

sities; in works of government reclamation and drainage, and the like. Such credits would operate to set a great part of existing industry to making the new works and would enhance the living standards of the nation. The glories of the builder kings and emperors of old have passed, but these new works of a democracy endowed with money, modern tools, and organizing genius would help lift civilization to a new height.

It might be objected, however, that enlargement of the scale of public expenditures through bond issues, while it would delight the hearts of contractors and heads of the cement, steel and building industries, and would provide employment for hundreds of thousands of workmen, and restore a falling price level through their purchases, it would nevertheless be followed by a day of reckoning. How would the country bear the additional burden of taxes for interest and sinking fund payments?

Reference to the experience of depression during 1920-21 may help resolve this doubt. During that period it is competently estimated that American industry suffered losses aggregating twenty billion dollars. If, in the summer of 1920, signs that were then manifest on all sides could have been heeded, and one or two extra billions of Federal and local bonds issued for non-productive public works, the depression would have been averted. The new money, with its customary tenfold velocity, would have circulated like a transfusion of new blood through all the veins and arteries of industry. New purchasing power could then flush out the congested areas of surplus goods, and with renewal of demand yet more credits would have flowed spontaneously into productive works. Instead of the dead loss of twenty billions in idle and depreciated plant and products, with unemployment and business stagnation, new public works would be set up and in use to balance the added bonded indebtedness, and prosperity would be prolonged with fresh business expansion.

To prevent inflation, which with deflation is the twin evil of the business cycle, a reverse process would serve as preventive. Unless prevented, prices would be rising faster than wages, rent and interest, with resultant suffering through the heightened cost of living. But before serious inflation had begun, application of a policy of extra taxation for the payment of public debts would serve as a

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check, and obligations previously incurred to prevent a fall in the price level would be discharged so as to steady the price level until production could catch up with demand.

For the planning of public works should always be controlled in order that new credits may not be applied faster than the supply of goods to consumers can be augmented. The aim should be to allow the buying of always greater quantities of goods on a stable level of prices.

Outside the field of non-productive public works lies the domain of new and productive private industries. While our factories are about three-quarters electrified, we are yet in the infancy of giant power. Our transportation systems, farms, and one-fourth of the factories have yet to be electrified, with the creation of central power plants through the country. The automotive industry, inspired with the spirit of a Lindbergh, has yet to compass the empire of the air, helping further to transmute the otherwise idle facilities of earthbound industries into means for a continuously expanding prosperity.

These emergent industries are of the productive kind. They will compete for consumer demand with the stabilized industries. Ultimately they will threaten to upset with their productive power the balance of credit offerings to reinforce consumption demand. We need more accurate gauges of production and consumption than now exist, in order that this augmenting process can be controlled.

The appropriation of at least a million dollars would enable the Department of Commerce to ascertain what industries are "overbuilt" and by how much; what is their capacity beyond reasonable "peak loads" and how long the "peak-load" periods are; what is the percentage of idleness in the chief industries; what fraction of maximum capacity is being used and what output should be expected of the various industries using their equipment continuously at capacity.

Accumulation of trustworthy data along these lines, together with the construction of good indexes of employment and of the general and retail price levels, would aid materially in the planning of prosperity which should come on a national scale as a new department of management engineering.

## High Wages and Prosperity<sup>1</sup>

A Discussion of the Effect of Wage Increases on Manufacturing Efficiency and General Prosperity

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THIS paper is the outcome of a paper of mine which appeared in the Industrial Management Magazine. At the suggestion of Dr. Person I am restating in condensed form some of the ideas contained in this article and I am supplementing this with a discussion of several questions which were raised in a correspondence which followed its publication.

The wage rates in our factory have more than doubled in the past fifteen years, but in spite of this our manufacturing costs are now lower than they were at the beginning of that period. The high wage rates which were thrust upon this country by the war have operated to lower our cost of manufacturing because we have been compelled to employ machinery and power to accomplish tasks formerly done by hand. An example will illustrate the manner in which high wages compel us to adopt machinery.

Let us suppose that I run across a machine which I think we can use to advantage. Before it can be purchased I must make an estimate of savings which may be derived from its use. Against this we compare the interest, depreciation, maintenance and cost of power. And then when all this is done, I will be able to obtain approval of the purchase if the savings per annum amount to something like fifty per cent of the purchase price. Now keep in mind the fact that, because of the greatly increased demand for labor-saving machinery, its cost has not increased in the same ratio as have wage rates. Also keep in mind the fact that the cost of power has not increased, in fact, has in many instances actually declined, and it will be obvious why high wage rates compel this adoption of labor-saving machinery.

The conservatism in purchasing labor-saving machinery which is involved in the policy of re-

<sup>1</sup>Paper presented at a meeting of the Taylor Society, New York, December 9, 1927.

quiring a fifty per cent return on money thus invested is not at all unusual. The Lincoln Electric Company advertises that they will purchase any machine or process which can be guaranteed to pay for itself inside of two years. Some executives figure even more rigorously than this. One man wrote me that his firm ordinarily would not purchase machinery unless the figured savings in one year equaled the purchase price. In spite of all the hazards involved in tying up money in machinery these policies are quite conservative, so that when machinery is installed because of rising wages, the increase in productivity is apt to be in a very much greater ratio than the increase in wages.

Some time ago the idea occurred to me "What would happen if our wage rates should again be doubled?" I have reviewed all the manufacturing operations in our plant and studied carefully all the possibilities for improvement and I am quite certain that after a few years our costs would again be lowered. I see quite clearly the steps which we could take. Compelled by higher wages, appropriations for machinery would be approved which would not now be considered.

Not only would we install more labor saving machinery, but also we would abolish many wasteful practices which lower wages permit. A number of years ago we booked a great deal of accommodation business. We took orders for particular articles and special sizes which the individual customers desired, and for which there was very little general demand. Because this business involves a very high proportion of hand labor, for it is impossible to do small lots of work on automatic machinery, it has become very unprofitable with rising wage rates, and somehow or other we have managed to get rid of a large portion of it. With wage rates still higher we would manage somehow to abolish what is left of it.