

Labor and Science

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Translated from the French by Edward Eyre Hunt

MR. MORRIS LLEWELLYN COOKE, who has been asked by the American Academy of Political and Social Science to make up a volume on the organization of labor and production, has done me the honor to ask my collaboration. It is a very great pleasure for a French administrator, constantly trying to check up his *theory by his experience*, to give an opinion on the laws governing modern society, side by side with such men as Mr. Samuel Gompers and Mr. Fred J. Miller.

I have already set forth my ideas in a two-volume work published just after the war under the title *Créer*¹ (Create). But today it is so imperatively our duty to work to realize the

¹ "Edouard Herriot's *Créer* is an extraordinary effort to strike a trial balance of the total resources of France and her colonies—resources moral as well as physical. It advocates a total transformation of national policy through science. Its doctrine is "produce or perish." And in the light of a sweeping survey, item by item, point by point, it indicates what is to be the future of France. Chapter by chapter the facts are marshalled: her depopulation, her criminal neglect of the most elementary means to combat the declining birth rate, the rising death rate, tuberculosis and alcoholism; her great mineral resources, especially coal, aluminum, and fertilizer phosphates; her lack of iron ore; her immense and undeveloped water power; her undeveloped railways and waterways; her awful neglect of the means of transporting thought, so that she holds the lowest place among civilized nations in her use of the post, telegraph and telephone; her inadequate ports; her enormously hopeful agricultural prospects; her small merchant marine; her fisheries; her need of industrialization, and especially of scientific management; how she must build her commercial and financial organizations to meet future needs; the work of her liberal

union "between the scientists of industry and the representatives of organized workers" that I do not hesitate to defer to the wishes of my American friends.

We are participating in a vast transformation of the world. It is dominated by three essential laws:

1. The moral concepts of liberty and human rights which have served up to the present time as principles for the constitution of society, without losing any of their importance, are themselves dependent on economic facts.

2. The development of the régime of exportation and importation tends to create a world-wide economic solidarity, so that the nations constantly react one upon the other.

3. In consequence of these fundamental laws, the laws governing organization are the same in different states, conditioned only by those shades of difference which are due to the national character.

professions; political réform; the renaissance of art; and the creative rôle of France abroad. That such a book as this could have been written in France today is a sign of great promise: that a French statesman could have written it is a covenant with the future.

"Edouard Herriot is no newcomer in letters or politics. A recent work of his, *Agir*, is first in the series of which *Créer* is second and *Vouloir*—not yet written—is to be the third. As an author he is already distinguished; as an educator he is famous—he has been a professor at the University of Lyons—and as a political leader his success is evidenced by the fact that he is Mayor of Lyons and Deputy for the Department of the Rhone."—Edward Eyre Hunt in *The New Republic*, December 17, 1919.



It is, therefore, an international problem which the American Academy of Political and Social Science proposes to discuss. It is a problem of social progress, of wealth and of poverty; it is a problem which overwhelms mere moralists. *Liberty itself, henceforth, will have an economic foundation.* Intelligence can no longer improvise; it must observe facts for a long time before pronouncing a decision upon them. The humblest workman, like the wisest engineer, henceforth can only be useful to himself and to others if he is conscious of the relationship which binds his own effort to the new order which we are trying to bring about.

LABOR AND SCIENCE THE FOUNDATION OF SOCIETY

There is nothing dubious about the first axiom on which all research must be based. In every nation henceforth there is only one legitimate force—labor. Every modern nation must be so organized as to utilize to the maximum the work of its healthy inhabitants, a part of the product of this labor being reserved either for those who cannot labor as yet, or for those who can labor no longer: children, the sick and the aged. Money itself is only potential labor; it is legitimate only when it acts as a source of energy. The vast ensemble of operations, which make up the work of collective production, cannot be brought to success without a means of liaison, which is just what money is. But money is nothing but a symbol. The only wealth is labor which increases the sum total of goods and products.

The day when this simple but central idea is admitted, we will not say that all our social problems will be solved (that would be too much to hope), but a principle will have been established which will give to the new society

the fulcrum which Archimides wanted. This theory condemns alike the conservative who claims the right to play with the labor of others by virtue of a privilege established by custom, and the revolutionary who brandishes words without having won the right to be called a man by having contributed to the common welfare. The old political concepts to which we have fallen heir and which, after having dominated ancient civilizations, are stretched to embrace our modern nations, postulate two great classes always armed against each other—the “haves” and the “have-nots.” The worker and the employer, leaving the same shop, turn their backs on each other to take up again their class attitude and point of view. What an absurd notion! They belong in reality to the same class, to that new class which little by little must grow self-conscious and range itself under this banner: *the class of labor and production.*

All our efforts as workers, employers and statesmen must therefore emphasize the *profound solidarity of the world of labor.* In saying this I am in thorough agreement, in spite of all the things which separate me from him, with Dr. Karl Helfferich, one of whose first axioms in his *Soziale Kultur und Volkswohlfahrt* (Social Culture and Commonwealth) is exactly like my own.

Pushing the analysis further, labor is divided into two kinds—*intellectual and manual.* Let us never permit them to be separated. They are brothers born of the same father. The engineer will not be worthy of his name until he knows down to the smallest details the technique by which he can prove his laws. The workman must know how to raise himself from the empirical practice of his art to the height of the science from which it is derived.

And from this comes the profound

necessity for transforming our systems of instruction and education. In young societies, like America, the gulf between the manual worker and the intellectual worker is doubtless not so wide as it is on the older continent. We Frenchmen, for example, have created an educated middle-class and have left the manual laborer in comparative ignorance. Cultural education is still opposed to technical education, thus strengthening the old social divisions. *Just as there is only one kind of labor, so there is only one culture. A man is a gentleman who runs a machine well.* The world is not divided half and half into ideas on the one hand and facts on the other. *Idea and fact are in constant contact.* One comes from the other. Our duty is to reconcile them.

To put it more simply, there will be no equilibrium in modern society until the dyer finds before him the means to become a chemist, until the mechanic can become an engineer and until, from the other side, the managing director of a street-car company can manipulate the motorman's control-handle, and the general manager of a gas company can himself fill the reservoirs. *Between workman and employer science comes in as a permanent agent of conciliation.*

There has been heretofore no check on the mystical theories which have agitated men. For most human beings politics is a religion. The quarrels between socialists and liberals are just like the old conflicts between Lutherans and Papists. I believe in only one agency of equality: *science*, always in a state of flux. Without science everything is time lost.

True democracy, whether it is French or Italian, English or American, exists only where the man who works can raise himself without hindrance to the loftiest heights of human effort,

while the man who deliberately shirks is condemned to lose his place.

Labor and science are the foundations of the present and future society. To bring the world to this belief is to replace it on its base. From one end of the universe to the other this truth is self-evident. One of those who have stated it most forcefully is Marquis Okuma of Japan.

To sum up, by this *philosophy of labor and science* we return to the principles of Adam Smith in his admirable work *An Inquiry into the Nature and Causes of the Wealth of Nations*. On the eve of the French Revolution, when the modest Scotch professor, one of the most vigorous thinkers which the human spirit boasts, wrote his great book, he placed first and foremost this invariable rule: "The annual labor of every nation is the fund which originally supplies it with all the necessities and conveniences of life which it annually consumes, and which consist always either in the immediate produce of that labor or in what is purchased with that produce from other nations. According, therefore, as this produce, or what is purchased with it, bears a greater or smaller proportion to the number of those who are to consume it, the nation will be better or worse supplied with all the necessities and conveniences for which it has occasion." It cannot be better said. In other words, *the welfare of a nation is the quotient of the division of the amount of its products or of its media of exchange by the number of its consumers.* Thus welfare disappears as a political concept and reappears as an economic concept.

Moreover, let us note this fact: Who is most interested in increasing production—the source of welfare? It is not the rich whose savings can play the rôle of a reserve stock. It is not the farmer who can feed himself from

his own land. It is above all the laborer, the ultimate consumer of manufactured articles. Anyone who analyzes in detail the budget of a workingman can show him in each of his expenditures the reaction of world production. The price of a pound of sugar is a world fact in the sense that it ties in with a whole series of operations in production, transportation and exchange. It is the same for the price of a pair of shoes. I suggest this to Mr. Morris Llewellyn Cooke as a subject for study: *The most modest budget is a microcosm.*

The American Federation of Labor has seen this with a clarity for which it is to be congratulated. It is this fact which the American Academy of Political and Social Science proclaims in its turn. But, though it is true at all times, this theory of the relation between the total mass production and the welfare of the individual grows more striking in a world crisis wherein these two great facts are at work:

1. Decrease in production.
2. Increase in consumption.

During several years of convulsion the world, considered as an economic unit, has been wasting its reserves; it will take years to reestablish them. This is what Mr. Herbert C. Hoover forcefully stated in a speech made on February 17, 1920, before the American Institute of Mining and Metallurgical Engineers; this is what we French people see better perhaps in a country whose forests have been partly chopped down in the national defence, whose mines have been destroyed in considerable number by the enemy, whose shipping in large part has been sunk, whose farm land has suffered and has been impoverished by lack of attention and whose consumption, moreover, has constantly increased. At the present time our herds have been brought up to the same figure as before the war,

but this is no longer sufficient, for the demand for meat has trebled.

I believe, then, with Mr. Hoover, that the future belongs to the nations which organize to increase production by the cordial collaboration of *the workingman who may become an employer* and of *the employer who must also in his fashion be a workingman.* "The new relation," he says, "between the employer and the employee can only be brought about by organization in the heart of industry itself." For my part, I do not think it is enough to content ourselves with *instructing* the workman. I think we must make him *a business associate.* To be absolutely sure of a man his interest must be made to coincide with his duty. Up to the present time a productive enterprise has rested on two elements—brains and capital. These two elements have taken labor into their service for hire. I believe now that the moment has come to make labor an associate. I do not believe a business enterprise can be stabilized except where the science which directs it, the money which sustains it and the labor which produces it unite in the division of the profits and in a share of the losses. The scheme of coöperative production, such as we find in certain places in France, involves only two elements—labor and science. It lacks credit. For my part, I demand the fusion into one system of *the economic trinity.* Perhaps it will be brought about quite simply through an extension by vote of the by-laws of corporations. I believe such a method is the best way to organize the fight against the communist party which, in order to destroy capitalism, is willing to commit the anachronism of overturning the state and which harks back to a lot of worn-out political notions. If the "haves" would like to put an end to the class struggle, let them organize a

single class of producers in which all the elements participate in the benefits of their work.

I have carefully read through the documents which wax enthusiastic over the doings of the Socialist Labor Party, the Socialist Party, the Communist Labor Party or the Communist Party. In my friendship for the United States I am pained to see even there the vogue of foreign ideas, such as those of Karl Marx, imported about 1850 by Wilhelm Weitling and Joseph Weydemeyer. It seems to me that it was the activity of German immigrants which contributed most to the formation, about 1875, of the International Workmen Party. Today I see the theories of Lenine and Trotzky insinuating themselves into America, and it seems to me the Communist Manifesto, published by the *World* on January 5, 1920, reproduces exactly the program of Moscow's Third Internationale. Although I do not want to indulge in polemics, I do want to say that these antiquated and mystical theories do not fit in any way into the plans which young and forward-looking America can work out, establishing them on the foundation of national virtues by the collaboration of labor, brains and money. *The trinity of concrete forces must vanquish the coalition and fanaticism of mere words.*

If this collaboration is made a fact, if America, individualistic as France, creates this *economic democracy* which is the daughter of *political democracy*, the problem of production or of increased production will be solved quickly enough. Having united labor, money and science, it will quickly direct its efforts to working out the relatively simple laws of modern production.

The first of these laws is that the production of a great country like the United States or France must be both

agricultural and industrial. Agriculture is still set over against industry. Great Britain long ago devoted herself to the first of these, then she concentrated on the second, counting on her fleet to nourish it and on her coal to pay for it. To her the war has shown the unity of agricultural production and industrial production, and the necessity for pursuing them together. I have been impressed by the fact that the United States is taking note of this and, after having long practiced extensive cultivation, at last is organizing intensive culture by the careful selection of seeds, the judicious employment of fertilizers and the use of farm machinery. Agriculture must become a science; its crops are still far from being what they might be. Let us admit that Germany, in this particular, has shown us the way, if only by the judicious use of phosphates.

In other words, agriculture must hereafter be only a province of national industry, for the whole state must be industrialized. In each particular industry the means of action must be the same. They are those which I have described at length in my book *Créer*. Above all there must be total subordination of everything else to science. At the heart of it all must be the research laboratory which is the *watch-tower* of industry. The chemical industry of Germany—we can never sufficiently emphasize it—owed its immense success to the savants. A new chemical reaction might mean profits of hundreds of millions.

Therefore, to make headway against our enormous needs, we must concentrate production in great combinations. A country like the United States, which can follow the history of industry from its origins, must see that it is constantly growing greater and greater. The forms of industry must grow greater

yet. First there is the little industry, then the middle-sized industry, then the huge industry. Already we are looking forward to the era of *the hugest industry*. The future belongs to enormous business concentrations.

Must we say, then, that on these vast fields for operations the rôle of the workingman has to grow more and more ungrateful, more and more humiliating? Laborers have been told this, but it is an absurd statement. The progress of the human spirit has always been towards a greater development of the power of *analysis*, towards greater specialization of function. Adam Smith has already proved it, and the widely varied and numerous efforts of Taylor had no other aim than to apply to the labor of the workingman that rhythm which is the very law of human thought. Such a science as medicine has had to subdivide itself in order to progress. Today, there are children's specialists, women's specialists, chest specialists, nerve specialists, ear specialists and eye specialists. Each of these, to be of any use, is obliged to know the whole of the field in which he works, but he has more particularly studied one part of the human body; and all progress in medicine has come about through discerning this point. It will be the same in industry.

Workman, never fight against science! Science belongs to no class and to no country. Science has sustained you; science will free you. Science alone; none but she! Throw to the winds the theories which have been born in the heads of political metaphysicians. Never since the world began have we been able to find happiness through the wonder-work of magicians. There

is only one kind of white magic—intelligent work. Its reign is here and now. From one end of the world to the other (this very volume is proof) men of good-will are trying to work out the orientation of the new world, of this world—so great and so petty, so varied and so straitly unified. Each of us, brain worker or hand worker, has the right to demand his part in the common task of production. Whoever denies this is in error; whoever refuses to surrender himself to this vital truth gives aid and comfort to social malefactors and fanatics.

In this exhausted world, where famine has again made its appearance, where disorder reigns once more, the dominant duty is to produce. It is both a duty and a joy. Demand not only your part of the profits but your part of the science! Society, fortunately, will never believe in the equality of the wise and the foolish. The farther we go (tell this to your children) the more intelligence will command. The time will surely come when man will be chiefly a master of machines. Little by little all the brute forces will bow down and serve the spirit of man. Beyond all the creeds which presume to lift the soul of man there is this which is stronger than them all; moreover, it is true.

It is the doctrine which, while affirming the economic solidarity of the whole world, proving that our individual happiness is linked up with the proper organization of the whole, wishing for a brotherly sharing of profits, groups together laborers of whatever origin, manual or intellectual, under the laws of science, for production.

To live means to create.