BREAD FROM STONES.

By A. W. NOLAN,
University of Illinois.

A circular entitled "Bread From Stones," written by Doctor C. G. Hopkins of the Illinois Experiment Station, has become an agricultural classic. It is now in its third edition and nearly 100,000 copies have been distributed into all parts of the United States. The circular tells the story of Doctor Hopkins' success in bringing back economically a wornout farm in Southern Illinois to profitable production.

The farm under consideration consisted of about 300 acres of poor gray prairie land and was purchased in November, 1903, for less than \$20.00 an acre. It was known in the community as the "Poorland Farm," and Doctor Hopkins adopted that name for his farm. The work of restoration was begun at first on only 40 acres of the farm. This particular 40 was bought at \$15.00 an acre. It had been agriculturally abandoned for five years prior to this purchase. It was covered with a growth of red sorrel, poverty grass and weeds. The land was sour, dead, and depleted of plant food. During the ten years following the purchase of the farm, the 40 acres received the following treatment:

- 1903—Fall—Purchased, \$15.00 per acre.
- 1903—Fall—Applied one ton per acre fine ground rock phosphate.
- 1903—Fall—Plowed all above under for corn for next year.
- 1904—Spring and Summer—Corn crop.
- 1904—Fall—Applied limestone, two tons per acre.
- 1905—Spring—Soy beans.
- 1905—Fall—Wheat.
- 1906—Spring—Clover sowed in wheat
- 1907—Spring—Timothy and more clover.
- 1908 and 1909—Meadow and pasture.
- 1909—Fall—Applied rock phosphate.
- 1909—Fall—Plowed down for corn.
- 1910—Spring and Summer—Corn crop.
- 1911—Spring—Oats; volunteer clover appeared.
- 1912—Spring and Summer—Clover harvested.
- 1912—Fall—Plowed for wheat.
- 1912—Fall—Applied limestone, two tons per acre.
- 1913—Summer—Wheat harvested.

Note—Applied six loads per acre of barnyard manure once during the ten years.

Only 39 acres were in wheat, a lane having been fenced off on one side of the field. The yields were as follows:

One and one-half acres with farm manure only— $11\frac{1}{2}$ bushels per acre.

One and one-half acres with farm manure and one application of ground limestone—15 bushels per acre.

Thirty-six acres, with farm manure, two applications of ground limestone, and two of fine ground phosphate in the rotation as described above— $35\frac{1}{2}$ bushels per acre.

Here we have a yield of wheat about double the average land of the state. The practical farmer will naturally ask, "What did all this cost?" The average annual cost for the purchase, delivery, and application of the limestone and phosphate was \$1.75 per acre. In the ten years then, the total cost was \$17.50 per acre. Add to this the original cost, \$15.00 per acre, making \$32.50 and still you have pretty cheap land to produce double the average of the state. Doctor Hopkins puts it this way. "The average annual investment of \$1.75 resulted in the increase of 24 bushels of wheat ($35\frac{1}{2}$ — $11\frac{1}{2}$) per acre in 1913. Thus we may say that the previous application of these two natural rocks, or stones, brought about the production in 1913 of 864 bushels of wheat, an amount sufficient to furnish a year's supply of bread for more than a hundred people."

This story of the "Poorland Farm" is a remarkable instance of the conservation of one of our greatest resources, the soil. Conservation means a saving of the resource by a wise use of it. At the end of ten years of use the soil on the "Poorland Farm" is producing more wheat than the average production of the state, and at the same time its fertility is increasing year by year.

NEW PETROLEUM MAP OF THE UNITED STATES.

The United States Geological Survey has just printed a large, colored wall map showing the petroleum resources and the natural gas deposits of the United States, and also the thousands of miles of trunk oil pipe lines. The map shows the areas underlain by known oil pools and known gas pools, as well as general localities which are productive in either oil or gas, and also areas where there are noteworthy occurrences of either oil or gas but where there is no present production. The map is 49 by 76 inches, printed on the scale of 40 miles to 1 inch, in five colors. It is printed in two sheets and is sold, unmounted, by the Geological Survey, Washington, D. C., at \$1 a copy. This map not only shows graphically the oil fields and pipe lines, but is an excellent general map of the United States.