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The type of technical innovation most likely to benefit the economic system is that which is directed to the manufacture of an entirely new commodity or service which creates a net increase in wealth, making use of the idle factors of production which under our complicated industrial structure we have not learned to properly apply. Autos, radio, sound pictures and airplanes fall in this category of goods, constituting a type of technical progress which makes new employment and higher living standards. When the far-reaching influence of motor transport is considered in this connection it will be understood that it is machinery which creates a new and useful product and a net increased demand with a decreasing group of technologically unemployed.

Not New

Technological unemployment is not a new economic phenomenon, but it has become of very considerable significance with the more rapid rate of technical change and with the multiplying complexity of our industrial structure. We blame the machines which have created such amazing volumes of goods, although it is our own inability to use them properly, as well as certain other factors in our economy, which underlie our difficulties. The total supply of labor, for example, is inelastic and cannot be altered in quantity to fit the varying needs of production. When the demand for labor falls off, the original supply remains. Moreover, it is immobile, neither shifting readily from one type of skill to another nor among different geographical regions. And because the market for labor is unknown to the laborer, he is unable to find new employment, even though such may exist, without going through a period of readjustment, or unemployment.

Finally, it should be noted that modern industry has spent practically the total of its efforts planning and perfecting its methods of production without regard for the needs of the markets as a whole. We expect the problems of distribution to care for themselves, and hope for order instead of planning it. To blame the machine for our own shortcomings is to cloud the issues that we should be facing.

Welding, a new occupation not possible to hand labor, is illustrated on the front cover of this week's SCIENCE NEWS LETTER in a photograph from the Lincoln Electric Company.

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SENSITIVE FINGERPRINT METHOD

Fingerprints left by kidnapers and other criminals are sometimes too faint to be "developed" by means of the present dusting process. Dr. Francis F. Lucas, working in the Bell Telephone Laboratories, makes them show up in bold black lines by a trick he learned from biologists. Fingerprints consist largely of oily or fatty material from the skin. Oils and fats are turned black by exposure to fumes of osmic and chromic acids in a preparation known as Flemming's reagent. Then the paper or other material bearing the print is washed with a dye that shines blue-green under ultraviolet rays. Examined with a magnifier or photographed with an enlarging camera, the faintest of prints is made to "stick out like a sore thumb." If they are on printed or handwritten paper, the ink lines can be cut out of the picture by suitable manipulation of the ultraviolet radiation and the use of light filters, leaving only the fingerprints showing black against their glowing background.

BIOCHEMISTRY

Animal Disease Now Linked To Non-Living Protein

FIRST indication that an animal disease may be caused by protein molecules, non-living bits of matter that grow much as though they were living germs, is contained in studies reported by Drs. J. W. Beard and Ralph W. G. Wyckoff of the Rockefeller Institute for Medical Research laboratories (*Science*, Feb. 19).

From warty masses that occur on western cottontail rabbits and are considered to be virus-induced, the experimenters isolated a high-molecular protein with which is associated the infectiousness of the disease. These warts are known as papillomas and are epithelial tumors.

Recently Dr. W. M. Stanley, also of

the Rockefeller laboratories, startled the scientific world by demonstrating that a crystalline protein obtained from the juice of tobacco plants with mosaic virus disease is the agent responsible for the disease. This won him the \$1,000 prize of the American Association for the Advancement of Science.

The work of Drs. Beard and Wyckoff extends this research to viruses that cause animal ills. The protein molecules were separated by whirling the wart extracts in a centrifuge with a field of 60,000 times gravity. It is estimated that the molecular weight of the protein extracted is in excess of 20,000,000, which would make it the heaviest known to science.

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