



NUCLEAR WEAPONS, MORALITY, AND THE FUTURE

Eighteen years ago, in the early morning of August 6th, 1945, I was alone in the operations command post of the 313th Heavy Bombardment Wing on the island of Tinian, in the midst of the Pacific ocean. At the time I was a line officer in the U. S. Navy, a naval liaison officer, attached to this B-29 Wing to supervise the aerial minelaying of Japanese home waters with magnetic and acoustic mines. Colonel Wilson, who was in charge of operations, had stepped out for a minute, leaving me momentarily in charge of the post. A field telephone rang, and I picked it up. A somewhat muffled voice announced: "This is Washington calling by trans-Pacific cable. Have they dropped it yet?" I did not know: looking up at the operations board I saw that three planes of the 509th Group were over Japan on a so-called 'weather' mission. I got General Davies immediately. The answer, for the moment, was "no," but within the hour, an affirmative response was on the way. The atomic age had begun; the first atom bomb had just been dropped on Hiroshima. It unleashed an unprecedented amount of explosive energy over a military objective. It also unleashed an unprecedented amount of discussion about modern warfare that left men's minds in turmoil long after the 'all quiet' descended in its gruesome way over the Japanese island of Honshu.

The morality of nuclear warfare is certainly one of the most pressing problems of our time, to which no clear-cut solution appears in sight at the moment. The reason for this, in my mind, is intimately connected with the nature of ethics, or moral science, as it relates to problems of human action. I should like therefore to discuss ethics, to explain what kind of science it proposes to be, and what its limitations are. In this way greater light may be shed on the character of our modern morality dilemma, and the steps that must be taken if we are to acquit ourselves, before our own eyes as well as those of the world, in our atomic responsibilities for the future.

Ethics—A Practical Science

If it be permissible to use the term 'science' in a sense broad enough to include philosophy, following the usage, say, of Aristotle or St. Thomas Aquinas, we could say that ethics is a science. As soon as we were to say

this, however, we would have to qualify our statement immediately and add: it is not a science like astronomy or biology, which aim at giving us *speculative* knowledge of the universe, but rather it is a *practical* science that tells us how we should act. Ethics, or moral science, is the science of human action, whose entire purpose is to direct man's action so that he attain his proper perfection as a man, i.e., by reasonable, virtuous living in a social context. The difference between a speculative and practical science is considerable: each has its peculiar mode of analysis, each considers basically different types of truth and certitude. Let me try to explain this by means of an analogy. I mean to contrast physics with engineering, then extend the contrast to biology and medicine, and finally show how philosophy is related to ethics, because I think this is of key importance in understanding the moral problem that lies before us.

Physics might be described as an attempt to understand "what is the case" in the physical world. It seeks general and universal knowledge that is public and verifiable always and everywhere for the realm of experience for which it is proposed. Engineering science is different from physics, although in a certain sense it presupposes the knowledge of physics. The engineer must know "what is the case" in order to be an engineer, but his engineering does not stop at knowing this; it must pass into the order of "doing" or "making" if it is to be engineering in the strict sense. An engineer is a practical man. He makes things, and the things that he makes are not general and universal things, but very singular and concrete realities like a bridge or a rocket or a cyclotron. He must possess universal knowledge in order to do this, but his engineering is not concerned primarily with universals. Rather it is concerned with singulars, for these are the only things that man can really make.

The preoccupation of the engineer with doing or making introduces an element of uncertainty into his science that is not found in the pure sciences. The astronautical engineer who would put a man in orbit has a much more complex problem than the pure astronomer who would compute a planetary orbit in order to verify the predictions of general relativity. For one thing, the calculations of the engineer are not enough to put the man in orbit: the project is dependent on the work of technicians who must realize the engineer's ideas in a given practical situation with the money and materials available. The materials used are a source of uncertainty, as are the technicians who manipulate them and even the atmospheric conditions and elements encountered. One need not have great knowledge of the activities at Cape Canaveral to realize that engineering

projects have associated with them a different kind of "truth" and "certitude" than do the theoretical researches of the pure physicist.

The same thing might be said of the medical doctor when compared with the biologist, say, or the vertebrate zoologist. The doctor must be a biologist in order to be a doctor, but biological research is not the same thing as "doctoring." The biologist is concerned with knowing how the animal organism normally works, while the doctor is concerned mainly with sickness and health. His is the practical task of restoring the sick or abnormal organism to normality. To do this he must understand the normal functioning of organisms of some general type, but his practical work is concerned, not with the general type, but with one particular malfunctioning organism, and his task is to restore this singular thing to proper operation. To do so, he employs theoretical knowledge, but he is also forced to use singular contingent things, like medicines and instruments and the ministrations of medical technicians. His measure of truth is therefore different from the biologist's. It can be referred to as "practical truth" and it has associated with it a "practical certitude." The good doctor attains practical truth when he knows what should be done, and he has practical certitude when he is certain of his procedure, but his knowledge and certitude are never so good that he infallibly restores every patient to health. The uncertainty inherent in doctoring is well known and is treated sympathetically by the general public—much more so than the uncertainty involved in engineering—whence the engineer's adage: "Only engineers go to jail: doctors bury their mistakes."

I mention these things because they are very relevant to any scientific treatment of man's action and the rules that should govern such action. Just as there can be a theoretical study of the physical universe (call it physics or astronomy or what you will) which has allied with it the practical science of engineering, and just as there can be a theoretical study of the functionings of man's body which has allied with it the practical science of medicine, so there can be a theoretical study of man in his entirety, not merely as he is an animal organism, but as he is a rational animal, endowed with intellectual knowledge and free deliberation, which may be referred to as psychology or philosophical anthropology. This discipline has allied with it a practical science which governs man's actions precisely as they are those of a responsible human being. Such practical science goes under the name of ethics or moral science. It is one of the most difficult types of scientific investigation that can be undertaken by man. Its difficulty is matched only by its importance, for it extends to all of humanity, and perforce is

concerned with everything that man does as he attempts to realize his vast capabilities as human.

Ethics and Prudence

Ethical science, like engineering and medicine, does not aim at speculative truth: it is not concerned with "what is the case," but rather, as has been said, with "what should be done." And since human actions are always placed in the concrete, are always singular, and surrounded by a host of mitigating circumstances, the truth and certitude sought in ethics is practical truth and practical certitude. Yet ethics attains such truth and certitude in a distinctive way, and I should like to explain this now in terms of what I have already said about the truth and certitude associated with engineering or medical science.

Engineering science does not itself construct the singular object, say the rocket, about which it reasons: this is constructed through the manual arts of the technicians who build the rocket, granting that such technicians are guided by the knowledge of the engineer. Similarly, the medical doctor does not himself "cure" the sick person: the cure is effected through the art of pharmacy, or through the work of nature using the medicines or incisions of the doctor, thereby assisting the organism to restore itself to normal functioning. Practical sciences such as engineering and medicine must therefore be complemented by some kind of practical art, which attains the singular effect that is sought by the doctor or the engineer. The same thing may be said for ethics or morals. Ethics does not tell anyone what he or she should do in this immediate situation. Like the practical sciences of engineering and medicine, it can guide human action, but it does not touch such action immediately. It too must be complemented by some kind of practical art that attains the singular action directly, and the practical art thus associated with ethics is known by the name of prudence.

Prudence is to ethics as the practical "know-how" of the technician is to engineering science. It is a habit of mind that tells a person how he or she should act reasonably in a given situation in order to attain his proper perfection as human. It operates under the general principle: "good is to be done and evil avoided," effectively equating the "good" with the "reasonable." It presupposes that the person who would act prudently has control of his emotions and his desires, having moderated these in a reasonable way to attain a normal and balanced character or personality. According to many philosophers, the dictates of what we commonly refer to as "conscience" are usually subjective judgments, proceeding from prudence, that

point the way to intelligent action by the individual in any given human situation.

Precisely because it is a very personal thing, prudence is difficult to analyze, but without it there can be no science of morals; as I shall attempt now to illustrate by means of an example that is somewhat remote from the problem of nuclear warfare. A moralist seeking to establish a reasonable norm as to how people should act in society might propose the general principle of justice: "give to everyone what belongs to him." This would seem to be an infallible rule for human conduct, and yet there are some situations where it will not work. I pass over the complex problem of what constitutes private property and the subtleties involved in the analysis of the notion of theft to cite a simple case proposed by St. Thomas Aquinas seven hundred years ago. A man deposits a weapon with a friend: he rightfully owns it, is merely loaning it to his friend for safe-keeping, and the understanding is that he may have it back any time he asks for it. Some time later he does come back, under these circumstances: he has just been in a fight with another man, he is enraged, he comes in great passion, demands his weapon back, obviously intent on killing his enemy. Under these circumstances, is it just or reasonable to give to this person what truly belongs to him? Prudence says "no," even though the general principle proposed by abstract ethical argument permits a conclusion to the contrary.

Most people have little to do with the custody of lethal weapons, but become more involved in the next example I shall propose. This respects the moral problems of courtship, or more particularly, the actions of young people while "keeping company." The moralist, from his knowledge of human nature, knowing what has been done in the past, what can very easily happen when young people get together, might propose as a safe principle for reasonable action that "a young man and a young woman should *never* be completely alone." In this way, he neatly sidesteps the messy moral problems of "necking" and "petting" and "kissing," to say nothing of what to do with unwed mothers and other social and psychological problems arising in the sexual order. His principle is a safe principle: the big question is—does it attain practical truth? Courtship is ordered to marriage, and in this day and age, is it reasonable for a person to marry someone who is completely frigid and unaffectionate (relative to him, that is), or whom he does not really know in a personal way, but has only seen in a crowd? Ethical science, as a matter of fact, does not propose such a principle for human conduct. Room is left for personal prudential judgments. Young people who are prudent and virtuous can, in some cir-

cumstances, be trusted alone, and it might even be argued that this is necessary for a reasonable courtship. I say, "in some circumstances," and am careful not to specify too carefully just what these circumstances are, because this is a very personal problem. What John might very prudently do with Helen, he might quite imprudently do with Jane, or vice versa. But, if he is reasonable, in any given set of circumstances, he can arrive at "practical truth" as to what he should do, or "how far he can go," and he will have some degree of moral certitude about the rectitude of his decision.

What I have said about courtship can easily be applied to the question of drinking. A teetotalist principle might work for many people, but it cannot be imposed on all as a conclusion of moral science. There are differences among people as well as among the situations they are liable to encounter. Some can prudently drink and be better persons for it, others are very imprudent if they even take, as they say, "a sniff of the stuff."

Ethics, then, is a practical science, but it has to be wary of the principles it proposes for human action. If they are too general, they are practically of no use, and if they are too specific, they probably do not represent practical truth for the individual case. Ultimately it proposes principles that are apt for application to specific action by some human being in a given situation. These principles reinforce the prudent judgment of the individual, but it is the prudent judgment that makes the final decision as to what is actually to be done. The practical truth of morals is the truth of a generalized rule for action that is applicable in most cases: the actual application is made by the prudence of the individual. And both morals and prudence are necessary, in difficult situations, to produce a good human act. An intelligent man, who is slightly sick, can frequently cure himself with a pill; or, if he be mechanically inclined, he can build a gadget for himself. But if he has appendicitis, his normal knowledge is not enough—he has to reinforce it with medical science, as found in the doctor, in order to get well; and if he wants to build and launch an earth satellite, his tinkering ability is not enough either—he must reinforce it considerably with astronomical engineering and other technical skills in order to reach his objective. So it is with difficult problems of human living. Prudence is enough for daily, ordinary affairs. Ethics or moral science must be invoked when difficult problems are involved that cannot be solved by native intelligence and common sense. Together, the two work together to meet the complex demands made on man in modern society.

Even when ethics and prudence are both employed, however, it is im-

portant to realize that there can be no *absolute* truth or mathematical certitude about a future action that is to be placed. Moral science, like engineering and doctoring, has a "hit-or-miss" aspect to it. Not every satellite gets into orbit, nor is every patient cured, nor is every action that is ethically and prudently planned found, in the sequel, to produce the best or most reasonable eventuality for all concerned. Many a "Saturday-afternoon-quarterback" has made a prudential decision that lost a football game, on which account he is much maligned by the "Monday-morning-quarterback." Ethical decisions are frequently like that. All that ethics and prudence, like engineering and medicine, can assure is that an action be planned reasonably and well, taking account of all the factors that can be known at the time that the action is to be placed. Sometimes new knowledge or a later development will show that the particular action would have better been placed otherwise, or not at all, but this eventuality does not render the action either imprudent or unethical. Even if it does not turn out well, it can still be *planned* well, and this is the essential ingredient of practical truth—a point which has great bearing on the morality of nuclear warfare.*

Politics and Military Prudence

What I have said so far is very general and applicable to any human situation. As we move into the realm of public affairs, the notions thus far discussed continue to exert their influence on practical decisions to be made. A political or military leader must use ethics and prudence in his own personal life if he would attain his proper stature as a man. Beyond that, however, he must further develop his reasoning about social matters and acquire a special type of prudence, if he is to act reasonably in public affairs and in the interests of the common good. The practical science that he evolves in the course of such speculation is a part of the science of ethics, although classical Greek usage dignifies it by the special name of politics. Since the latter term has fallen into such bad repute in its non-scientific usage, we shall include it under the broad term of "moral science," or, if you will, designate it as "political science," although this has other connotations in modern usage. As a science, however, it remains practical, has for its goal the attainment of practical truth, and must be complemented by a practical art in the one who ultimately makes the decision as to what is to be done. For the broad conduct of affairs of state, this practical art is

* For a more technical discussion of the nature of ethics as a practical science, see my *The Role of Demonstration in Moral Theology*. Washington: The Thomist Press, 1962.

known as "political prudence," while for specific questions of military affairs, it is called "military prudence."

Obviously military prudence and the scientific reasoning that reinforces it must always be located in the broader context of moral science. As taught, however, in our service academies, command schools and war colleges, under the name of "military science" (or "naval science" or "air science"), it is concerned with very practical decisions about the deployment of forces and weapons' usage, and traditionally shies away from discussion of broad moral principles and a moral philosophy that should govern the action of the military. I suspect that our concern for "democracy" explains partly our reluctance to commit ourselves, as a nation, to a specific moral philosophy with all the moral principles that this automatically entails. As a matter of fact, however, no nation can function without *some* commitment to moral science, and in my opinion, we have, as a nation, at least implicitly subscribed to a moral system that is acceptable to a large percentage of our enlightened citizenry. This goes by the name of "pragmatism," and equivalently defines as "good" whatever "works." If obliteration bombing "works," it is "good" bombing. Our military men, as a rule, have not been given to abstract thought on such questions as the morality of bombing, and have been content, in many situations, to follow the pragmatic rule as the unique criterion for judging their actions. But criticism on the part of other nations of the world, particularly those that have suffered from pragmatic thinking on the part of a former enemy, and criticism from Americans who do not subscribe to pragmatism in their own personal lives, and are indignant that our nation should be stigmatized by its thought, have led to an "examination of conscience" at the national level. The study of moral principles as applied to modern warfare has thus become topical, and any philosopher who has something constructive to offer is given a hearing, so that we as a nation may formulate more precisely the moral principles on which we work.

Warfare and Morality

As soon as we begin to discuss modern warfare in the broader context of moral science, we are back once again at the quasi-dilemma encountered when ethics formulates principles for human action. If such principles are "safe" principles, or are too general, or are too specific, they probably do not represent practical truth for the individual case. The moralist who insists that one should give to everyone whatever belongs to him, under *all* circumstances, or that it is wrong *ever* to drink alcoholic beverages, has

not arrived at practical truth, even though he may allege excellent reasons in justification of his principles. Somewhat in this vein, there are moralists who have studied the effects of nuclear weapons, or the present world situation with regard to communism and its opposing ideologies, who propose principles of this type. One school would say that modern technology has developed weapons of such destructive force that there can *never* be moral justification for their use in any circumstances—and this forms a basis for the so-called “pacifist” position on modern warfare. Another school would say that communism is such a menace to the moral welfare of the world that it *must* be wiped out at all costs, that nowadays a “pre-emptive” war against communism is equivalent to a “holy war”—a basis for the so-called “militarist” position on nuclear weapons. The arguments offered in support of such positions can be extremely logical. They are as difficult to refute as the general principle that “everyone must be given what belongs to him.” In the abstract they may well be irrefutable. The precise problem is this: do they permit the individual (be he private person, statesman, or military leader) to arrive at practical truth in the concrete situation facing mankind in the twentieth century?

Most American moralists take the position that either of these principles is too extreme, and therefore attempt to reason to other principles that are not so general, thereby allowing for the exercise of a prudential judgment within the limits that they specify. Two such principles are the following: (1) because of the destructive force of nuclear weapons, all wars of “aggression,” whether they be just or unjust, are no longer morally justifiable in the present day; (2) yet, since there can be no peace in the world without justice, law and order, a “defensive” war to repress injustice is morally admissible both in principle and in fact. These principles obviously define a middle ground between pacifism and militarism, and allow for the application of the so-called “traditional moral doctrine” on war to the contemporary situation.

Such a doctrine has been sketched rather fully in a book edited by William J. Nagle, entitled *Morality and Modern Warfare* (Helicon: 1960), in which the proponents of the doctrine are, among others, Father John Courtney Murray, the late Thomas E. Murray, and Prof. William V. O'Brien. As stated, the two principles already given are very abstract, and one could well wonder if they are not too remote for any practical application by the individual. To bring these closer to the concrete situation, they are supplemented in this book by a series of conditions under which they would seem to apply, thereby rendering a thermonuclear war morally justi-

fiable. These conditions may be enumerated summarily as follows: (1) the war must be imposed by an obvious and extremely grave injustice; (2) it can only be entered upon as a last resort, when all other means for remedying the grave disorder have failed; (3) there must be a proportion between the damages that are being suffered through the perpetration of the grave injustice, and the damages that would be let loose by a war to repress the injustice; (4) there must be a solid probability of success in the violent repression of unjust action; and (5) the defensive warfare thus initiated must not escape entirely from the control of man. To these conditions are further appended two general propositions of the practical order, one affirming the legitimacy of defense preparations on the part of individual states, and the other disallowing the validity of conscientious objection to military service by the individual on the basis of his subjective conscience.

Such principles and conditions, it should be understood are not proposed as themselves furnishing practical truth about the morality of modern warfare. Rather they pretend to offer only what the Germans call a *Grenzmoral*, a limiting moral basis for reasonable action, which in every event must be implemented and complemented by a prudential decision for any actual situation that may arise. Whether or not such a prudential decision would actually be made by political or military leaders is a matter of some concern even to those who propose these moral principles. For one, such principles presuppose that the one making the decision have a refined notion of social justice and understand well all that the term "grave injustice" entails; again, they presuppose a sense of values in which "damages" are looked upon not merely in a material or economic way, but also in terms of spiritual and psychological realities. They further presuppose that the aim of modern warfare would be the establishment of a truly peaceful world order, all the demands of excessive nationalism aside—as, for example, is frequently implicit when one nation insists on "unconditional surrender" as the normal termination of any conflict. In a word, the person imperating the final decision to use nuclear weapons must be motivated by a sincere will to peace, which is a will to enforce the precept of peace by arms, which is basically a will to justice itself formed under the judgment of right reason. And under the particular conditions in which the world now finds itself, it would appear that this can never be more than a will to "limited war," with the principle of limitation being the exigencies of legitimate defense against patent injustice.

Granted all these conditions, and assuming these dispositions on the part of the one making the prudential military decision to employ nuclear

weapons, moral science reinforces the judgment of the individual by supplying general principles under which he can act. Like medical science, it does not automatically ensure that the patient will get well. Like astronomical engineering, it does not automatically ensure that the satellite will go into orbit. But it does go as far as practical science can go, and furnishes a reasonable norm for action that can greatly assist the responsible person in making his decision.

Ethics and Moral Theology

Thus far I have written about ethics or moral science, and prudence (be it personal, or political, or military), but have made no mention of moral theology. Some might wonder whether what I have said so far represents the "Catholic position" on nuclear warfare, or whether I have taken a truly "Christian attitude" towards the subject. This immediately raises the question of the theology of modern warfare, to which we can now turn our attention.

Moral theology has much in common with ethics or moral science, but it differs in one significant respect from the latter discipline: it admits an argumentation from authority. The particular authority involved is that assented to by divine faith, and thus the theological argument proceeds at two levels, one requiring divine faith for its assent, the other requiring the use of human reason. Since little is contained in Sacred Scripture that is directly relevant to nuclear warfare, the practical import of the argument from authority (or divine faith) for the practicing Catholic is his belief in the teaching authority of the Pope. Thus to complete a theological analysis of the problem of nuclear warfare, we should have to analyze all the documents of Pope Pius XII and Pope John XXIII bearing on this problem, to see if this would alter the principles already proposed. The details of such an analysis are too lengthy to be treated here. Suffice it to say that it yields results completely consonant with what I have already said.

American Catholic theologians generally support the views I have presented. English Catholic theologians, on the other hand, have more frequently adopted a position that favors pacifism and is opposed to the use of nuclear weapons under the conditions I have listed. The English arguments are likewise presented in a book, edited by C. S. Thompson, and entitled *Morals and Missiles* (London: James Clarke, 1959). The resulting diversity of opinion among Catholics has naturally led to considerable debate in theological journals. Father John J. Farragher in the December,

1960 issue of *Theological Studies* gives a recapitulation of the principal arguments and issues involved. What he refers to as "pacifist" is the English position; the opposing position is the American one. He writes:

In this great debate (on nuclear warfare) all Catholic writers are agreed on the obvious points: (1) that nuclear war would be an extremely grave physical evil; (2) that it is to be avoided by any honorable and just means available, and especially by United Nations action; (3) that an aggressive nuclear war could not be justified; (4) that the use of nuclear weapons in a defensive war or a U.N. police action would be immoral if the same military ends could be achieved just as effectively and safely with lesser weapons. In other words, the extreme position of favoring a war merely to help the economy at home or simply to kill off all Communists cannot be a legitimate Catholic opinion. It would seem, further, that the extreme pacifist position, that all killing in any war is immoral and sinful, is also irreconcilable with Catholic theology.

That leaves two possible positions for pacifists: (1) that non-violence is the better way, even to the point of allowing Communist domination of the world; (2) that nuclear warfare is necessarily immoral, because the evils entailed are too great to be justified by any reason, even the avoidance of Communist domination.

It is on this second point that the issue exists between Catholics who are consistent with the traditional teaching of the Church. It is the question of which is the greater evil: the physical destruction and suffering of nuclear war, or communist domination. I believe that the vast majority of authorities on moral theology agree with what seemed to be the opinion of Pius XII and John XXIII, i.e., that Communist domination is definitely the greater evil. But certainly both are great evils and so to be avoided by whatever just means are possible.

In the meantime, since the issue is based on a weighing of evils and the proportion can hardly be infallibly decided, the theoretical question may still be debatable. But in the practical order, for the ordinary citizen, it seems to me that Catholic theology demands obedience to legitimate civil authority, unless the command is certainly unjust; that in doubtful matters the pre-

sumption favors legitimate authority. Hence, to be a conscientious objector, a Catholic would have to believe not only in the pacifist side of the debate, but in the complete lack of solid probability in the opinion of Pius XII and most Catholic moral theologians.*

Father Farraher is obviously concerned with the practical moral problem as to how a confessor should advise a conscientious objector, in England or the United States, who objects to military service on the basis of weapons used in modern warfare. The tone of his summary indicates that he does not think there is much basis for a sincere Catholic to be a conscientious objector. I would merely point out that his principal argument for the rejection of the British position is the argument from papal authority, which is basically a theological argument. Thus, from the point of view of moral theology, he regards the position adopted in this article as more consistent with official Catholic teaching than its opposite, and thus to be looked upon as the more probable Catholic position.

The Future

By way of conclusion, I should like to stress the main point I have been trying to make, namely, that the character of ethics as a practical science precludes the type of answer to the question of the morality of nuclear warfare that most of us would like to have. Anyone who has studied mathematics or physics or biology or psychology has an ideal of science, and of truth and certitude, that completely satisfies the human mind, that leaves it at rest and undisturbed about any important possibilities having been neglected. The "practical truth" and "practical certitude" of which I have written falls far short of this ideal of speculative science. Yet, in this day and age where the practical science of engineering assumes such importance in our civilization, we ought to have some notions of what one *can* expect in a practical science. The engineer's ideal should not be that everything he ever undertakes will always work perfectly: if it is, no matter how promising this may make our future space program appear, I can say that he is doomed to early disappointment in his engineering career. Rather he should be zealous that his engineering will always be planned well, that it will always take reasonable account of every foreseeable eventuality, that it will employ materials that will be adequate to the task, and that the

* Notes on Moral Theology, *Theological Studies* 21 (1960), pp. 592-593.

technical skills of the men to whom he entrusts its execution will be equal to the practical difficulties they will have to overcome.

I can understand the grave concern over the future of our nation, and its moral responsibilities for the nuclear forces we have unleashed over mankind. But here we can learn from our engineers and scientists. Like them, we must be realistic in our expectations. We must avoid the extremes of being unduly pessimistic over the dire prospects before us, and of having a false optimism that "everything will turn out well" if we keep striving for materialistic prosperity. Above all we must exert public pressure on our political and military leaders, to assure that they "form their consciences" properly, that they become endowed with the measure of political and military prudence, consonant with Christian moral principles, that is necessary to assure the attainment of "practical truth" in the difficult world situation now confronting us.

Eighteen years ago the world situation was very different. To return to the scene with which I began this paper, the morality of nuclear warfare appeared differently to me as I stood in the operations room on Tinian than it appears to me now. I had no direct part in the military decisions to drop either of the atom bombs with which World War II was terminated, but I did have access to much of the secret intelligence and war plans information on which the decisions to drop these bombs were based. I must confess that, on the basis of this information and my own staff experience, I thought at the time that these decisions represented sound military prudence and that they were morally defensible. After the war was over, when additional information became available, and particularly when the pragmatic basis of our political and military policies were made more explicit through discussion and debate, I was not so sure that "practical truth" had *de facto* been arrived at in this matter. Of course, "Monday-morning-quarterbacks" always look better than their "Saturday-afternoon" counterparts, but then they are not the real ball-players: they neither win nor lose games, they just talk about them. Perhaps the men of my generation are to be censured for not having talked enough about the work in which they were engaged, and while it was in progress. Yet secrecy is an integral part of the strategy of war, which even a democracy must respect. More reprehensible, in my eyes, was the lack of moral depth and of the influence of Christian principles in our thinking as a nation. If our military men did make a mistake, as well they could have—even though they were acting prudently and ethically—it was not so much their mistake as the mistake of their political leaders, in turn traceable to the philoso-

phers (and should I add: and theologians?) who framed (or failed to frame) our national policy during the thirties and early forties.

Pray God that our Catholic president not be called upon to make the next decision to employ nuclear weapons. But if he is, perhaps his conscience will rest easier in the knowledge that his countrymen have had the time to reflect on some of these issues, and—more to be desired—have helped to create a national political atmosphere in which moral principles are given greater weight than the pragmatic “values” that have thus far motivated us as a democratic nation.

—W. A. WALLACE, O.P.

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After having received the degree of Bachelor of Electrical Engineering from Manhattan College in 1940, Fr. Wallace began research work with the Test Laboratories of Consolidated Edison Co. in New York. World War II brought him to Washington, D. C., as a commissioned naval officer to work in naval mine warfare research at the Naval Ordnance Laboratory. Early in 1943 he assumed the duties of Mine Officer with the Pacific Fleet and saw action in the Pacific campaign. For his work during this period, particularly his planning of the aerial minelaying attack on Japan, he was awarded the Legion of Merit by the Commander-in-Chief, Pacific Fleet. It was at this time that Fr. Wallace also served as a naval liaison officer with the B-29's stationed on Tinian in the Marianas, and where he was present when the first atom bombs were prepared for the drops on Hiroshima and Nagasaki.

After the war he entered the Dominican Order, undertaking the philosophical and theological studies which help prepare for the priesthood. While completing his theological training he also gained the degree of Master of Science from Catholic University. Upon ordination there followed

a two-year term as Professor of Natural Philosophy at the Dominican House of Philosophy, Springfield, Kentucky. From 1956 to 1959 Father did post-graduate work at the University of Fribourg, earning a doctorate both in philosophy and theology. At the time of his appointment to the staff of the New Catholic Encyclopedia Fr. Wallace was Professor of Natural Philosophy and the Philosophy of Science at the Dominican House of Philosophy, Dover, Massachusetts and Newman Lecturer at Massachusetts Institute of Technology.

Fr. Wallace is the author of The Scientific Methodology of Theodoric of Freiberg, Fribourg University Press, 1959; The Role of Demonstration in Moral Theology, The Thomist Press, 1962; Physics and God (in preparation). He has also written numerous articles on the relation between philosophy and science. A partial list of the places at which he has lectured includes: Yale, Harvard, Brandeis, Boston University, Rensselaer Polytech, Cornell Medical, Providence College and the University of Virginia.

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