ground moisture that in the Fall of 1944 there came a stand of grama grass and other forage in the Pecos Valley the like of which had not been seen for forty years. In some pastures this luxurious display was due also to beneficial results of the Taylor Grazing Act, which has permitted the more sagacious cattlemen properly to husband their ranges.

It is believed that this increment of moisture, overcharging a perched watertable, has found a hitherto unused course through some 500 to 800 feet of rock and, after two years, is seeping out to moisten the rock wall of the corridor. Along with the water may have come the spores of algae; or possibly they were carried in by visitors to the cavern or by down-draft air currents in the elevator shaft. Whatever the mode of their introduction, germination was not possible until both light and water were available. Here in this cavernous void of total darkness no chlorophyl plant life has ever before penetrated so deeply below the surface and survived.

At the Devil's Pool, along the pathway leading down into the cavern from the Auditorium, an electric lamp illuminates for an hour or so each day a large moist stalagmite. A year ago a thin, hard, dark-green coating formed on the stalagmite that is probably the blue-green alga, *Schizothrix*. (In the Fall of 1945 it was noticed that the rock wall at the elevator shaft had grown drier and that the algae are shrinking into clusters. Algae are also to be seen now at the Green Lake and in the King's Palace.)

The only large display of algae growing under natural conditions is that found on the floor of the tunnel leading to the guano cave, 180 feet below the entrance. A cylinder of light, at times partly direct sunlight, projects down onto the rock-strewn floor. Within the circle of light a dull-greyish, black dirt appears to cover the debris. It suggests nothing living and gives rather the impression of being dusty, dead moss. A sample of it sent to Dr. Wm. Randolph Taylor was pronounced a blue-green alga, possibly *Gloeocapsa*, a simple-celled colonial form. This is probably the only place where daylight enters the cavern in sufficient amount to support the growth of a chlorophyl-bearing plant.

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What Is the Matter With *Science*?

How is it that, six months after the first atomic bomb was dropped on Hiroshima—and on the world—neither its editors nor, apparently, any of its contributors, have made any serious and responsible effort to discuss the immense scientific, technical, and social ramifications of this event? Apart from the Truman statement—a document of minor scientific importance—some timely comment by Niels Bohr and Harold Urey, and a letter by Gordon F. Hull, this official journal of American scientists goes along as though nothing particularly out of the ordinary has happened.

A public interest, unprecedented in scope and magnitude, has been generated by the concrete realization of possibilities which a few years ago were shadowy dreams in the minds of men whose very language was an enigma to most of us. In Congress, on the radio, in magazines, books, lectures, and endless discussions, the question of atomic energy has assumed a grim and ruthless primacy, upon whose right solution depend the patterns of human development—conceivably, even, of human survival. Nor can it be said that this urgent public concern is merely another example of mass hysteria that will soon pass, because, this time, it originates in a fundamental scientific discovery that almost overnight has inscribed *mene mene tekel upharsin* upon the walls of our current civilization. Within the past weeks men like Oppenheimer, Szilard, Urey, Langmuir, Smyth, Langsdorf, Shapley, and many others have come out of seclusion and made headlines by their courageous, public-spirited response to the social outcome of their patient researches in nuclear physics. With a heartening unanimity these disciplined and sober minds have recognized the imperative need for thinking in terms of broad human objectives, in sharp opposition to a disgraceful chauvinistic nationalism whose conception of the method and purposes of science belongs on the level of Neanderthal man. Their own organization, the Federation of Atomic Scientists, is active in the promotion of a sane international handling of the myriad problems arising from their work, and quite recently a section of the American Physical Society has gone on record in favor of United Nations control of the atomic bomb.

Yet, so far, *Science* has nothing to say. Why is this? Are the editors themselves indifferent, or do they assume that the question of atomic energy is either too "secret" or too well known to deserve extended discussion? Can they find nothing to publish regarding developments in nuclear physics here and abroad, no statements by foreign scientists that go beyond trifling generalities, no simple and forthright reporting of events in this now-dominant field? Or is it that contributors simply do not care to write anything on the subject for their own magazine—something that will tell other scientists, as well as intelligent laymen, what they are doing and thinking, what the problems are and how they may best be approached with a hope of solution?

Whatever the answer, it seems to me that *Science*, in this matter, is lagging badly in what would appear to be one of its obligations: the prompt, intelligent, and reasonably adequate treatment of what J. D. Bernal has called "the social function of science." I say this without prejudice to the many vital and significant contributions that have appeared in its columns, and with due regard to editorial limitations of space, budget, etc. But I think it needs to be said, and reiterated, now more than ever, when thousands of plain folk are becoming vividly conscious of the enormous power wielded by scientists in our delicately balanced world. I think that the scientists themselves need to know it, to say it, to hear it said, over and over again, for I am convinced, on the basis of the way they have reacted to

the present atomic furore, that the great majority are men of good will, striving earnestly that their labors shall end, not in the acceleration of a disastrous social entropy but in the construction of a decent world for all of us.

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The Prevention of Atomic Warfare

With reference to recent communications from William N. Woodward (*Science*, 1945, 102, 608) and Gordon F. Hull (*Science*, 1945, 102, 672), it is evident that there is a considerable desire for the formulation of plans to prevent the development of atomic weapons. No sane person would question the advisability of doing everything possible to bring this about. However, the methods suggested by these men are open to criticism, and their success is very doubtful. Although it was not mentioned by Mr. Woodward, the apparent *raison d'être* of the Association of Los Alamos Scientists is essentially that of attempting to limit the applications of atomic energy by collective action of the scientists, engineers, and technicians comprising it. They propose also to attempt the forcing of legislation on an international or "supernational" scale containing pledges against such military applications. Prof. Hull's plan for a World Association of Physicists is similar, but of his six points, only one is pertinent to the discussion, viz., "a pledge not to give advice concerning, nor assist in making, atomic bombs." Even if 99 per cent of the physicists of the world did so pledge, one could hardly presume that they could thus prevent misapplications of this science. The essential discovery of nuclear fission lies in the borderline field between chemistry and physics, but the deprivation of the project of physicists would not necessarily have prevented the development of a weapon, and in the future this will be much more true. Hence, this solution is as presumptuous as the one which supposes that the men who have had some connection with the manufacture of these weapons in the past have a corner on all the information needed for their production.

What we need, then, is not a Federation of Atomic Scientists, or of Bomb Builders, or even a World Federation of Physicists, but simply a World Federation. Most of the principles suggested as bases for the proposed associations are too obvious to bear elaboration, and the one which the ALAS has used as a smoke screen is virtually one of the purposes of the AAAS, *i.e.* ". . . to promote attainment and use of scientific and technological advances in the best interests of humanity."

It is strikingly clear to most of us that this is no time for forcing the hand of the State Department by demanding action on an international scale. This will require mutual respect, trust, and understanding of a high order—virtues which are not displayed by all of the present powers but which must precede any intimate discussion of the most potent force available to man.

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Veterans' Retraining Program in Geology

During the past five years it is estimated that the armed forces absorbed some fifteen hundred young American geologists of graduate, near-graduate, or postgraduate status, only a small number of whom had gained any experience in professional application of their learning.

During their terms in the armed services few of these young men have had the opportunity of using their geological training or of acquiring additional geologic knowledge. It may therefore be assumed that they have suffered considerable loss of geologic skill and knowledge and are thus not prepared to resume their studies or professional activities in competition with those geologists whose careers have not been interrupted by the war.

Because of this situation and the current demand for trained geologists, the U. S. Geological Survey proposes to undertake a program of training in the form of supervised field, laboratory, and office work that will enable discharged veterans to adjust themselves more quickly and with more confidence in resuming their careers. The Survey proposes to undertake only this applied phase of the retraining. It recognizes that many of the expected trainees will require preliminary academic courses in college or university geology departments that are equipped to give concentrated courses of graduate calibre.

The proposed dual program has been discussed with heads of the geology departments of the Universities of Chicago, Columbia, Harvard, Johns Hopkins, Princeton, and Yale; and they have indicated their approval of the plan in principle. Heads of geology departments in other schools interested in participating in this phase of the program may obtain pertinent information from the heads of the geology departments of those universities. Further information concerning the Geological Survey's phase of the program may be obtained by writing to W. H. Bradley, Chief Geologist, Geological Survey, Washington 25, D. C.

The instruction of qualified veterans in participating schools will, insofar as is feasible, be adjusted to the specific needs and interests of the individual to better equip him to undertake and benefit by Survey or other professional experience in field, laboratory, and office work during the 1946 field season.

Candidates for these temporary appointments to the Geological Survey will be selected on a competitive basis through the channels of the Civil Service Commission, and in accord with veterans' preference policies. It is hoped, however, that veterans who apply will have had the benefit of the preparatory college or university retraining before they seek appointment.

The number of veterans which the Survey will be able to absorb will depend upon the amount of funds appropriated to the Survey for geologic investigations. An estimate of the size of the field program should be available by spring after the House reports out the appropriation bill. As many as possible of the most competent temporary appointees will be given the opportunity of accepting more permanent appointments on the Geological Survey staff, or will be given aid in obtaining