

The Two Supreme Elements in Human Progress

by ROBERT A. MILLIKAN

An extract from the forthcoming
"Autobiography of Robert A. Millikan" *

NEVER IN HISTORY has mankind faced a situation which forced every person on earth to ask himself so insistently the question, "How can I help to make a better world?" for we know, as never before, that unless by our joint efforts we do find a way specifically to put an end to world wars the human race has the possibility, and indeed the likelihood, of destroying itself; so that the choice is now between a better world or no world.

The key to my own answer to the question I have raised is found in the following statement: Human well-being and all human progress rest at bottom upon two pillars, the collapse of either one of which will bring down the whole structure. These pillars are the cultivation and the dissemination throughout mankind of (1) the *spirit of religion*, (2) the *spirit of science* (or knowledge).

In the long sweep of evolutionary history from amoeba up to man, what we call spirit or soul—the latest and the most important element in the evolutionary process of creation—first began to appear in and evolve from the animal world when a being developed who began to bury with the bodies of his dead the implements that he thought might be needed in a world beyond the grave. That was a supreme moment. For can one imagine a mere animal thinking about a future life?

Breasted calls the time at which this kind of an idea first came into a brain "the dawn of conscience." I shall call it also "the dawn of religion," for with all the evolution that religion has undergone since its crude beginnings at that far distant date, our word *conscience*, which implies a sense of personal responsibility is today very closely identified with what I mean by the *spirit of religion*.

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But in this long evolution of religion since that time, the word religion has, in fact, had all kinds of extraneous ideas associated with it or grafted upon it, some good, some very bad. It has meant, and still means in some minds, crude superstition; it has meant all kinds of man-made theologies; it has meant bigotry and intolerance and wars and inquisitions. But none of these things has, or should have, anything to do with what I call the essence of religion in the United States today.

We have in this country dozens of different religious sects and just as many different theologies, all necessarily wrong in some particulars since there obviously can be but one *correct* theology and certainly no one knows what that is; but there is just one element which I find common to all these religions. That common element is found, I think, simply in the life and the teachings of Jesus—in the attitude of altruistic idealism (the psychologist may want to call it extrovertness, the common man simply unselfishness) which was the sum and substance of his message.

He states it in the Golden Rule. "Whatsoever ye would that men should do to you do ye even so to them." *You* are the sole judge of what you *ought* to do. For to man alone of all creation has been given the power of choice between good and evil, and it is in the exercise of that choice that man fulfills his great mission on earth. Further, he obviously cannot choose the good without having the possibility of choosing the evil way, and with that choice open, if history teaches us anything then it is to be expected that here and there a John Dillinger or an Adolf Hitler will be found who will choose the evil way.

But this raises another very important question; namely, what guide has man to enable him to determine what is the good and what the evil way? Listen to how the great French political philosopher Montesquieu in

1747 answered that question for himself: "If I knew something beneficial to myself but harmful to my family, I would drive it out of my mind. If I knew something advantageous to my family but injurious to my country, I would try to forget it. If I knew something profitable to my country but detrimental to Europe or profitable to Europe and detrimental to the human race, I would consider it a crime."

From my point of view, the supreme personal and individual opportunity and responsibility of every one of us, without exception, in the present world crisis is substantially as Montesquieu stated it two hundred years ago. So far as I myself am concerned, that responsibility can be rephrased thus:

It is so to shape my own conduct at all times as, in my own carefully considered judgment, to promote best the well-being of mankind as a whole; in other words, to start building on my own account that better world for which I pray. The sum of all such efforts will constitute at least a first big step toward the attainment of that better world.

This means that my personal job is to develop an attitude of willingness—better of determination—to subordinate my own immediate personal impulses, appetites, desires and short-range interests to the larger good of my fellow man, *as I see it*, in cases in which there seems to me upon careful consideration to be conflict between the two. Otherwise I am free to follow my inclinations.

The essence of religion

Further, that kind of altruistic idealism is certainly the very essence of the teachings of Jesus. From my point of view, this attitude is the essence of religion. And not from my point of view alone, for Alfred N. Whitehead defines religion in these four words: "Religion is world loyalty." It necessarily involves faith in the existence of an ultimate Good (Einstein calls it "The Intelligence manifested in nature") which is worth living or dying for—a Good which justifies one in sacrificing his life, if need be, to promote it, as our boys did in the terrible war just past. If there is a better definition of a belief in God than that, I, at least, do not know what it is.

But this attitude of world loyalty, which is the measure of one's personal moral character—and for this there is no substitute whatever—is clearly an attribute of the emotions and the will, where lie, in fact, the springs of all our conduct. That attitude has nothing to do with *knowledge*. I may be as ignorant as a Hottentot, but if I am *living up to my light*, doing what, in all seriousness, I think I ought to do, that is obviously all that can be asked of me. That, I think, is what makes the difference between a religious and a nonreligious man today. The main activity, I think, of the churches should, and does consist in the effort to spread as widely as possible this attitude of world loyalty.

The scientist is inclined to underrate the importance of this effort to spread the spirit or attitude of world loyalty. I think he is fundamentally wrong! And to convince himself of his error he has only to ask himself: How many of us live up to what we ourselves know we ought to do? That should make him realize the magnitude of his mistake. Or, if he shrinks from or discounts such self-analysis, then let him take the easier task of counting up in his community the number of men whom he regards as essentially self-centered, devoid of any sense of social responsibility though they may be recognized as very able and well-informed. I suspect he will find his list a fairly long one. Either of these two procedures should bring home to the

scientist the greatness of his error in discounting the importance of spreading the religious *attitude*—the attitude of world loyalty.

The religious leader, on the other hand, is prone to say that the world would be a perfect world if the hearts of men were right. But he is wrong, too. He has only to look at the horrors of inquisitions or of religious wars, which have been carried on in the main by sincere men who thought they were doing the will of God. Or again, he has only to acquaint himself with the history of infectious diseases like malaria, yellow fever, typhoid, syphilis, etc.; for these have been spread and great populations infected, sometimes wiped out, through practices not only tolerated but inculcated, often enforced, by well-meaning but unenlightened religious leaders.

I shall give two concrete illustrations. I am told by reliable observers that the sanitary conditions in some of the countries between the Mediterranean and India are so bad that of all the babies born only a minor fraction survive through infancy, the reason being that the Koran teaches that running water is sacred and is to be used for both drinking and bathing purposes, wholly without reference to the fact that it may be mixed with sewage and loaded with typhoid and other noxious germs, for Mohammed lived before sanitary knowledge came into existence.

Another conspicuous and a very live illustration of the point here at issue is found in religious opposition to population control measures in countries already so overpopulated that the only hope of escape from the Malthusian hell is to let them remain so disease-ridden that the oncoming population dies off as fast as it is produced.

Take another illustration from the social field. Look at the worldwide disasters, probably involving more deaths even than World War II, which have followed from the preaching by sincere and well-meaning but misguided and bad-thinking fanatics of the Marx-Lenin class war, for example, perhaps the most horrible type of war ever started, in order to see clearly that good hearts coupled with bad heads are quite as destructive of social well-being as are good heads coupled with bad hearts.

"The good of the whole"

Clearly, then, individual, personal morality, of which each one of us must be his own judge, has little to do with social morality, for this latter depends as I am using it, indeed as I define it, not at all upon what I in my ignorance may think is right, but rather upon what sort of procedures do actually best promote social well-being, or "the good of the whole." That is a question of science or knowledge, pure and simple. That is what the university and all of our research institutes are here primarily to discover and to teach. It is a question to which we shall of course never have the complete answer because we shall never possess all knowledge; and yet it is a question to which we have been able each year to give better and better answers as our knowledge of physics and chemistry and biology in all their subdivisions, and geology and psychology and economics and history and government grows, and the applications of these sciences to our group life increase. For in each one of these fields there is, with all our ignorance, a core of definite, established, non-controversial knowledge already attained that can be taken, insofar as it goes, as a dependable guide to correct thinking and correct acting.



A recent picture of R. A. Millikan, in his office at the Institute, with his long-time secretary Inga Howard.

It is these continuously growing cores of knowledge, coupled with the attitude of world loyalty, i.e., the combination of science and religion, that provides today the sole basis for rational intelligent living; and in spite of man's frailties this attitude and these cores are slowly guiding us forward, so that we have actually in the United States attained within a hundred years, and primarily because of science and its applications, a higher standard of living for the common man than has existed in any time or place in history.

Religion and science, then, in my analysis are the two great sister forces which have pulled, and are still pulling, mankind onward and upward. And the two are necessarily intimately related, for the primary idea in religion lies in the single word "ought"—the sense of duty being underneath all religion, while what is duty, that is, what particular line of conduct is actually best for society as a whole, must be determined by science; in other words, this is a question of knowledge or intelligence, rather than of conscience. I am thus using, as at the very beginning, the two words *conscience* and *knowledge* as at least very closely related to the words *religion* and *science*.

But I wish to go a step farther, for someone asks, "Where does the idea of God come in? Isn't it a part of religion?" Yes, I think it is, and I should like to reply in three different ways to the question here raised.

My first answer is taken directly from Holy Writ and reads: "No man hath seen God at any time . . . If a man says I love God and hateth his brother he is a liar: for he that loveth not his brother whom he hath seen, how can he love God whom he hath not seen?" In other words, one's attitude toward God is revealed by and reflected in his attitude toward his brother men.

My second answer is taken from Dean Shailer Mathews, head of the Baptist Divinity School of the University of Chicago. To the inquiry, "Do you believe in God?" he replied "That, my friend, is a question which requires an education rather than an answer."

My third form of reply is my own and reads: I do not see how there can be any sense of duty, or any reason for altruistic conduct which is entirely divorced from the conviction that moral conduct, or what we call goodness, is somehow or other worthwhile, that there is Something in the universe which gives significance and meaning, call it *value* if you will, to existence; and no such sense of value can possibly inhere in mere lumps of dead matter interacting according to purely mechanical laws. Thousands of years ago Job saw the futility of finite man's attempting to *define* God when he cried, "Can man with searching find out God?" Similarly, wise men ever since have always looked in amazement at the wonderful orderliness of nature and then recognized their own ignorance and finiteness and have been content to stand in silence and in reverence before the Being who is *immanent in Nature*, repeating with the psalmist, "The fool hath said in his heart, there is no God." Einstein, one of the wisest of modern men, has written:

"It is enough for me to contemplate the mystery of conscious life perpetuating itself through all eternity, to reflect upon the marvelous structure of the Universe which we can dimly perceive, and to try humbly to comprehend even an infinitesimal part of the *intelligence* manifested in nature."

I myself need no better definition of God than that, and some such idea is in all religion as a basis for the idea of duty.