Comments and Communications

Snares Awaiting the American Scientist

THE following contentions are highly political, and at least one of them is patently false:

> Present American foreign policy uses diplomacy as a weapon for the aggravation of hatreds, and not as a means of agreement.
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> There are two varieties of freedom. Americans have political freedom for which they are willing to fight. Such a fight is futile, since this kind of freedom is of no concern to the vast majority of the world's people, for they have never had it. The kind of freedom for which these people fight is freedom from hunger, want, and disease.
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> There is one policy left which can save us: an active, positive policy for peace; but, unfortunately, this country has prematurely closed discussion on this policy.

These contentions appear in Melba Phillips' article bearing the title "Dangers Confronting American Science" in the October 24, 1952, issue of SCIENCE (*1*). The publication of this article, of itself, constitutes an obvious refutation of the contention that this country has closed discussion on an active, positive policy for peace, for this very policy is agitated in the article.

To anyone who has followed the discussions on the world crisis in the usual media in which they are given currency, such as the newspapers, political periodicals, and radio programs, the views of Dr. Phillips are not new. They have been set forth on many occasions, in many forms, and in other countries. Their appearance, however, in the pages of a journal devoted to science constitutes a novelty which is sure to attract for them more attention than they usually receive, by now, when placed on exhibition in their natural habitat.

Presumably on the theory that the sanctity of science is the chief concern of the American scientist, Dr. Phillips confronts him with her list of dangers to science which she says result from our foreign policy. She evidently feels that this is the effective way to startle him into helping to destroy that policy. Typical of her approach is her charge of the perversion in this country of the classical goals of science. This perversion, she says, results from the use of the great bulk of our scientific budget for the creation of weapons of destruction. In order to establish this perversion she sets up the premise that one of the classical goals of science is the discovery of nature's secrets for humanitarian purposes. This is a glittering premise, but it does not glitter with the hard gem of fact, for it is well known that Galileo (if "classically" means anything it must refer to the science of the 17th and 18th centuries) had a lively interest in the technical problems of war and required no prodding from his Medici patrons to lend his talents to such nonhumanitarian concerns as ballistics, stability of firearms, and strength of fortifications. It is well known that he used to frequent the great arsenal in Venice. In the "First Day" of the "Dialogues" (*2*) he actually praises the arsenal as a stimulus to thought; and the "Fourth Day" is devoted to a discussion of "Projectiles." And, of course, it would have been difficult to persuade a combatant who had just suffered a direct hit from a piece of improved Florentine artillery, providing he was still in condition to argue the matter, that Galileo's discovery of the parabolic nature of the trajectory of a projectile was inspired by humanitarian goals.

Thus, it seems to me that any "perversion" which confronts us here is only that present in Dr. Phillips' definition of the classical goals of science. Bertrand Russell with his usual insight defines science in terms of its functions. He says simply that science has two functions: one, to enable us to know things; and two, to enable us to do things (*3*). In the light of this definition it is clear that American science of today is no different from the classical science of Galileo and all the others.

There are many other things to say about Dr. Phillips' portrait of American science, but pausing only long enough to note its execution in a style heavily charged with militant emotion, its immoderate emphasis here, its adroit understatement there, all overlaid with a translucent pall of bias which makes it difficult to establish the faithfulness of the portrait to its subject, we pass on to the consideration of her "political context," which is the crux of the article. As a way out of the intolerable danger of losing his scientific freedom and all the other dangers which confront him, the American scientist is exhorted by Dr. Phillips to look to his political power. Leading up to this exhortation, there is first a statement to the effect that in this country only two alternatives are being considered as possible outcomes of the world crisis: (1) world victory by the Soviet Union; and (2) an all-out effort by us, even total war. Then, despite her announced intention to discuss both of these alternatives, she curiously enough neglects alternative (1), and confines her analysis to alternative (2), pointing out that the only two possible eventualities here would be the indefinite prolongation of present tension or total war, in both of which cases civilization and science would be the chief casualties. It is interesting to note that at the end of her analysis of alternative (2) there occurs the following observation: "If these were the only alternatives, then for one who believes Communism to be an ultimate and unmitigable evil there would be little hope indeed."I suppose this implies that there *is* hope for one who does *not* believe Communism to be an ultimate and unmitigable evil.

However this may be, Dr. Phillips then announces the discovery of another alternative which surpasses either (1) or (2). This alternative is *Peace*. But, recognizing that *Peace* is not enough (she notes acutely

that everyone is in favor of *Peace*), she then gets around the difficulty by specifying that there must be an "active, positive policy for peace." She hints that she has a blueprint for such a policy, but does not offer it "at this point." Nor is it explained why she withholds it at this time of crisis. But she does recommend as a "positive alternative to present American foreign policy" a pamphlet entitled *"Steps to Peace—A Quaker View of U. S. Foreign Policy."* In her conclusion she offers what seems to be one item of her blueprint, viz., the necessity on our part of extending aid in the development of backward countries in order to gain their goodwill. It is to be hoped that the rest of her blueprint constitutes an original contribution. The item she discloses does not. It is set forth and fully developed in this pamphlet "Steps to Peace."

"Steps to Peace" is a 64-page pamphlet dated April 1951, prepared for the American Friends Service Committee by a 15-man committee. There can be no question of the deepest devotion of these men, as Quakers, to the cause of humanity. They have addressed themselves to the task of analyzing the causes of what they term the failure of American Foreign Policy, and of presenting their alternative thereto. As to their fitness for this job they point to their "knowledge of the hearts and minds of people the world over." The cogency of their analysis of the world crisis may be judged from the following examples of it. They say that "our insecurity stems from the rapid expansion of Russian influence, but we should recognize that a major reason for this expansion is the economic appeal of Communism." At this point the reader thinks of Czechoslovakia and wonders whether the committee did when they wrote that. Another example is the statement of the general American belief that the Russian Communist system has suppressed the freedom of speech, thought, and political action of its citizens, that the secret police power and forced labor exceeds anything known in Czarist times, etc. They then comment: "It is entirely possible that opportunities for first hand study of Soviet life and for normal contacts with the various peoples of the Soviet Union might reveal serious gaps or distortions in this widespread American conception of Soviet conditions. Until such opportunities are granted, however, it is natural for Americans to look on the claim of Soviet apologists with healthy skepticism." Healthy skepticism, indeed! Apparently there is no assumption the committee is unwilling to entertain, no matter how unequivocal history may be concerning its implausibility. The pattern revealed in this quotation (and others could be cited) may be described as first agreeing to entertain a wildly improbable supposition as true; then, sensing a challenge to such view, seeming to accept the alternative possibility that there may be nothing to it, after all. The committee, like Polonius, discerns in yonder cloud the shape of a camel, but under the relentless Hamlet-prodding of their doubts, agrees that it may be instead a weasel, or even yet a whale.

However, the most conspicuous accomplishment of the committee is in writing a 64-page pamphlet packed with comments on the greatest variety of world problems and their causes, and including what is perhaps the most complete collection ever assembled under one cover of every charge ever leveled at U. S. foreign policy, without once pausing to consider whether, and how, the Communist ideological requirement for destruction of the democratic world has been fundamental in the framing of that policy. There is just one instance in the whole pamphlet where the committee reveals even its awareness of such a thing as Communist doctrine. The reference thereto is brief, and is used *not* to expose the doctrinal requisite for victory over the capitalist world, but to explain why, because of the "Marxist doctrine of capitalist attack, it is at least conceivable that defensive considerations are primary to Soviet plans with respect to the Red Army. To consider them in this light may be risky, but any policy involves risk . . ." (p. 29). The question is: "How conceivable?"

A long time ago there was a group in Troy which found it conceivable that the famous snare, the "Trojan Horse," was something other than it turned out to be. How little conceivable it is that Soviet plans for the Red Army are primarily defensive may be judged from the following conclusion by an expert on Soviet foreign policy: "An explanation of Soviet policy which dismisses the Revolution would seem to be an explanation which neither the facts nor Soviet writings warrant. The basic and inescapable relation of the Soviet State to other states is one of conflict. And for a full understanding of the Soviet attitude, it is necessary to realize that the conflict is one in which the outcome is a foreordained victory for the Soviet State and with it the international proletariat. To try to comprehend the Soviet outlook and to dismiss the inevitability of the world revolution is as idle as to comprehend the outlook of medieval man and to dismiss the reality of the Last Judgment" (*4*).

Concerning the committee's "Alternative Program," little need be said beyond a brief description of the first item thereof. This is the necessity, simply, of reaching agreement by negotiation. To the objection "Well, that is what we have been trying to do for a long time," their answer is we must negotiate harder, as hard as we can. They outline specific requirements for harder negotiation, and offer many practical hints such as 'If negotiators become discouraged or exhausted, they should be replaced" (p. 36).

Dr. Phillips hails "Steps to Peace" as a substitute for our present foreign policy. I do not share her enthusiasm. I feel, as do the vast majority of our people, that whereas our foreign policy may not carry us even within hailing distance of the fair millenium, and to that extent may be a poor thing indeed to contemplate, yet it is an unavoidable policy which has been pushed into our hands by an implacable foe, and, until he announces a change in his plans, we have to hang on to it for dear life. One thing that gives us comfort in this grim enterprise is the good company we

have with us, viz., Dean Acheson, Eleanor Roosevelt, and Adlai Stevenson, to name but very few; all, it should be noted, people of the very deepest humanity.

In 1950 Bertrand Russell said: "The human race could, here and now, begin a rapid approach to a vastly better world, given one simple condition: the removal of mutual distrust between East and West. I do not know what can be done to fulfill this condition. Most of the suggestions I have seen have struck me as silly. Meanwhile the only thing to do is to prevent an explosion somehow and to hope that time may bring better wisdom." (l.c., p. 64) Up to now no word has come that, since the appearance of the committee's pamphlet or Dr. Phillips' article, the British sage has modified these 1950 views.

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References

1. PHILLIPS, M. *Science*, **116**, 439 (1952).
2. CREW, H., and DE SALVIO, A. *Dialogues Concerning Two New Sciences, by Galileo.* New York: Macmillan (1914).
3. *Matchette Foundation Lecture* No. 3, p. 21.
4. BELOFF, M. *The Foreign Policy of Soviet Russia,* Vol. 2. Oxford: Oxford Univ. Press, 390, 392 (1949).

Stress Research

AN ever increasing number of articles deals with problems pertaining to research on "stress" and the so-called "adaptive hormones" (ACTH, STH, corticoids, adrenergic substances, etc.).

In 1950, the Institute of Experimental Medicine and Surgery of the University of Montreal initiated the publication of a series of reference volumes entitled *Annual Reports on Stress* (Acta Medical Publishers, Montreal), in which the entire current world literature is surveyed every year (usually between 2000 and 4000 publications). Up to now, we have had to compile the pertinent literature partly from medical periodicals, monographs, abstract journals, and partly from reprints sent to us by the authors themselves. Of all these, reprints proved to be the best source of data which we felt deserved prompt attention in our annual reports. Hence, in the past, we have sent our several thousand individual reprint requests to authors whom we knew to be currently engaged in research on stress and allied topics.

We would like to encourage investigators interested in stress research to send us their reprints for this purpose as soon as they become available.

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"The Earth Is Born"

I RECENTLY sent a letter to *Life* protesting certain points in regard to its quite striking pictures and the text of "The Earth Is Born." *Life* edited my letter by removing my remarks relative to granite floating in its liquid, and I wish to present the full letter for publication in SCIENCE. In 1950, there was a conference at Rancho Santa Fe on the origin of the earth, attended by chemists, geologists, and astronomers. The geologists concluded rather definitely, I thought, that a non-liquid origin of the earth was probable, and convinced me of the reasonableness of their arguments (*1*). I suppose that all these men dashed off letters to *Life* relative to certain details of its story and fared even more badly than I did, since their letters evidently were not published at all. My letter follows:

"I wish to compliment *Life* on the magnificent pictures of "The Earth Is Born," but also wish to criticize these pictures in certain details on the basis of scientific fact and deduction.

"(1) Water is the only common substance whose solid, ice, floats on its liquid. The rocky materials of the earth sink in their molten liquids and therefore it is difficult to see how the continents were formed as great blocks of solid granitic masses floating in liquid or coming to rest on sunken platforms of basalt. I know of no statements of scientific workers recorded in the serious scientific literature that agree with this view. Moreover, when a mixture of silicates freezes the more dense constituents crystallize first and sink. If the earth was formed in a molten condition—and there is disagreement among scientific students on this point—then the continents were formed from the last liquid to become solid. On the basis of your story, God must have stuck close to this insignificant planet and given a helping hand at crucial moments. I prefer to believe that His laws of nature, including the differences in densities of solid and liquid rocky materials, were sufficient to accomplish the end result without further intervention. Unless this assumption is made, the whole course of the origin of the earth cannot be solved by scientists and belongs in the realm of folklore and mythology. Incidentally, the laws of floating bodies were discovered by Archimedes in the third century B.C.

"(2) If the moon was completed some 10,000 miles from the earth's surface, i.e., just outside the distance at which the tides would break it up, or 11,600 miles from the center of the earth, it certainly would have had an egg shape and as it subsequently moved away from the earth its shape must have changed to its present nearly spherical one. This would have caused a great break up of its surface, and the cracks in its surface should have some sort of concentric pattern about the center of the moon's face. I can see no such pattern. Moreover, the primordial egg-shaped moon would have a larger surface than the present spherical one and hence as the former changed to the latter, buckling of the surface should occur and folded mountains be formed. Fissures in the moon's surface are remarkably open and no folded mountains have ever been identified. Again, the earth contains large amounts of metallic iron and the moon does not. Would it not be well to give the cosmic chemical engineer some help in getting iron on the earth and little on the moon by keeping them some reasonable distance