Book Reviews

Protection

Survival and the Bomb. Methods of Civil Defense. EUGENE P. WIGNER, Ed. Indiana University Press, Bloomington, 1969. x + 310 pp., illus. $7.50.

Civil defense was the subject of a lively national debate in the early 1960's, but the controversy has pretty well died down since then. Now that Congress has authorized the initial deployment of an ABM system, which if completed would provide some active defense for most of our population, the proponents of civil defense may be feeling renewed hope. The publication of this book of essays, edited and introduced by Eugene Wigner, is perfectly timed to reopen the debate.

Wigner has for some years been a leading advocate (in fact, *the* leading advocate) of a vigorous civil defense program. I would not expect Wigner and his coauthors to approach the problems of civil defense with completely open minds, nor did they pretend to do so. But I did expect that they would consider all sides of the question and that they would meet the objections to civil defense squarely. This they have not done.

What I most missed in this book was an adequate discussion of the effects of civil defense programs on the strategic balance. At present, both the United States and the Soviet Union have what is cheerfully called an "assured destruction" capability. Either superpower can, even after suffering a surprise attack, launch a crushing retaliatory blow at the other, so neither side is likely to attack, and both sides know it. This posture of mutual deterrence is stable within limits; it really makes little difference to us or to the Russians if they or we have a few more missiles, since no such small advantage can save either side from disaster in a nuclear war. However, any serious attempt by superpower A to defend its population, either actively by an ABM system or passively by civil defense, threatens the assured destruction capability of superpower B. B's response would be to increase his own offensive forces or defensive capabilities or, most likely, both. (For instance, it was partly in response to the small Soviet ABM deployment around Moscow that we went ahead with our MIRV and ABM programs.) A more dangerous, though less likely, response is that B may suspect that A would risk launching a first strike, either in cold blood or in a crisis, and might therefore attack A preemptively, especially if both sides depend on weapon systems like MIRV, which put a premium on striking first. Thus an ostensibly inoffensive and humanitarian program of civil defense might increase the danger of nuclear war, or increase the size of the forces that would be used in such a war, or both.

My criticism is not that Wigner and his coauthors reject the theory of mutual deterrence—many students of strategic problems have their doubts about that theory—but that their book in effect ignores the whole concept. The only part of the book devoted to the strategic aspects of civil defense is Wigner's introduction. At one point here, Wigner does take note of the argument that an enemy might view our civil defense program as an indication that we were planning to attack, and that he might "jump the gun" while our cities were still more vulnerable than his. As far as I could tell, the grounds on which Wigner disposes of this argument are that the United States has such an exemplary record in foreign affairs that no one could suspect us of such evil designs. Of the much more important point, that a U.S. civil defense capability would be likely to escalate the arms race, I could find no mention, no attempt at refutation.

Oddly enough, Wigner does point out that "in order to assure that the shelter taking . . . does not increase tension, it is important that it does not worsen the opponent's strategic position. It is important, therefore, that the sheltering response time be short; that is, that people *can* take shelter even if they start to do so only when the attack is underway." Wigner recognizes that the opponent would regard a *sudden* loss of his assured destruction capability so seriously that he might feel impelled to attack us when he sees our population entering shelters or evacuating cities. Why then would not a potential opponent take a *gradual* loss of his assured destruction capability seriously also, seriously enough at least to increase his offensive forces when he sees us begin a massive civil defense program?

A few more pages of the introduction are devoted to other effects that civil defense might have on the likelihood of war. Wigner argues that the protection of our population would make us less susceptible to nuclear blackmail, and he answers an argument which he attributes to "opponents of civil defense," that civil defense would make the U.S. government more "intransigent." I would not have thought of making the latter argument, but Wigner's discussion of nuclear blackmail almost convinces me that these opponents (whoever they are) are right. Is it credible that the U.S.S.R. would use nuclear blackmail, and risk our retaliation, to achieve ends, such as that we "withdraw our protection of the Philippine Islands," which are not crucial to her security? And would our response to such blackmail be affected by any but the most effective and elaborate U.S. civil defense system, a system whose deployment would already have exacerbated the arms race? Our fear of nuclear war does indeed help to keep us from interfering in areas like Eastern Europe, where the Russians feel their security to be at stake. Is civil defense intended to free our hands there? If so, then I fear that what Wigner would call resistance to nuclear blackmail I would regard as intransigence of the most dangerous kind.

The greater part of this book is devoted to a collection of facts and opinions which bear on the effectiveness of civil defense. We are told that 1-megaton explosions can produce dangerous overpressures within 6.4 miles of ground zero; most mammals are killed by radiation doses of 1000 roentgens, whereas over 100,000 roentgens are needed to kill some insects; older subways are unsuitable for shelter space because their ventilation depends on using the trains as pistons; in typical nuclear attacks up to 26 percent of all the children would lose one or both parents; and so on. This is all very

interesting (especially for readers of morbid temperament) and generally well written and well footnoted, but the rather loose structure of the book prevents the assembled material from being put together in a useful way. It may safely be admitted that in any given attack civil defense would save some lives and would not save all lives. The question of effectiveness must in the end be made quantitative: How many lives (and how much of our economic system) would be saved by civil defense in a nuclear attack, as a function of the size of the attack and of the cost of the civil defense system? The question must be put this way because we need to judge whether the protection is worth the cost (anyone who thinks cost is irrelevant should ponder the damage that is being done to the nation by the present level of military expenditure) and also because, in order to estimate an opponent's response to our civil defense program, we need to know how easily he could negate our defense by increasing his offense. It is difficult to be quantitative about these problems, but that is an essential part of the burden of proof.

I am not an expert on shelter design, radiation biology, or the sieges of Budapest (to which one chapter is devoted), so I cannot judge the accuracy of much of this book, but I did note one relevant error. In discussing the time needed for entering shelters, Wigner says, "Certainly, a minimum warning time of about fifteen minutes could be guaranteed *under all conditions*" (italics his). This is true for an attack by intercontinental ballistic missiles, but not for an attack by ballistic missiles launched on depressed trajectories from submarines. The administration has raised the possibility of just such short-warning attacks as justification for an ABM defense of our bomber bases; Wigner may not agree with the administration (in this he would be in good company), or he may have some reason to believe that people are less vulnerable than bombers, but then he should say so. Also, I would have liked to see some evidence for the cost estimates given in the article on shelters by J. C. Bresee and D. L. Narver, Jr.; I have seen much higher estimates published by J. E. Ullman (see *Science and Citizen*, Feb.–Mar. 1966, p. 15). I had the disturbing feeling in reading these articles that most of them had been lying in desk drawers for two or three years and had been perfunctorily updated. For instance, the article on active and passive defense by Albert E. Latter and E. A. Martinelli describes Nike-X as the *dernier cri* in ABM systems. Surely these authors have heard of Sentinel and Safeguard.

An aura of unreality surrounds the book. The authors are not only convinced of the need for civil defense; they seem also to be convinced that the American people can be awakened to this need by a little more reasonable persuasion. Thus they can seriously describe civil defense programs of an utterly preposterous scale or scope as if these programs were just about to be implemented. Irving L. Janis discusses the partial dispersal of U.S. industry, with "attractive inducements" to be offered to workers to move with their jobs. Latter and Martinelli suggest spending $35 billion for fallout and blast shelters. Bresee and Narver want to put a grid of tunnel shelters under all large American cities, at a cost of the same order of magnitude. Ira C. Bechtold wants to establish an industry producing a multipurpose food, which after a year's storage in shelters could be eaten here or shipped abroad, and he also quotes with apparent approval the suggestion of Oskar Morganstern that retired scientists, engineers, accountants, and so on be induced to live in areas least likely to be targets, so that they can assist in the recovery of basic industries.

Ironically, the emphasis on huge civil defense programs that aim at a high degree of effectiveness may stand in the way of modest and inconspicuous measures that might at least ameliorate the damage done by an attack. Do there exist detailed plans for reinstating electric power and food deliveries after an attack? I gather from the article by Jack Hirshleifer that such planning is in a worse state than is shelter design. At least the convening of a small task force of economists and engineers to map out such plans quietly (without redesigning the economy) would not escalate the arms race.

I am admittedly not disposed to be enthusiastic about civil defense, especially after having spent half a year in the fight against the ABM. However, I do think that civil defense is an important and complicated problem, and as a collection of source material this book will make a useful contribution to discussion of the subject. It would have been more useful if presented with less zeal.

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Furthering Birth Control

Family Planning in Taiwan. An Experiment in Social Change. RONALD FREEDMAN and JOHN Y. TAKESHITA. Princeton University Press, Princeton, N.J., 1969. xxx + 506 pp., illus. $15.

There is widespread and growing agreement that rapid population growth is a major threat to human well-being in this latter half of the 20th century. There is less agreement about how low the growth rates ought to be, how quickly they must be reduced, and what social policies and programs could best bring about the necessary changes. A lively controversy on these questions has been going on for some time now.

The major split in this debate is between those who think that massive voluntary family-planning programs (offering contraceptive information and services to all who want them) are a logical and adequate first step toward population control, and those who think such methods fall so far short of what is needed that to divert attention and resources to them is a deterrent to progress. Concretely, the proponents of family planning, while stressing the importance of family limitation, would leave to the individual or the couple decisions about the number and timing of their children and would help them achieve their personal desires in this matter. The critics of family planning argue for social policy and engineering to bring individual fertility into line with the demographic, economic, and social needs of the community, or indeed of the whole species. Family planners lean heavily on improvements in contraceptive technology and logistics, their critics on a revamping of the motivation to reproduce and of social institutions.

Family Planning in Taiwan is an impressive contribution to an understanding of the points at issue. It is a detailed and highly competent evaluation of one of the largest, most sophisticated, and presumably most successful family-planning experiments to date. With respect to the foregoing controversy, the monograph provides strong support for the family-planning approach to population control. Yet the overall tone is one of moderation. The authors are aware that the achievements of the Taiwan program were limited and that what was done there might not be done so easily or at all in some other high-fertility society.

The family-planning experiment in question was carried out in the city of