

## SCIENCE AND PATRIOTISM

JOHN C. HESSLER, JAMES MILLIKIN UNIVERSITY

The business world may still adhere, in its formal correspondence, to the beginning of the Christian era as the year 1; the National Government may still date its documents as of such and such a year of the Independence of the United States; but the unconscious, yet none the less real starting point for this generation will be, for many a decade to come, "August of 1914." For in that fateful month and year the whole easy-going nation of us: business man, labor leader, religionist and scientist and all of those who spoke glibly and dreamed idly of the "parliament of man and federation of the world" were pushed up against reality and saw the world as it is, not as we wish it to be. The sensation we had was like that of a friend of mine who parted some leaves along his path through a tropical jungle and looked into the face, not of a rare flower, but of a crouching jaguar. Of all the phases of reality that we saw in those August days none was so rude and abrupt as the bristling, brutal word "Kultur." Since men heard that word, life for us has never been quite the same. It was laughable, if one could laugh when his heart (to misquote the poet Lowell) "was going pittypat, when it wasn't going 'pity the Belgians' ",

to note the way in which the press of our country got to work to define "Kultur." The obvious equivalent was, of course, culture. We all knew something of what that meant, by reputation at least. It meant ease and enjoyment and discernment and appreciation and all that. But as an equivalent for Kultur, culture was always a failure: for Kultur has a boom in it—a Krupp boom, perhaps—that culture lacked.

You will pardon yet another attempt to describe, if not to define "Kultur." There was once a little girl who was studying Geometry and had a great deal of difficulty in understanding the definition of a line. She was told that it was something without breadth or thickness, having only the quality of length. She finally got another conception of a line: the kinetic conception; that is, that a line is a point in motion. In the same way the mathematician thinks of a solid as formed by a plane in motion. Now the American idea of culture has been, not a kinetic, but a static conception of a plane, or a stratum, if you please, of society. Like a plane, it is very, very thin; it can be used for a veneer; it can be slipped in anywhere without taking up any room; two such cultures can easily occupy the same space without seriously interfering with one another. But with Kultur it is different; for Kultur is a culture in motion. It has length and breadth and thickness and its sides are on the move; it generates a material solid; and two such solids cannot occupy the same space at the same time. The question we have been asking ourselves since August of 1914 is whether there is enough force behind the planes of German culture to expand the solid until it fills the earth.

There is not the slightest doubt that the kinetic idea of culture is the one put forth by our great enemy overseas. She felt for decades that her civilization was superior to all others; hadn't all the world said so? Why then shouldn't all the world be eager to embrace its beneficent, all-inclusive, all-pervasive sway? The vision of what this powerful Kultur may mean, how it may obliterate all man's other efforts at civilization, how it may engulf the aspiration of mankind for life and liberty and individual culture, these things we have seen with our eyes until we have grown sick at heart. Louvain, the Lusitania, Scarborough; these are but points—incidents—in

the advancing plane of Kultur; if we are to believe the Teuton, they and others like them are justifiable and right. But the world remains unconvinced and asks: "Has all the struggle of the ages been only for the purpose of bringing us at last to a material civilization that has in it all the elements of moral barbarism?"

There were three great bonds that men had hoped would hold the Western world together and that should have operated against the break of 1914. The first of these was the internationalization of labor. How big and mighty this seemed to us just before the war! How well we remember the threatened strike at Paris against the war declaration itself. How well we remember, too, the boasting of the labor leaders of Western Europe that they had the power to hold the working classes together against the efforts of chancellors and premiers to bring about a general war. With what assurance public speakers told us of the impossibility of world strife because the world's labor interests would not produce the sinews of war. On that thin, negative reed men leaned for support, then wondered that it failed them. Yet every one who wished might have known that for years German factories were making munitions one month out of every year and were at all times ready to go upon a complete war basis. What reason had labor to expect that the munitions it helped to make for the Prussian war lords would never be used by those lords for their own sinister purpose? Even as war broke out, it seems to us, German labor might have saved the day had it felt the pull of international gravitation. But instead it felt the stronger, closer, centripetal whirl of the national Kultur. Like Lee in '61 it turned aside from the greater, newer union to respond to the old appeal of a native state. Does America now believe, or must she still be taught, that we may not depend, for a long time yet, upon the negative weapon of an international strike to keep us out of war?

A second great bond that men hoped would hold the nations together is their common religion. Nothing has so indicated the growth of real Christianity as the enlarging meaning of that exclamation of Peter's; "Of a truth I perceive that God is no respecter of persons (or nations)." And, conversely, noth-

ing so fully convinces us of the thinness of Teutonic culture as its gross, brazen appeal to its tribal Gods. It makes the heart ache to read of the studied, cold-blooded indorsement of all the crimes of Pan-Germanism by a servile Teutonic ministry and religious press. All that Christianity stood for as the permeating, unifying force of mankind was brushed aside by the military lord. The appeal to the higher sentiments of men, like the appeal to the unification of labor, was felt to be only another bond that made for the solidarity of a conquering nation and the impenetrability of its Kultur.

Internationalism in labor we may reject as leading to the state of the Bolsheviki, but the universality of the religion under which all men are brothers must survive; it must not be swallowed up in the conception of any national Kultur. To be sure, when the war is over, and when men in Teutonia may again speak out, we shall learn that in this modern Israel, as in that of the days of Elijah, there will be found 7,000 men who have not bowed the knee to Baal, nor kissed his golden image. But they are gone as effective agents in this war. So far as we can see, only the Social Democrat speaks out, and he less and less clearly, as fraternization with the Bolsheviki grows less and less useful to the purposes of the military party.

A third agency, which we had thought would make impossible such an estrangement as came in 1914, was that of the intellectual fraternity of our Western world, including the brotherhood of the men of science. We can see why religious leaders might forget the universal faith, when we remember that in all the contending countries, men's aspirations have become embodied in historic churches, rites and creeds. But none of these existed in Science. Science, we were told, is too young, too practical and too intellectual to be swayed by historic statecraft and by outgrown governmental systems. Men even thought a bit archaic and in poor taste the stalwart patriotism of Pasteur, who because his beloved Strasbourg was alienated in 1871, refused to hold or to accept any honors which the Teutons sought to confer upon him for his priceless discoveries on the origin of disease. Yet in spite of this feeling, when the coup of 1914 was to be sprung, we have no record of any attempt by German science to stay the hand of the militarists

by an appeal to the brotherhood of science and learning, as a reason for peace. We still think with horror of the reported arguments used by German scholars, including her foremost scientists, in favor of, not against the war. With glib tongues, they talked of manifest destiny and the right of might. Yet these were the men who had met with us in our conferences, at whose feet some of us had learned science and history and criticism, who had vowed the unity of learning as a permanent force for peace and brotherhood and universal understanding. Was any apostasy so great as that of the scientist who knew the futility of force, and yet throttled with brutal phrases the faith he had once embraced? Or were any lips so false as those of the man of learning who spoke not the word of truth, but only the false testimony that radiated from Potsdam? Too late we learned that German science, like German labor and religion, was only a phase of the great national Kultur and only useful to its countrymen as it aided, abetted and defended that Kultur in its stroke for world mastery.

There is no great need to stress the fact that this war, as no war that came before it, is a war of science against science. Even above the cry; "To your tents, O Americans," was heard the call, "To your laboratories, O, Scientists." For the submarine was transformed all at once from a scientific toy into the wasp of the sea; the dirty coal tar became in an instant a precious possession, for it became the raw material of munitions. From submarine detectors and depth bombs and gas masks to substitutes for rubber and platinum, from the manufacture of optical glass to the preparation of aniline dyes and antiseptics, everywhere the scientist has been asked to give his knowledge and his methods to the national defense. We need only call the roll of the research laboratories of the country, commercial as well as educational, to realize how many are in the service and what a war of science it is. We are arrayed against a nation of scientists, and brain is fighting against brain even more than arm against arm. We had toyed with the airplane; the Germans, the scientific as well as the military aggressors, soon made our efforts look like child's play. Speed and range and stability took on a new aspect, for they now meant not the plaudits or shudders of gaping crowds at Long

Beach, but success or defeat on the Western Front. Gases which the chemists had worked with cautiously in his laboratory, fully protected by fume chambers and ventilating systems, were liberated on the battle field in such volumes that they transformed whole companies of "first-class fighting men" into gasping, writhing wretches. How sorely has the science of the allies been tried to meet such infernal devices of destruction. Of the consecration with which our American men of science have given themselves to the defense of our democracy we can speak only with the highest praise. May their every effort be crowned with success!

But what of the days after the war? Shall we again seek to save the world with the prattle of a culture that has no body in it, that is disconnected from reality, or shall we give ourselves, as a people, to a Kultur that has three dimensions. Is an American Kultur possible that can satisfy the everyday needs of men and yet be strong enough to compel respect? In the hour when danger threatens, shall we have the means of defense organized, or shall we go back to our desire for individual, uncontrolled selfishness? Shall the relation of German science to our own be restored as an autocracy or as a real democracy of science, founded on reciprocal respect for achievement? We may respect German science, but it is more important that we respect our own, which is another way of saying that America must have a real science as the basis of its national life. America has too long been the humble imitator, feeding to German science the "pap" of a flattery that has raised it to its present status of the foe of mankind. It is not too much to ask that we have a science that will not merely engage in private research, but also in the organization of business, that will take not simply a subservient attitude toward constituted authority, but the role of the ruler himself.

The progress of the war is showing us more and more clearly that America has been all along the target at which the Teuton plans have been aiming. These plans included an acquiescent United States, so that there might be a subservient South America. A United States which flattered itself that the seas kept off the danger of an invasion, while it hid securely behind the British fleet. A United States that deluded itself

into believing that it could raise armies over night and that it need only blow the tocsin and its sons would spring forth fully armed and in battle array. A nation that loved peace and thought that it would be left alone forever to pursue its solitary way. A nation also that has had no conception of the price men must pay for a worthy peace or an honorable "place in the sun." A happy-go-lucky nation that has been too busy picking golden apples to care much for the slow, painstaking methods of science. When the whole story of the war is written, we may see that the fatal error of German strategy (an error based upon its own narrow view of things) was the failure to launch its first attack, not on little Belgium, but on the impotent United States. No alliance would have compelled any European power to raise a hand to help us. With that score settled, the starvation of England would have been easy. If we have another war, Germany will not make this mistake again.

Even now, before the American army has been made fully ready, certain interests are talking of a quick return to the easy, irresponsible days before the war. Loud-mouthed patriots are already crying that they want to eat, buy, and sell what they want, when they want it, in whatever quantity they want it, without regard to the future of democracy in America or anywhere else. Even those of us who are more far-sighted are not yet through with the delusion that everlasting peace can be had for asking. Even while we are talking of such a peace, the German is talking of the next war. There is no hope of permanent peace for this country until we have developed an effective, unified, organized Kultur for ourselves. As a nation having a body of ideals, habits, achievements that can be respected we shall make ourselves powerful for peace. We can then accomplish something for world democracy. As a nation unorganized and uncontrolled, we cannot possibly save ourselves, to say nothing of making a real contribution to the peace of the world. As there is a Kultur formed to destroy nationalities, so there must be a Kultur dedicated to saving them; as there is a Kultur planned to sow discord, so there must be one just as efficient and far more powerful, planned deliberately to promote peace and understanding. As the one is bound to make itself feared, the other must make itself respected and

loved. The call is for the consistent development of an American Kultur, of a unification of all our aims, ideals, methods, with the purposive intent of producing a democracy as efficient as any autocracy, yet with space for the growth of individual initiative.

Can we organize our democracy for an "offensive" peace? To develop such a democracy we need at least two things; first, the knowledge, and second, the "will to live" as a free people. This brings me to the point of this paper. We need *scientific knowledge* in America. We need it most, not as a knowledge of the past, but of the present, for the rules of the past help us very little today. We need to know our world as it is today. We need that knowledge as a basis of our common life, of our national culture, of our world plans. The idea of working together for a great future purpose is almost unknown to us; must such a possibility exist only for an autocracy? When conservation is called for, we as a people need to know science, or we cannot conserve wisely and cheerfully. When we wish to engage in a new manufacturing enterprise we need to have science, not that it may stand as a wage servant at our elbow and merely register our will, but as the forerunner and pioneer to blaze the trail. As we cannot raise armies over night, so we cannot make our people scientific by wishing them to be so. Scientific knowledge must not simply be diffused among our people, but *ingrained into* our people, so that they can act as an intelligent unit toward a common purpose. The conviction of this need rises paramount to every other; to achieve this end should be the aim of our national policies, the goal of our popular education. Science is not analyzing bugs, or making oxygen, or measuring the distance of the stars, or guessing the age of a trilobite. Greater than these individual products of science, are the methods of science. To ascertain the facts, large and small; to eliminate the non-essential ones; to draw conclusions; to realize the limitations of these conclusions, yet to derive a working philosophy from them; and to determine upon a line of action based upon the facts and the conclusions—these are the ways of science. It will need two generations, at least, of scientific, devoted, patriotic thinking to make us a scientific nation. We cannot learn the principles of science by

lectures when we are grown up, or in the frenzied effort to drive off an enemy who is knocking at our doors. We must play with the means of science as toys in our childhood, must grow up with them, watching them expand as we grow, until they change from toy to playmate, and from playmate to counselor and friend.

We believe American civilization has in it something worth living for and worth dying for, but the living and the dying will alike be in vain if the experience of this war does not teach us the need of consistent scientific solidarity, and push us rapidly into it. Instead of praying for the extension in length and breadth of an idealistic culture, that cannot be realized short of the millennium, let us work as well as pray for a three-dimensional American culture; a Kultur in action. It is well to have the clouds of idealism on which the setting sun may spread the rainbow of hope, but it is not well for present-day men to dwell in the clouds. The ways of science bring us down from the clouds to the actual world in which we and our children must live. Today, the greatest science in the world is linked with the greatest autocracy. Is it to continue so? Science as the handmaid of autocracy may give us a fetish, a superstition, like the "Ich und Gott" cult of the Hohenzollerns; democracy and science will give us *faith*. Have we the "will to live" strong enough within us so that we will subject ourselves to self-denial and self-control for the future good, or is this power of foresight and preparation to remain only in the hands of an autocracy? On her answer to this question hangs the future of America, if not the destiny of the world.

This paper was prepared between the birthday anniversaries of Washington and Lincoln. Never, we believe, have the ideals of these two great Americans meant so much to us as this year. Each of them, we now see clearly, stood like a great rock of the ages between the clamor of the unharnessed idealism on the one hand, and of the gross materialism on the other hand. As we think of their lofty ideals and unselfish patriotism, we also think of their sturdy common sense. For, when you come down to it, this is true science, as it is also enlightened patriotism: *trained common sense* as applied to our world, our country, and to ourselves.