for example, it suppressed the maximum on the copper wave completely.

(4) The enzymatic method is especially useful under conditions where conventional oxygen removal is either inconvenient or impossible.

(a) For polarographic determinations in very small volumes that cannot be conveniently handled in closed systems.

(b) For many amperometric titrations: closed systems or degassing after each addition of titrant can thus be obviated.[3] We have, for example, obtained stoichiometric results when solutions of glutathione (containing the usual amounts of enzyme and substrate) were titrated with phenylmercuric hydroxide at a potential of – 0.45 volt versus the S.C.E. (*3*). The titration was carried out in an open vessel and the oxygen introduced with each 0.2-ml addition of the titrant disappeared within about 1 min.

(c) For the removal of oxygen from protein solutions. This cannot be done satisfactorily by the usual methods, since such procedures as degassing or shaking in an inert atmosphere lead to foaming and denaturation and fail to remove oxygen completely (*4, 5*). The enzymatic method is therefore particularly suitable for this purpose and is proving very useful in current studies on the interaction between organic mercury compounds and proteins. In these experiments it is obviously desirable to keep the enzyme concentration to a minimum, so that it does not constitute more than a negligible fraction (less than 0.5%) of the total protein concentration. Such low enzyme concentrations do, of course, necessitate closed systems and the time for complete oxygen removal is somewhat longer.

[3] It should be noted, however, that the enzymes cannot be used in the presence of nonaqueous solvents, which are frequently employed in amperometric titrations.

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Comments and Communications

Sporabola

MY scientific urge, or perhaps only my idle curiosity, having been stimulated by the letter of Dr. P. H. Yancey (SCIENCE, **118**, 58 [1953]), I dipped into the right-hand top drawer of my desk where I keep the Oxford Pocket Dictionary because of its admirably convenient size, in spite of being myself a Cambridge graduate! I find there that "spore" is defined as "One of the germs by which flowerless plants are reproduced (Gk. *speirō*, sow)." Am I right in believing that, though the etymology is better, the definition is open to the same criticisms as those quoted by your correspondent from Alabama? I refrain from raising, except by mentioning, the general question of how far the scientist is justified in expecting from the nonscientific dictionary, definitions that will satisfy his criteria. Are not all scientific words a kind of condensate of experiment or observation and therefore not susceptible of precise definition, possibly even of complete comprehension, by the nonspecialist?

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Parental Age and Sex Ratio

MAY I be allowed to comment briefly on "The Dependence of the Secondary Sex Ratio in Humans on the Age of the Father," by Dr. Edward Novitski, which appeared in SCIENCE, **117**, 531 (1953). The data utilized by Dr. Novitski in his study are published by the U. S. Bureau of Vital Statistics, and give the sex distribution of offspring in five-year intervals. Dr. Novitski fits a multiple linear regression plane to these data, and overlooks major points relevant to such statistical technique.

(1) The data are not linear. For the youngest age group, fathers 19 years old or under, mothers 19 years old or under, the sex ratio of offspring is less than for the 20–29-year age groups. For fathers, the maximum sex ratio of offspring falls into the 25–30-year-age group; for mothers, it comes about three years earlier.

(2) The two inverted U-shaped curves of age of parent and sex ratio of offspring are almost identical with the ones reported by J. Yerushalmy [*Human Biol.*, **11**, 342 (1939)] on "Age of Parent and Stillbirth Rates," thus indicating that differences in abortion rates are a major factor in this age trend.

(3) Furthermore, age of husband and wife are known to be positively correlated; and even if the data used by Novitski were linear, an adjustment would have to be made to correct for this correlation factor. A. Ciocco (*Human Biol.*, **10**, 36–64 [1938]) states: "Some writers believe that the relation between age of parent and sex ratio is manifest for the fathers rather than for the mothers. Our data (also from the U. S. Bureau of Vital Statistics publication) cannot be used to support any such conclusion, since for both fathers and mothers, when the ages of either are kept constant, there is irregularity in the relationship between age of parent and the relative masculinity. . . ."

(4) Since abortion rates and reproductive habits are known to differ significantly among different economic strata (F. A. E. Crew, *Am. Naturalist*, **71**, 523 [1937]) it appears most doubtful whether unstratified data from the total population, such as used by Dr. Novitski, are suitable for discovering genetic mechanisms affecting the human sex ratio (M. Bernstein: "Evidence of Genetic Variation of the Human Sex Ratio," *Abst., Biometrics*, **8**, 388 [1952]). The writer has utilized data from the upper social strata, with a minimum of induced and other avoidable abortions, of first births only (data from Radcliffe College alumnae and a 1935 German "Who's Who") and so far has found no age affect on the sex ratio of offspring for either fathers or mothers.

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Dangers for Science? or, Snares for the Scientist?

THE discussion of American foreign policy, which began with Melba Phillips' "Dangers Confronting American Science" (SCIENCE, **116**, 439 [1952]), and which has been continued with Joseph K. Marcus' "Snares Awaiting the American Scientist" (SCIENCE, **117**, 507 [1953]), seems to be emitting more heat than light.

Foreign policy and international politics are obviously matters of great importance to all of us. Politics would seem to be a legitimate field for scientific study, and might benefit greatly from such study. Whether this means that the limited space available in SCIENCE should be devoted to polemics is more debatable. So is the question of whether our understanding of these matters is best advanced by publication of relatively uninformed opinions by political amateurs—a class to which most of us belong.

On the whole, I am on the side of those who favor such publication. Scientists are political animals, whether they like it or not, and a journal devoted to the advancement of science may, it would seem, legitimately give some space to the political development of scientists. If any profit comes from this, however, it is not apt to be because scientists are better informed politically than the professional politicians, nor because they are more articulate than those who make their living by commenting on foreign affairs. Still less is it apt to result from the greater emotional intensity of our involvement, or, even, from the greater power of our intellects or the superior subtlety of our dialectic. The contribution that scientists can make to the discussion will come from an attitude: from objectivity, tolerance, reluctance to distort or suppress evidence, and willingness to accept sound logic and demonstrable fact.

In the present instance, I agree with Mr. Marcus that Dr. Phillips' comments seem to show a definite bias. To me, however, the article by Mr. Marcus is no less biased, and seems even less likely to lead to constructive action than the one which he criticizes. His attitude is so widely accepted and so intensively publicized in the United States that it seems unlikely to cause any reaction except complacent self-satisfaction.

It is difficult to join Mr. Marcus in his indignation over the pamphlet "Steps to Peace" issued by the American Friends' Service Committee. The pamphlet was obviously not prepared under any delusion that it would be widely circulated in Red China, or used as a guidebook by the rulers of Russia. It was addressed primarily to the American public. Under the circumstances, the fact that it points out a few alternatives to our current policies and beliefs does not seem unnatural. It would have been much less honest, and much less effective, if it had pretended to give a complete and balanced analysis of the world's problems in 64 pages, and had then filled most of those pages with a restatement of the familiar case against the U.S.S.R. It is true that the pamphlet cites many criticisms of American foreign policy without explaining that this foreign policy was the result of traditions, provocations, pressures, objectives, and personalities that are quite understandable. It is equally true that Mr. Marcus dismisses these criticisms without attempting to answer them, which would seem to be a crime of at least equal gravity.

I can testify that it is possible for one who is not a communist, and who has never been one, to be deeply disturbed by the foreign policy of the United States. That there were reasons behind this policy, I take for granted. That its authors have been Americans of the highest patriotism, I have never questioned. That its objectives are honorable and admirable, I am willing to concede. But this is all beside the point: the question is, what is it doing?

A careful study of the record will, I fear, convince most people that we share with Russia the responsibility for the armament race which is absorbing so large a portion of the world's resources, and which is leading us so rapidly toward the Garrison State. It may be that we have never had an alternative. A nation that is convinced that time is working on its side may have no real interest in agreement, and perhaps Russia would have rejected any offer that we made. It is hasty of us to assume this until we have made an offer which we, in Russia's place, would consider accepting. I do not feel that we have done this. That the Russians are no better in this respect, is small comfort.

Perhaps Galileo would have felt at home in a world which was devoting its best thought to guided missiles and atomic bombs: let us concede Mr. Marcus his point. This does not make it a better world, nor does it alter the fact that science, as we have known it, is suffering very real harm. And the fact that Bertrand Russell has aptly described the functions of science as enabling us to know things and enabling us to do things, does not mean that it is immaterial what sort of things we know or do.

I have no quarrel with Mr. Marcus' point that