versities to their primary function as centers of learning. Too long have we allowed the public to look upon our universities as factories where scientists are hired to split atoms so that there will be cheaper power, or where biological research goes on so that "cures" may be found. Laudable as these aims and efforts are, they are not the primary function of a university. . .

We should make it clear that we are not exceptions but forerunners, not the elite but the first lucky ones, and that we will not rest until all mankind enjoys the blessings of the cybernetic revolution and of surplus capital. . . .

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The Abuse of Words

New words are coined almost daily in science, and most of them are absolutely necessary. An explicative and descriptive science, if it is to be precise, must as it grows continually enlarge and make more specific its terminology. And this expansion understandably creates a good many problems—problems to which most scientists are certainly not insensitive.

But why complicate the situation unnecessarily? Why, if the problems are apparent, add to them by insensitive and careless practices? It seems to me that a community confronted with very real problems of communication must do everything possible to restrict these problems to those that are the inevitable result of its new needs.

Two examples will illustrate the unnecessary complication of scientific terminology today. The word *ambient* is not synonymous with *room*; that is, "ambient temperature" and "ambient conditions" do not mean "room temperature" and "conditions prevailing in the standard laboratory room" unless the term is specifically so defined. If *ambient* is to be used, exactly what the surrounding (*ambient*) conditions are must be described.

Aliquot means an integral factor. One cannot, therefore, take a 3-ml "aliquot" from a 10-ml sample. Unless the experimental procedure is a strictly quantitative one, and unless, further, integral factors are indeed involved, the words *sample, portion, fraction* are correct, not *aliquot*. (It is distressing to note that because of its frequency this misusage has been admitted to the new edition of *Webster's* Unabridged.)

These two examples are symptomatic of an alarming disregard today of preciseness and of the dangers in the use of laboratory jargon and literary affectations. There is enough inevitable ambiguity in the literature already. The attempt must be made, as a first step in improving intra- and interdisciplinary communication, to limit the problems to those arising from necessity, not from scientific pompousness and literary shoddiness.

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Economics: Public Policy and Theory

John Kenneth Galbraith's views on matters of social policy ("Economics and the quality of life," 10 July, p. 117) are widely known and taken seriously in high places. I myself am sympathetic to the view that in a rich society efficiency narrowly conceived is of only minor interest for public policy. Development economists have challenged the traditional efficiency concept as a useful policy criterion even for poor nations. They recommend instead "efficient sequences" leading to given ends. Since "development" is an ongoing exploration of the unknown at all times and all places, close calculation of costs and benefits is, in any event, impossible. Our national allocations in space, health, and education are commitments based more on a vague sense of significance than on a precise knowledge of their consequences.

What makes the economist's viewpoint persuasive—a point which Galbraith seems to have missed—is the existence of objective indicators of economic health backed by a vast body of theory explaining the character of the essential relations. The great achievement of macroeconomics is the concept of gross national product. One of the more significant recent efforts by economists has been the attempt to build "education"—which had been regarded purely as a "social value"—into the grand matrix of economic theory by treating it as a form of "investment in human beings." Something is surely lost in this process of logical reduction, but it has now become respectable to advocate educational programs as an element of *economic* policy, and this is no small gain.

There is, unfortunately, nothing on "the other side" to correspond to national income accounting. City planners work in a theoretical near-vacuum. Esthetics is important, but there are no final arbiters of taste in our society. The "quality of life" is a ringing phrase, but we have no satisfactory way of measuring it. The debate regarding the good life is lively, as indeed it should be, but it is also inconclusive. The great intellectual effort that is therefore needed is the elaboration of a theoretically sound framework of comprehensive social accounts that will include, but go beyond, the income accounts of the economist. Some efforts along these lines are being made, notably by Bertram M. Gross of Syracuse University, but the challenge is to the social sciences as a whole. When we can point to the behavior of social account indices to signify changes in the "quality of life," a sound basis for social policy will have been laid.

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In his recommendation that economists "accommodate" their theory to changes in economic phenomena, Galbraith seems to be asking little enough of his colleagues. In my own science, we attempt to explain changes and are even expected to predict them.

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Darwin-Bates Letters

I am editing with the plan of publishing the correspondence between Charles Darwin and Henry Walter Bates, the author of *The Naturalist on the River Amazons*. I own many of Darwin's letters to Bates and have photocopies of the Bates letters to Darwin in the Cambridge University Library. In an effort to make this project as significant as possible, I ask for information about the existence of other material and seek the opportunity to examine other letters, pertinent documents, and personal or private information. I would also welcome information about Bates and the names and the places and dates of birth, marriage, and death, of his family—children and further descendants.

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