

FOREWARNED — BUT NOT FOREARMED

Eugene Rabinowitch

Professor of Botany
University of Illinois

THE President's announcement of an atomic explosion somewhere in the Soviet Union has been followed by a chorus of reassuring official and unofficial comments. Americans have been advised to be calm, to lose no sleep, to avoid hysteria. They have been told that this development has been expected, and consequently accounted for in our military and political planning. We have heard that the expression, "atomic explosion" may not even signify the explosion of an atomic bomb; perhaps a great catastrophe, or an act of sabotage has occurred in a Soviet atomic plant.

Almost unanimously our statesmen and commentators have told us that although the Soviet scientists may have "cracked" (or as some have insinuated, their spies may have stolen) the secret of the atomic bomb, the Soviet Union does not possess another important secret—the know-how needed for production, which is available only to American industry.

Therefore, we are told, the Soviet production of atomic bombs has no chance of equalling ours, particularly since we have had a four-year head start. Even if a "Beria bomb" has been

exploded somewhere in the wastes of Siberia, our writers and commentators tell us it is an inferior product of amateur handiwork compared to the improved "Eniwetok bombs," now "mass-produced" in America.

Furthermore, it is said, the Soviet Union, although able to make reasonable facsimiles of our four-motored bombers which fell into its hands during the war, does not possess at the present time, and will not be able to develop in the near future, means of delivering atomic bombs to our shores. Their planes do not begin to match our present world-girdling, six-motored bombers or the jet bombers and rockets now on the drafting boards of our engineers.

Whistling in the dark to a different tune, some optimists suggest that now, with their "atomic inferiority complex" gone, the Soviet negotiators will prove more reasonable than before, and an agreement on effective atomic disarmament can perhaps be reached. Some, who ascribed to the American "take it or leave it" attitude at least a part of the blame for the deadlock of the UN atomic control negotiations, hope that the end of American monopoly will

make our attitude more pliable and thus facilitate agreement.

Scientists have never been, and cannot be now, intent on creating public hysteria. More than anyone else, they believe in a calm, rational approach to all problems confronting humanity. However, this approach has to begin with an open-minded appraisal of the facts; and, in taking stock of the situation, we can see little that justifies swallowing of the proffered bromides. We do not advise Americans that doomsday is near and that they can expect atomic bombs to start falling on their heads a month or a year from now; but we think they have reason to be deeply alarmed and to be prepared for grave decisions.

The fact that the present development has been freely predicted by no means proves that we are prepared to meet it. As metastasis in an incurable cancer, it may merely mean that the deadly disease is taking its foreseeable course unchecked.

WHATEVER the type of the Soviet atomic explosion, it signifies that the Soviet scientists and engineers have been able to produce more-than-critical amounts of fissionable elements (plutonium, or Uranium 235, or Uranium 233), since no smaller amount will explode under any conditions. In the (unlikely) case of an accidental explosion of an atomic explosives plant (such as a uranium-graphite production pile), an explosion of sufficient energy to cause

(Continued from preceding page)
agreement. It might even be wise to have a provision in the agreement giving both America and Russia the right to abrogate it upon giving due notice. This would at least serve as a reminder that no agreement between nations has much value unless it remains in the interests of the contracting parties to continue the agreement.

Let us remind ourselves at this point that what we are discussing here is a truce and not peace. We shall not have peace until we create a structure in which cooperation will be secured by incentives rather than precariously enforced by fear of punishment. We shall not have peace until we have an organized world community.

The Peloponnesian War occurred fifteen years after Sparta and Athens concluded a peace treaty that was to last for thirty. Russia and America will not fare any better if they conclude a truce and mistake it for a peace.

HAVE tried to outline a policy which might lead to peace. It may have its faults. Almost certainly it could be improved upon. But what are the alternatives?

We could fight a preventive war against Russia, and there is little doubt that in the years to come this course will be advocated in public by a few, privately by many.

Alternatively, we could pursue the type of policy which we pursued the past four years. It is a policy of "neither war nor peace," and will obviously lead to war when war will be at its worst.

If we want to find a way out of our present predicament, above all let us avoid self-righteousness. Let us not say that we made Russia a generous offer when we proposed the Baruch plan for international control of atomic energy. We would not fool anyone else, but we might fool ourselves. Many of us may

be inclined to say that the cause of all the postwar difficulties between America and Russia must be squarely laid at the doorstep of Russia. A "Thucydides" of the twentieth century to whom perhaps will fall the bitter task of writing the history of "The Downfall of the Atlantic Civilization" might see it differently.

In these past four years Russia and America were not at war. They did not exchange shots; but they traded blows. Who struck the first blow? Does it really matter? During the first World War the Hungarian writer, Karinthy, was sitting in his study attempting to write an essay on the causes of that war, when he was interrupted by a loud noise which seemed to come from the nursery. Opening the door, he saw his five children engaged in a free-for-all. "Who started this fight?" he said sternly to Peter, his eldest. "It all started," said Peter, "when David hit me back."

effects detectable at some distance could be produced, if at all, only by a plant of considerable size. This means that from the production point of view, the Soviet project is considerably ahead of the French and British projects, which have so far only constructed small experimental piles.

The hypothesis that the one batch of atomic explosives whose explosion we have detected was the product of a small-scale fabrication effort and that the Russians are not able to maintain production of these materials on a level comparable to ours, has no basis—except its convenience for us. When we exploded our first test bomb at Alamogordo, we had in operation two large isotope separation plants at Oak Ridge, plus several plutonium production piles at Hanford. Without constructing facilities of a similar order of magnitude, the Russians would not have been able to accumulate within the short period this facility could have been operating enough material even for a single bomb. If they have mastered the difficulty of building one plant big enough to produce a critical amount of atomic explosives, there is no obvious reason why they should not have built this plant as big or even bigger than we did in 1945.

The extensive use of slave labor could have considerably reduced the effort by eliminating the costly and extensive safety installations provided in all our facilities.

To sum up, whatever kind of isotope separation or plutonium production plants the Soviet engineers have constructed, we have no reason to believe that these have not been built on the same scale as ours; and we have equally little reason to believe that these facilities are not being expanded and multiplied at a rate equal to, or exceeding, that of our rate of growth after 1945. This type of expansion has nothing in common with the "mass-production" symbolized by conveyor-belt assembly of automobiles in Detroit—a development on which American industry is supposed to have a lasting monopoly.

IN HIS recent testimony before the Congressional Committee on Atomic Energy, Mr. Lilienthal spoke of our progress in the fabrication of atomic bomb elements—an operation which, he said, has now been converted from "custom type work" by scientists to "industrial production" by technicians. These statements may have been responsible for the belief—apparently shared by some of our statesmen—that atomic bombs are now being "mass-pro-

duced" in the United States. It was, however, repeatedly stated by well-qualified men that the "bottleneck" of atomic bomb production is the production of atomic explosives, plutonium or light uranium, and not their incorporation into bombs. The Russian experience in mass ordnance production has been long, extensive, and quite successful, from the days of Ivan the Terrible's siege of Kasan to the days when Soviet artillery was massed almost wheel to wheel at the banks of the Oder to blast open the path to Berlin.

A real handicap the Soviet Union may be facing in serial production of atomic bombs is shortage of raw materials. The enormous and hectic effort which Soviet mining engineers apparently put into the exploitation of the notoriously exhausted uranium mines on the German-Czech border, may signify that no really extensive uranium sources have as yet been discovered elsewhere in the Soviet-dominated area; but this is an uncertain inference, and even if it is true, continued prospecting may change the situation at any time.

Finally, while it is true that the Soviet Union so far has been far behind the United States in the development of long-range aircraft, the fact that the USSR has been able to produce a better heavy tank than any we put into production in the last war, is an indication that this backwardness might have been due to a difference in emphasis at least as much as to a difference in engineering capacity. It will take the Soviet Union time to catch up in her present handicap in this field—perhaps, more time than she will need to catch up with our production of atomic bombs.

However, she might move ahead of us in the development of other and perhaps more ingenious methods of delivery of atomic bombs or other atomic weapons to our cities or harbors, by large rockets, submarines, or by sabotage. It is true that we have aviation bases and fleet bases surrounding the Soviet Union, while Soviet bases are far from our shores; but these bases are quite close to the cities and harbors of nations of Western Europe which form an integral part of our defense, and whose destruction or defection will make our task in any future war immensely more difficult.

In the earliest analyses of the relative position of the Soviet Union and the United States in the case of an atomic arms race, made by atomic scientists in 1945,¹ it was pointed out that the popu-

lation and industry distribution in the United States, and the relative difficulty of changing this distribution radically in a politically and economically free country, make the United States (and even more so the countries of Western Europe) more vulnerable to atomic bombs than the Soviet Union. The harbors and air bases on whose operation we must rely in overseas warfare, can be made unfit for operation by a few atomic bomb hits or a few atomic mines.

All this adds up to the sober conclusion that we have no reason to assume that, without a renewed prodigious effort on our own part, the Soviet Union will not be able to draw even, or even forge ahead of us in the number and strategic value of its atomic armaments within a relatively short time—a period of the order of five to ten years. Professor Urey's and Professor Seitz's articles in this issue draw attention to the necessity for revitalizing our atomic energy project and imbuing it with the pioneering spirit of wartime days if we want to avoid the extreme calamity which can confront us in the atomic arms race—the calamity of suddenly finding ourselves trailing behind.

Not only is our leadership in atomic offense threatened; we are even more in danger of falling behind the Soviet Union in our capacity for defense. It is easy for a radio commentator to pun, in commenting on Truman's announcement of the Soviet atomic bomb that "if we could detect them, we can deflect them." The fact is that the most important defense against atomic bombs is not to be where the bombs explode, and this means planned decentralization and scattering of population and industry. For those who *have* to be there, the most important thing is detailed preparedness, advance assignment of functions to everybody in the case of a disaster, and brutal disregard for individual danger and losses of "expendable" men and women. In all these respects, a free republic will have great difficulty in competing with a ruthless police state, and its disciplined and indoctrinated populace.

IT HAS been stated by responsible speakers that since the Soviet acquisition of the atomic bomb was foreseen, our military and political plans have been made accordingly. As a minor

¹ See Franck Report, *Bulletin*, I (May 1, 1946), 2-4, 16; "Memo from Szilard to Roosevelt, March, 1945," *Bulletin*, III (December, 1947), 351-53.

concession, it is admitted that the Soviet bomb explosion came two or three years earlier than our planners expected. (Some voices have been heard asking for congressional investigation of those responsible for this error in timing.) Let us set the record straight. A glance on pages 262-64 of this issue will prove that the forecasts of Szilard, Urey, Langmuir, Seitz, Bethe, and others have been remarkably close. They gave about five years as the time the Soviet scientists would need to produce their first atomic bomb. Among men familiar with the American atomic bomb project, only military and scientific administrators—General Groves, Dr. Vannevar Bush, President Conant—were more reassuring. Overawed by the size and complexity of the industrial and organizational effort they were directing, they refused to believe that an industrially backward Soviet Union would be able to duplicate American achievement in less than fifteen to twenty years—if ever.

In the last two or three years, with American public opinion becoming increasingly sceptical about the capacities of the Soviet system, and with the news of "purges" indicating a worsening climate for scientific progress in the USSR, many American scientists have become more complacent about the probable rate of Soviet atomic development. What they have failed to take into account is the possibility that a politically powerful head of the Soviet atomic energy project—reputedly, the police boss Beria himself—could have very well kept this project completely protected from all interference by party-line hacks, such as have been permitted to play havoc with the development of biology in the Soviet Union.

The most authoritative forecast to be made public in the last two years—the report by the President's Air Policy Commission ("Finletter report")²—has not succumbed to this complacency. Its conclusion that the Soviet Union might be expected to acquire a substantial number of atomic bombs—sufficient to require a complete change in American world strategy—by 1952, still appears reasonable, since three years is a reasonable time to allow from the first atomic explosion to the assembling of a substantial stockpile of bombs.

To sum up, if the American military planners had followed the considered advice given by the atomic scientists in 1945 and 1946, and the advice of the President's Air Policy Commission, their timetable should not have been off

by more than a year. If this were the whole measure of our present predicament, we would be well off indeed.

However, our difficulties are much more serious. We have not evolved a valid military and political answer to the Soviet acquisition of atomic bombs, not because we did not expect this contingency to arise for one or two more years, but because no planning for this emergency is possible along the conventional lines of national military and political thinking—military planning which sees security in the acquisition of a maximum amount of arms, ships, and trained men, and political thinking which looks for security to the acquisition of the greatest number of treaty-bound allies.

WHEN, in 1945, atomic scientists tried to look ahead, they saw first a brief period of American monopoly. Even during this period, they saw the fear of atomic war casting a dark shadow on international relations, increasing the mistrust between the rival political groups. Beyond the first period, they saw a period of open atomic arms race, forcing the two antagonists to increase their isolation from each other, to organize themselves into increasingly tightly regimented garrison states, and to push their bases for offense and defense as far away from their vital centers as possible. At the end of this period, they could see nothing but a sudden discharge of the accumulated tension in the storm of an atomic war.

As the only way to stop this ominous development in its tracks, they saw the establishment without delay of an international control of atomic energy. The scientists put all their hopes in this solution, not because they thought it to be easy or even probable, but because it seemed to them the only remedy capable of stopping the aggravation of the disease at an early stage. This idea has been accepted in principle by all nations—but it was not put into operation, mainly because the most revolutionary power proved to be also the most reactionary and unimaginative. The world has reached the end of the first period with the chances of international control dimmer than ever, and with the worst apprehensions about the deterioration of international relations fully confirmed.

There seems no reason to believe that the developments of the second period—that of an open atomic arms race—will not take the dreadful course anticipated since 1945. While we must do

all we can to keep ahead in this race, we must continue looking for a large-scale imaginative political solution, which alone could stop the inexorable trend leading to atomic war. The conditions for renewed international control negotiations might not be better now than they were before, but they are sufficiently different to justify a complete review of the policy in this field, and an unprejudiced exploration of any new possibility which may offer itself.

The American middle-range policy of organizing and arming the Atlantic powers, must likewise be reviewed. As discussed in my article, "The Narrow Way Out," published in the *Bulletin* in June, 1948, this policy was (and is) aimed at the creation of a defensive barrier—a "conventional" military force able to stop the advance of the Soviet Army across Europe, and so to protect the economic and political reconstruction of Western Europe. The American hope was to achieve this military balance of power on the Continent of Europe before the Soviet Union acquired substantial atomic armament. It was tacitly assumed that if this aim were achieved in time, even the subsequent appearance of Soviet atomic arms would not upset the balance.

The creation of a conventional military force in Western Europe has since been initiated and has progressed in a somewhat leisurely, but not entirely unsatisfactory, manner. Probably it will be speeded up under the impact of the recent news. An Allied army may yet come into existence two or three years from now, capable of stemming the advance of Soviet armies in Western Europe; although, to achieve this result, a much more active American participation might prove to be needed than mere appropriations of money for arming French, British, Italian, Greek, or Turkish divisions. However, even assuming that a vigorous building up of the Atlantic Pact army will take place with the utmost dispatch (and will not provoke the Soviet Union into seeking an early military decision), can this be considered adequate political planning for ten or twenty years ahead?

In the above-mentioned article, it was pointed out that the Soviet possession of atomic bombs will put extreme strain on the political stability of the Atlantic alliance. General de Gaulle, in his reaction to Truman's announcement, was quick to note that the value of the American alliance to France has dropped overnight with the revelation that the Soviet Union has atomic bombs.

(Continued on page 292)

² See digest published in the *Bulletin*, IV (April, 1948), 127-28.

minimal conviction that order is to be preferred to anarchy. But the fear of destruction in itself is less potent than the fear of specific peril from a particular foe. There is no record in history of peoples establishing a common community because they feared each other, though there are many instances when the fear of a common foe acted as the cement of cohesion.

The final and most important factor in the social tissue of the world community is a moral one. Enlightened men in all nations have some sense of obligation to their fellow-men, beyond the limits of their nation-state. There is at least an inchoate sense of obligation to the inchoate community of mankind. The desperate necessity for a more integrated world community has undoubtedly increased this sense of obligation, inculcated in the conscience of mankind since the rise of universal, rather than parochial, philosophies and religions. This common moral sense is of tremendous importance for the moral and religious life of mankind; but it does not have as much immediate political relevance as is sometimes supposed. Political cohesion requires common convictions on particular issues of justice; and these are lacking. If there is a "natural law" which is "self-evident" to all men, it certainly does not contain very much specific content beyond such minimal rules as the prohibition of murder and theft and such general principles of justice as the dictum that each man is to have his due. There is little agreement on the criteria by which the due of each man is to be measured.



There is a special irony in the fact that the primary differences in the conceptions of justice in the world do not spring from religious and cultural differences between East and West. They can, therefore, not be resolved by elaborate efforts at cultural syncretism between East and West. The primary differences arise from a civil war in the heart of Western civilization, in which a fanatical equalitarian creed has been pitted against a libertarian one. This civil war has become nationally localized. Russia has become the national center of the equalitarian creed, while America is the outstanding proponent of the

libertarian one. The common use of the word "democracy," together with the contradictory interpretations of the meaning of that word, is the semantic symbol of the conflict. The idea that this conflict could be resolved by greater semantic accuracy is, however, one of the illusions of a too rationalistic culture which fails to understand the power of the social forces expressed in contradictory symbols.

In short, the forces which are operating to integrate the world community are limited. To call attention to this fact does not mean that all striving for a higher and wider integration of the world community is vain. That task must and will engage the conscience of mankind for ages to come. But the edifice of government which we build will be sound and useful if its height is proportionate to the strength of the materials from which it is constructed. The immediate political situation requires that we seek not only peace, but also the preservation of a civilization which we hold to be preferable to the universal tyranny with which Soviet aggression threatens us. Success in this double task is the goal; let us not be diverted from it by the pretense that there is a simple alternative.

We would, I think, have a better chance of success in our struggle against a fanatical foe if we were less sure of our purity and virtue. The pride and self-righteousness of powerful nations are a greater hazard to their success in statecraft than the machinations of their foes. If we could combine a greater degree of humility with our stubborn resolution, we might not only be more successful in holding the dyke against tyranny, but we might also gradually establish a genuine sense of community with our foe, however small. No matter how stubbornly we resist Russian pressure, we should still have a marginal sense of community with the Soviet Union, derived from our sense of being involved in a common fate of tragic proportions and from a recognition of a common guilt of mutual fear. If community in basic terms is established by various organic forces of history, it must finally be preserved by mutual forbearance and forgiveness.

There is obviously no political program which can offer us, in our situation, perfect security against either war or tyranny. Nevertheless, we are not prisoners of historical destiny. We shall have constant opportunity to perfect instruments of peace and justice if we succeed in creating some com-

munal foundation upon which constitutional structures can rest. We shall exploit our opportunities the more successfully, however, if we have knowledge of the limits of the will in creating government, and of the limits of government in creating community. We may have pity upon, but can have no sympathy with, those who flee to the illusory security of the impossible from the insecurities and ambiguities of the possible.

Forewarned—but not Forearmed

(Continued from page 275)

It might take time until realization of this change will become general, and the disrupting forces generated by the fear of Soviet bombs, begin exercising their full power on the political developments in Western Europe. Communists and their willing or unwilling allies will undoubtedly use all their influence to fan the natural desire of the French, British, and Belgians to stay out at all costs, rather than to serve as "cushions" in atomic warfare between the US and USSR.

The political disruption of the Atlantic community by the threat of Soviet atomic bombings may render the most expert and effective military planning of European defense illusory. This gloomy perspective must be analyzed without passion or prejudice. Different new departures in our long-range political planning can be considered: One is to prevent the disruption of the Atlantic alliance by an early conversion of its temporary and limited bonds into absolute, indissoluble bonds of a federal state.

Another way out—long advocated by Miss Dorothy Thompson in her column, and developed by Dr. Szilard in his article in this issue—is to dissolve the bonds of the Atlantic alliance and to create a truly neutral Western Europe, armed to defend its neutrality against all comers, including America, in the case of an US-Soviet war.

We are not prepared to advocate here any one of these radical solutions; we merely mention them as examples of the type of radical new decisions in foreign policy which America may have to make to prevent collapse of its present policy of limited alliance. Satisfaction with the progress of our military planning in Europe (and Asia), no less than satisfaction with the progress of our atomic energy project, would be dangerous smugness at the moment when the distant rumbling of the first Soviet atom bomb shows the world well advanced towards the abyss of an atomic war.