

# Concordia Theological Monthly



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## BRIEF STUDIES

### THE PASTOR, MODERN SCIENCE, AND OUR SOCIETY

Which facet of our twentieth-century civilization clashes most with Christianity and the Scriptures? Where are the greatest conflicts? In what area is apologetics most necessary? Probably most pastors would answer: "In the field of science."

One of the consequences of this opinion is an antagonism between science and the church and between scientists and churchmen. It was the late Andrew D. White, president of Cornell, who chronicled the history of this conflict in his memorable *History of the Warfare of Science with Theology in Christendom*. Unfortunately White's work not only chronicled the conflict; it also encouraged it and served to confirm the average individual's opinion that here indeed was the great controversy.

This opinion has had a number of unfortunate results. For one thing we pastors often fail to alert our people to other conflicts and clashes. Certainly the naturalism and worship of things that we see on all sides today is just as great a sin as atheistic evolutionism. Moreover, the clashes between some of the theories of the social sciences and Christianity are just as serious as those between natural science and Christianity. Many social scientists are even more bitter in their denunciations of Christianity than the natural scientists. The same is true of psychology. In a study of the opinions of the leading psychologists of the United States, Keehn recently reported a high unanimity on two issues: humanitarianism and antireligionism.<sup>1</sup>

There is another unfortunate result. It is the failure to appreciate the tremendous contributions which the scientist has made to our twentieth-century society and to our Western civilization. From the standpoint of material wealth and prosperity, this is a wonderful age in which to spend one's pilgrimage on earth. There never has been an age so wealthy as ours, and there is no country on earth that is so rich as the country in which God is permitting us to live. We should certainly teach our people to thank God every day for the privilege of living in 1956. And most of the things that have made our age wealthy have come from the hands of the scientist. He has been God's agent in bringing these gifts to us. Through him the

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<sup>1</sup> J. D. Keehn, "The Expressed Social Attitudes of Leading Psychologists," *American Psychologist*, X (1955), 210.

Lord has opened the windows of heaven and showered down His blessings on us.

To be sure, these blessings may be abused and often are. They have contributed significantly to the naturalism of the day. Many an American who laughs at the ignorant heathen bowing down to his images makes his daily obeisance before wash machines and air conditioners and home freezers and 1956 automobiles. He brings his sacrifices and lays them daily at the feet of these idols just as regularly and as faithfully as does the poor savage whom he ridicules.

This idolatry should not, however, make us suspicious of the new wealth created by science. An abundance of things per se is not an evil, even as a lack of them is not a good. According to the Biblical records, the patriarchs were wealthy men. Job, we are told, was the greatest of all men of the East. That our nation as a whole is growing wealthier by leaps and bounds is not in itself an evil and a cause of fear. God has not commanded us to flee from riches or to refuse to enjoy the new wealth He has given us through our ingenuity and industry. But we must be on constant guard lest our wealth become our god.

It is not difficult to demonstrate that most of these gifts have come through the work of the scientist who has shown us how the natural forces of the world may be controlled and utilized to make life more comfortable and convenient for us. He has harnessed the forces of coal, oil, and natural gas. He has tapped some of the tremendous reservoirs which a gracious God has provided for us. The result has been a huge improvement in our standard of living. At the turn of the century the average work week was close to 60 hours.<sup>2</sup> Not only was a woman's work never done; a man worked not only from sun to sun but often even beyond it. Moreover, the work was often backbreaking. There were few machines to ease his burden; much of the work was done by human muscle power. This was the age of the individual artisan and of the small shop.

Then came the age of industrialization and of the modern factory. To be sure there was exploitation until the social sciences caught up with natural science and man learned to be humane in some of his relations with his fellow men. Gradually the work week declined. The sixty-hour work week became a forty-eight hour work week. Then, with the accelerated industrialization which followed World War I, it became a 44-hour work week, and then a 40-hour work week.

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<sup>2</sup> Harry A. Millis and Royal Montgomery, *Labor's Progress and Some Basic Labor Problems* (McGraw-Hill, 1938), pp. 467—470.

Today the 35-hour work week is becoming increasingly the standard, and with the advent of automation a further decrease is likely.<sup>3</sup>

Indeed today we are standing on the threshold of an entirely new era so far as energy resources are concerned. The scientist has learned to unlock the tremendous storehouse of energy which God has placed into the atom. It is now increasingly coming to be at our disposal. Few people realize how tremendous this storehouse of energy is. It has been estimated that if we could release all the energy locked in a gram (1/28 ounce) of matter, we would have the equivalent of 23,000 tons of coal. This quantity would be sufficient to raise a 45,000 ton battleship a hundred miles above the earth's surface. To be sure we have succeeded in releasing only a small fraction of the energy that is there. But a beginning has been made, and we shall unquestionably see more and more of this energy released and made available to man.

Still another storehouse of energy about to be tapped is the energy of the sun. There are some scientists today who believe that in the near future even more energy will be available from the sun than through atomic processes. The amount of energy that God furnishes us through the sun is fantastic. If we add to man's food requirements the amount of energy man uses in his industrial processes, we find that the average individual uses a total of 149,000 calories each day—3,000 calories from food, 75,000 calories from coal, 50,000 calories from oil, and 21,000 calories from natural gas. How does this compare with the amount of energy available to us from the sun? It has been estimated that the amount of energy which comes to us each day in the United States from the sun is the equivalent of 280,000,000 calories per person. This is just about 2,000 times as much as we need. The figure is even more striking when we consider that most of the energy we use in our industrial processes comes from fossil fuels and presumably represents energy which has been stored up in past ages. It has been pointed out that the amount of energy released by the explosion of an atom bomb is roughly the equivalent of the amount of energy falling on the area of destruction from the sun in a single sunny day.<sup>4</sup> Truly, the Lord is bountiful in providing us with these tremendous energy resources! And certainly we should thank Him for permitting us to learn more and more how to control and release this energy.

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<sup>3</sup> *Statistical Abstract of the US, 1954*, p. 228.

<sup>4</sup> *Science*, CXIX (1954), 50.

Still another blessing that has come to us through the scientist has been the increase in life expectancy that medical research has brought about. In a sense life is not the ultimate goal of the Christian, for death serves as the vestibule to heaven through Christ's sacrifice and victory. Yet it is also true that long life on earth is the gift that God has attached as a reward to the first Commandment with promise. And it is also true that through the work of medical researchers and research teams more and more human beings are coming to enjoy the threescore and ten or fourscore years of life on earth that Moses describes in the 90th Psalm.

We who live in the middle of the 20th century do not always remember the tremendous strides that have been made. Two centuries ago the average life expectancy was a mere 30 years. By 1850 it had increased to 38 years. At the turn of the century it was 47 years. That very increase was one of the sources of optimism and boasting, for in half a century more years had been added to the life expectancy than in the previous century. But all this was small compared with the progress that was made in the first half of the 20th century, for today the average life expectancy is 68 years. Incidentally, women, whose life expectancy in 1900 for the first time passed that of men, are today living six years longer than men.

It is interesting to note that this increase in life expectancy does not mean that men are living longer, but rather that more and more of them are living to be threescore and ten or fourscore. In 1900 the average infant at birth could expect to live to be 47; today he can expect to live to be 68. However, a man of 60 in 1900 could expect to live to be 74; today a man of 60 can expect to live to be 75. The striking increase in life expectancy has come about through a reduction in infant mortality and through the conquest of the great killers of youth and middle age, the germ diseases. But the degenerative diseases, which take their toll in old age, have not yielded significantly to the researcher and are the great killers today.

Will this increase in life expectancy continue? Is it possible that in the next half century twenty more years will be added to man's life expectancy so that it will be ninety and many will be living beyond the century mark? There are some scientists who are confident that this will be the case. The majority, however, are of the opinion that we cannot expect to continue to advance as we have in the past. The problems associated with the degenerative diseases seem much greater than those which were encountered with the germ diseases. For example, in 1950 it was confidently predicted that by 1955 we

would have a reliable test for early cancer. Today we seem hardly any nearer that test than we were when the prediction was made. Most scientists are of the opinion that we shall be able to increase the life expectancy to about 75 years, but they believe that little progress will be made beyond that point.

Still another aspect of medical research that deserves some attention is the conquest of some of the great killers of the past. While this is an aspect of the increase in life expectancy, it is such a dramatic story that it deserves special attention when we consider the blessings God has bestowed upon us through science. In 1920 a diagnosis of diabetes was a sentence of death; today the disease causes at best a slight inconvenience. The same can be said of pernicious anemia. It, too, was inevitably fatal in the twenties. Many of us can remember when pneumonia was spoken of in hushed tones. It was not unusual to pray on Sunday for an individual who had contracted pneumonia and to preach his funeral within the week. But one by one these scourges have gone down before the onslaught of medical research. The latest are tuberculosis and polio, which seem on the verge of losing their terror.

Few of us realize how great the blessings of antibiotics have been. The death of Lincoln's son Willie in the White House brought much sorrow to an already overburdened President and his family. The boy had been caught in a downpour, had contracted a sore throat, which was followed by a heavy cough and a high fever. Today five dollars worth of antibiotics would have brought recovery within a week, but Lincoln had to stand by his son's bedside and watch his life ebb. President McKinley died eight days after being wounded by an assassin. The wound itself was not a fatal one, but gangrene set in and took his life. Present-day antibiotics would have permitted a quick recovery. More recently Calvin Coolidge, Jr., blistered his toe playing tennis. Infection set in, and in spite of the best medical care young Coolidge succumbed. The antibiotics of today would have halted the infection almost overnight.<sup>5</sup>

Added to all this has been the discovery of new anesthetics, which have made possible surgery once undreamed of, and of new pain killers used to relieve postoperative pain. In addition, blood and plasma in transfusions save lives and speed recovery.

Certainly this is an impressive list of blessings, and we should be very thankful to our heavenly Father for them. Moreover, we should lead our people to see these as blessings and gifts from Him.

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<sup>5</sup> *Reader's Digest*, December 1955, p. 130.

There are other points which deserve attention in a consideration of science and our society. One of them concerns antisecularism and anti-intellectualism, which appear to be gaining favor among many. Because of the antagonisms which have sometimes existed between science and the church, we may be tempted to join and even promote these movements as they affect modern scientific research. Certainly when we consider the many blessings which God has given us through scientific research, we should be very slow to interfere with what the scientist is doing in the laboratory in his attempts to push forward the frontiers of knowledge.

The hysteria of the cold war has made this problem a very acute one. Scientists are blamed for having generated Frankenstein monsters in the A-bomb and H-bomb. There is no question but that these are terrible weapons. Whether they are to be used in any future war is one of the most agonizing decisions that society may be called upon to make. However, the scientists should not be blamed for this dilemma. For the problem lies not in what the scientist has produced but in the evil heart of man. Here is the source of international murders, thefts, blasphemies, not the atomic pile of the scientist. Moreover, we should thank God that our scientists made the discoveries which supplied us with these weapons. If they had been discovered by our foes, we would probably not be enjoying the freedom to be antisecular today.

Security regulations have also generated a measure of antisecularism and have interfered with scientific research. It is ironical that at times they have actually subtracted from the very security they are intended to provide. Science builds on what has gone before. Contrary to popular opinion, the scientist is not a lone wolf working alone in his laboratory. He is one of the most dependent persons that society knows. He must spend hours and days studying the work of others and learning for himself what they have discovered. As Warren Weaver has pointed out, science is a cumulative affair in contrast with literature, which seems to be a noncumulative part of man's experience. Emily Dickinson had no advantage over Sappho. Rutherford, however, had a great natural advantage over Faraday, who lived in the 19th century, and he in turn had a great natural advantage over Gilbert, who lived in the 16th century.<sup>6</sup>

Classifying scientific data keeps them not only from the hands of our enemies but also from the hands of our own loyal scientists. While

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<sup>6</sup> *Science*, CXXII (1955), 1,256.

there is no doubt that some data must be classified, as little restriction as is necessary should be imposed in the interest of national defense. Unfortunately the tendency is to classify rather than to declassify. This trend is but natural, for classifying data invites criticism from only a few scientists. If important data are declassified, the individual runs the risk of considerable criticism and even opens himself to the accusation of treason.

Another problem is the security clearance for individuals who are to work on projects closely connected with national defense. Such work is open only to those who have been approved by various agencies responsible for national security. Again there is no doubt that at times this procedure is necessary. It is obvious that one who is in the pay of the enemy dare not be given access to defense secrets. It is also obvious that such secrets must not be accessible to one who might be subject to enemy pressure, who, for instance, might have close relatives behind the Iron Curtain. At the same time, procedures which have been followed have at times kept competent men from making their maximum contribution to our national defense program. Moreover, once a man has failed to secure clearance, he is often barred not only from governmental employment but also from employment in private industry.

The result has been that at least some scientists have avoided research which might require security clearance and instead have concentrated on nonessential scientific research. They have felt it was not worthwhile risking the possibility of failure to secure clearance. How great the loss of these men's services has been we shall never know.

All this, however, has not been without its salutary effects. Scientists have become more humble and more conscious of the limitations of the scientific method. They have had occasion to re-evaluate science and its contribution to modern society. Warren Weaver, president of the American Association for the Advancement of Science, writes that science deals with certain very important aspects of experience—chiefly those that lend themselves to classification through quantitative regularities—but it excludes many other important aspects of experience.<sup>7</sup> Hugh L. Dryden of the National Advisory Council on Aeronautics, in a recent address before the Cosmos Club in Washington, D. C., said: "Science advances by purposely taking a limited and incomplete view of complex events. It is a partial view of life and in many respects a narrow view."<sup>8</sup> In his address as president at the

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<sup>7</sup> *Science*, February 26, 1954, p. 3A.

<sup>8</sup> *Science*, CXX (1954), 1,053.



annual meeting of the Association on December 28, 1955, Dr. Weaver characterized as "superstition" the idea that "the scientific method can solve all the problems of economics, sociology, political science, esthetics, philosophy, and religion."<sup>9</sup> It was not too many years ago that such claims were confidently made.

There is also a growing recognition that science does not and cannot have absolute truth. Indeed this is inherent in the scientific method. No real scientist has even claimed to have absolute truth: his truth is at best relative. Dr. Weaver defines science as "that amazingly successful, interesting, intriguing, elusive, and rewarding human process by means of which, within one particular frame of reference, men approach truth. This process moves in the direction of increasing precision and validity, but it does not reach perfection."<sup>10</sup> More recently he said: "Science does not deserve the reputation it has so widely gained of being based on absolute fact (whatever that is supposed to mean), of being wholly objective, of being infinitely precise, of being unchangeably permanent, of being philosophically inescapable and unchallengeable. There seem still to be persons who think that science deals with certainty, whereas it deals with probability."<sup>11</sup> Dr. Weaver goes on to quote approvingly two men who spoke of the changeableness of science. Edmund Whittaker says of theoretical physics: "It is built around conceptions, and the progress of the subject consists very largely in replacing these conceptions with other conceptions which transcend or even contradict them." Alfred North Whitehead states: "While mathematics is a convenience in relating certain types of order to our comprehension, it does not . . . give us any account of their activity. . . . When I was a young man . . . I was taught science and mathematics by brilliant men. . . . I have lived to see every one of the basic assumptions of both set aside."

There has also been a recognition of the role that the spiritual plays in man's life and being. This is not to say that all scientists are accepting the Gospel of Jesus Christ. But they are recognizing that the spiritual may have just as much reality as the material, even though it cannot be apprehended by the tools of their art. Undoubtedly the A-bomb and the H-bomb have had something to do with this changed attitude. The scientists have tried to escape the moral responsibility for the use of this weapon. They would prefer to transfer responsibility for the very difficult decisions that have to

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<sup>9</sup> *Science*, CXXII (1955), 1,256.

<sup>10</sup> *Science*, February 26, 1954, p. 3A.

<sup>11</sup> *Science*, CXXII (1955), 1,257.

be made to the church and to religion. Nevertheless it is true that there has been a growing recognition of the significance of the spiritual for man's existence as a whole man.

One evidence of this was the Conference on Religion in the Age of Science which was held from July 30 to August 6, 1955, on Star Island off the coast of Portsmouth, N.H. A total of 200 persons attended from 26 states and Canada. It is hard to conceive of such a conference taking place ten or fifteen years ago and not being boycotted by scientists. Yet some thirty professional scientists were present together with representatives of fifteen denominations.

Still another evidence has been the increasing reference to the significance of the spiritual in the writings of professional scientists. Dr. Dryden writes: "Atrophy of the moral and spiritual life is inconsistent with well-rounded development. . . . Man's life is a trinity of activity — physical, mental, and spiritual. Man must cultivate all three if he is not to be imperfectly developed." He quotes with approval Dr. Harbison of Princeton, who fears that we have paid a high price for modern scientific progress — the loss of spiritual values.<sup>12</sup>

Certainly this is heartening. We should encourage this very wholesome change. This is not to say that we should hesitate to speak out against anti-Scriptural theories which scientists may still propound. But at the same time we should thank God for the blessings He has brought us through modern science and lead our people to appreciate them. We should support and encourage scientific research. And, above all, we should help point the way to the fullest satisfaction of the spiritual yearnings of the scientists. We should continue to point them and all men to Him who is the Way, the Truth, and the Life.

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<sup>12</sup> *Science*, CXX (1954), 1,052 f.