

# SCIENCE

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## THE APPLICATION OF ENGINEERING TO THE AGRICULTURAL INDUSTRY<sup>1</sup>

By HENRY GIESE

SENIOR AGRICULTURAL ENGINEER, DIVISION OF AGRICULTURAL ENGINEERING, U. S. BUREAU OF PUBLIC ROADS

IN a recent discussion of trends in business, Merle Thorpe, editor of *Nation's Business*, said that the first quarter of the twentieth century would probably be known as the age of mass production.

With the great industrial developments so immediately before our eyes it seems unnecessary to make further mention of them here. Rather it is our intention to speak regarding the progress which has been made in the agricultural field and the obligation of the engineer in helping it to keep pace with other enterprises. William M. Jardine, former secretary of agriculture, once said, "Could the farmer of the Pharaohs' time have been suddenly reincarnated and set down in our grandfather's wheat-field, he could

have picked up the grain cradle and gone to work with a familiar tool at a perfectly familiar job." Imagine the amazement of the ancient Egyptian if he were to be set down in a present-day wheat-field with the combined harvester-thresher in full operation.

Less than a century ago more than 90 per cent. of our total population were directly dependent upon agriculture for a livelihood. In 1928, with fewer than 24 per cent. directly dependent upon the industry, our nation produced a surplus of agricultural commodities. American agriculture may be said to have had three power epochs: (1) human, (2) animal, (3) mechanical. The change has brought not only a more efficient production but also a relief from the drudgery and monotony which doubtless contributed to the encouragement of slavery.

Mechanization of agriculture has made the Ameri-

<sup>1</sup> Paper read before Section M—Engineering, American Association for the Advancement of Science, Des Moines, Iowa, December 30, 1929.



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