proved wrong? We are timid men and, as they say in our jungle-cities, "Who needs an enemy?"

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. . . Here in Los Alamos there is a beautiful opportunity for studying major social changes as they occur. Here is a community, built from nothing, so to speak, which has evolved in a decade from a secret army post, to an expanding, totally government-owned town, to the present community-in-transition, in which the citizens are being asked to buy their homes, utilities, and so on. . . . In a mountain setting and 20 miles from the nearest village, it is completely isolated geographically. . . . Its social and cultural development, in a vacuum, as it were, is fascinating, and someone should do a thorough study now, while the original patterns are still evident. . . .

The attitudes of primitive peoples toward orbiting satellites, the new fears, new folklore, or new curiosity resulting from "new stars moving in the sky," should merit some study by social scientists. . . .

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Coauthorship: Too Much Laissez Faire

Page's editorial, "Some perils of authorship" (10 Apr., p. 139), should move all scientists to re-examine their practices as authors and editors. Authorship is probably still the primary form of social "currency" in the research community despite continuing competition from such old rivals as officership, professorship, lectureship, and committee membership, and the appearance of many new challengers —granteeship, contractorship, consultantship, study-section membership, paper givership, inviteeship, and international commutership. Like monetary currency, the coins of authorship come in different sizes (books, articles, and technical reports) and vary in value with the standing of the issuing agency (publisher). The wise or suspicious sometimes will not accept the coin until they have tested its metal themselves. But the analogy soon breaks down. Authorship coinage is regulated by vague, unwritten conventions assumed to be universally observed and to be passed on unchanged from generation to generation in the same manner as legends. Page has pointed out that this assumption is unjustified since, in reality, practices vary widely with regard to whose names appear on a paper as authors and how these names are ordered. This lack of common practices leads to dissension among collaborators and to debasement of authorship as the currency of science.

Though perhaps not as serious, additional types of damage follow actions and decisions based on the false premise that the first author named on a paper is always equivalent to the "senior" author and that the order of authors' names has, at present, any universal significance. Page touched upon some of these consequences, and others can be found. For example, the value of author indexes is reduced when, on the assumption that the first few names on a paper are the most important, all authors after some arbitrary cut-off point are omitted. As mechanization and automation of the production of bibliographic tools increases, the economies to be realized by truncating the full list of authors will become more tempting.

Page's suggestions provide an excellent basis for developing the standardization required to correct the damage resulting from our present *laissez faire* with regard to authorship. He rightly indicates that achievement of common practices ultimately depends on authors. But editors can speed this development greatly *if they can agree* on explicit, operational guidelines for authors; individualistic editorial policies will only aggravate the problem. The American Standards Association is working toward national and international consensus on other conventions in scientific publication. It represents an existing mechanism that could be used to develop practical, generally accepted guidelines in cooperation with scientific societies, publishers, and organizations specifically concerned with scientific publication—Section T of the AAAS, the American Medical Writers' Association, the Conference of Biological Editors, the Society for Technical Writers and Publishers, and so forth. The importance of the problem justifies the effort.

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We can turn to the wisdom of the ancients for advice on the problem of multiple authorship discussed by Page.

In the *Ars Poetica* Horace says, "And in one scene no more than three should speak."

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Polonium-210 and Bladder Cancer

Radford and Hunt report (*Science*, 17 Jan., p. 247) that the Po^{210} contained in cigarette smoke may act as a cocarcinogen in lung cancer. This observation seems even more interesting in the light of the finding that the urine of heavy smokers contains nearly