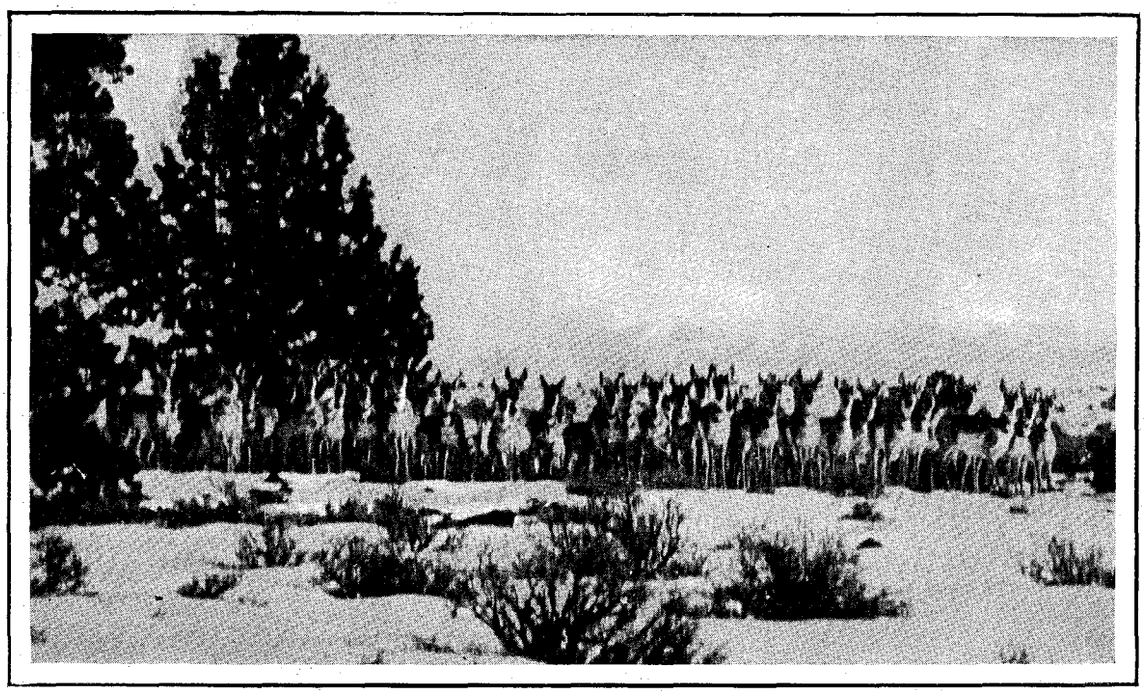
BIGHORN AND PRONGHORN

PICTURES FROM OUTLOOK READERS

From H. O. Barnthouse, Toledo, Ohio

PACKED AND READY FOR A FIFTEEN-MILE HIKE HOME, WELL LOADED WITH MOUNTAIN SHEEP

The scene is on Windy Peak, Broad Pass, Alaska. These are ex-service men who are now with the Alaskan Engineering Commission, engaged in the construction of the new railway to Fairbanks



Courtesy of California Academy of Sciences

THE MOUNT DOME ANTELOPE REFUGE IN SISKIYOU COUNTY, CALIFORNIA

This photograph, taken January 15, 1922, shows about forty wild pronghorn antelope coming up to the feeding ground. The refuge was established in November, 1921, under the auspices of the California Academy of Sciences, California Fish and Game Commission, United States Forest Service, New York Zoological Society, and the American Bison Society. The pronghorn antelope has been threatened with extinction, and this refuge will no doubt prove a great aid in its preservation

THE BOOK TABLE

UNDERGROUND RIVERS OF WASTE[1]

BY FREDERICK M. DAVENPORT

WASTEFULNESS is an American trait, the by-product of vast National resources and of the rapid exploitation of these resources. For the first time in our history there is an overwhelming economic pinch, following the Great War and stretching around the world. We have turned our attention in this country, as never before, to the problem of waste—waste in Governmental expenditures and processes, waste in industry.

We happen to have in public life at this period a very great engineering mind, that of Herbert Hoover, Secretary of Commerce in President Harding's Cabinet and organizer of relief on an international scale during the World War. The function of the genuine engineer, in the broad sense, is the application of organizing intelligence to human affairs.

Towards the end of 1920 the Federated American Engineering Societies became a reality; Herbert Hoover was elected its first President, and he at once suggested a study into the wastes of industry in this country. Early in 1921 seventeen engineers were selected for the work. For the purpose of arousing public attention immediately they proceeded to make a swift intensive study of six typical branches of industry, in order to stimulate general action and lay the foundation for further investigation. Within six months a report was made to the American Engineering Council and to the country upon the findings of the Committee. The report as a whole represents the combined effort of eighty engineers and their associates. The six typical studies included the building trades, men's ready-made clothing, boots and shoes, printing, metal trades, and textile manufacture.

The findings may be summed up in a single paragraph. We are a powerful industrial country, but we have much yet to learn. We have ingenuity and efficiency comparable with those of any other nation. But we tolerate to an alarming degree wastes of labor conflict, wastes of seasonal operation, wastes of unemployment, wastes through high labor turnover, wastes through speculative booms and over-production. Above all, the industry of America, while exceedingly favorably situated with respect to physical resources, is as yet profoundly lacking in that high average degree of the mental and moral forces of management which alone make certain the permanent prosperity of the economic life of a country.

The survey puts the burden of waste squarely upon management. The responsibility of labor is real, but less in degree. Management has the greater genius, the greater capacity. It has also, therefore, the greater obligation. According to the definition of the engineers, management is the art and science of preparing, organizing, and directing the human effort which is applied to control the forces and to utilize the materials of nature for the benefit of man. Management is the general. The mistakes of management are of vital consequence.

Of the whole burden of waste disclosed by the engineering survey within the six great branches of industry under review, the findings place over fifty per cent of the responsibility at the door of management and less than twenty-five per cent at the door of labor. There are outstanding examples of good management, but the average of management is much below the standards set by certain individual executives who have achieved notable success.

In shoe production, for example, there is very little system about the economizing of leather, and the loss from idleness occasioned by waiting for work and material amounts to more than a third of the time. In the building trades and the printing trades, while of course anything like complete standardization is impractical and undesirable, there is much opportunity for reasonable standardization of thickness of soles and brands of paper, for example, which would result in a considerable margin of saving in these particular fields.

The majority of the plants studied had no adequate knowledge of costs and no method of judging accurately when improvements are needed and when waste is taking place. In the men's clothing plants there are no research methods to improve materials, processes, equipment, or product. In the shoe industry the number of plants using modern employment methods is very few. The personal relations with the employees are defective, and men are discharged or quit work without any executive knowing the reason why. Very costly separations from the working force are thus going on constantly, and unnecessary expense connected with training new workers to take the place of those who leave is a growing burden. The cost of training an inexperienced man for cutting upper leather in a well-managed shop is $576; for a semi-experienced man the cost is $450. The high labor turnover here, as everywhere else in industry, is a great economic waste, and is due to the lack of human sense and of human method on the part of great sections of American management. The building trades have given almost no consideration to the subject of labor turnover, and large losses are constantly occurring through wholesale percentages of workers passing in and out of work on separate jobs. The low production from inefficient workmanship in all the trades studied is also partly due to the failure of management to provide opportunities for education or special training in the processes and operations of the particular trade. But much ineffective workmanship arises also from lack of interest and lack of pride on the part of a good deal of unregenerate human nature in the labor population.

The survey does not spare wasteful regulations of labor unions. Recognition is clear of the fact that in the past enormous losses have been produced through direct or indirect restrictions of output. Among these narrow and unwise regulations which are condemned are the requiring of skilled men to do work that could be performed by the unskilled; the restricting of individual incentive through making wages too uniform; the limiting of the number of apprentices in the interests of a labor monopoly; the excessive reduction of working hours; the absurd opposition to labor-saving devices; the jurisdictional rules which distribute certain types of work to different trades without regard to expense. In one case in order to move a pump and set it in a different location in the foundation hole it was necessary to get a pair of steam-fitters to disconnect the steam-pipe, a pair of plumbers to remove the suction apparatus and replace it, a structural-iron man to erect the rig to lift the pump, and an engineer to operate the valves on the pump. This took eight men for the operation who had to be taken from other work, whereas one man assisted by a laborer could have accomplished the entire job.

Certain painters' unions do not permit their men to use a brush wider than 4½ inches for oil paints, although for certain classes of work a wider brush is more economical. Painters' unions refuse to allow their men to work on a job where a spraying machine is used. The claim is made, with little foundation, the engineers find, that this is unhealthful. Plumbers and steam-fitters prohibit the use of bicycles and vehicles of all sorts, charging up the walking time to the customer.

A part of this enormity of willful waste is also chargeable to owners and management. In the building trades, for example, widespread collusions between employers and labor have been unearthed and conspiracies to maintain high prices have greatly restricted production.

The engineers go into the problem of unemployment. They find that a million men are always unemployed in America in the most prosperous time. They find cyclical depressions occurring about a decade or less apart, with their wastage of productive capacity. They

[1] Waste in Industry. By the Committee on the Elimination of Waste in Industry of the Federated American Engineering Societies. Published by the Federated American Engineering Societies, Washington, D. C.