

ILLINOIS WITH OR WITHOUT SCIENCE.

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"Honorable Toastmaster, President of the Chamber of Commerce, Ladies and Gentlemen:—The committee on arrangements has seen fit to sandwich me, the representative of one of our smaller colleges, in between those of two of our largest universities. I am inclined to feel complimented, however, by this arrangement when I remember that the ham layer, though the thinnest of the three, is after all the essence of the sandwich; and I trust that in spite of the situation, when all is over, I shall not feel as did the carpenter who rolled from the roof of a three-story building in Chicago, struck the sidewalk and skidded off on to the pavement where he was run over by an automobile. The ambulance came along, gathered him up and took him to the hospital, where, on returning to consciousness, he found a young doctor experimenting on him, who at once proceeded with an attempt to establish his identity; and among other questions, asked him, 'Are you a married man?' 'Oh Lord, no!' groaned the sufferer, '*this* is the worst thing ever happened to me.'

I have been asked to talk briefly on 'Illinois With and without Science.' We Illinoisans, like Paul, are citizens of no mean city. Among great commonwealths, ours stands second to none. We are proud of her wealth and of her past history. On the record of her years, Abraham Lincoln's name appears; Grant and Logan, and a score of others scarcely less well known to fame. We rejoice in the Great Lakes, whose waves dash against our northern borders; in the Mississippi that washes our western boundary; in the beautiful Ohio that divides between us and Dixie. We boast ourselves

of Chicago, the world's emporium, city of fair women and wise, virtuous and unselfish men; city of great universities, and of various other things that need not be mentioned here. We boast of Peoria on our western borders, whose constant flow of good spirits spreads a stream of cheer throughout the state; of Springfield, where our law-makers, laying aside all personal prejudice and factional strife, putting behind them the sins and weaknesses that beset the ordinary mortal, press forward eagerly to the crown of civic righteousness, meantime spreading beneficent laws like a halo along their pathway. We are proud of our great commercial and manufacturing interests; of the lead mines in the northwestern counties; of the coal mines everywhere. In short, we are inclined to be proud of our beauty, and of our pride, and of a hundred things beside that would scarcely bear inspection.

But after all, Mr. Toastmaster, it is not in any or in all of these that Illinois finds the true source of her wealth and greatness. This is found in the fertile black soil of our corn belt, which stretches like a broad band across the fair bosom of our state, and which gives to the world more than one tenth of the world's corn supply. Illinois is preeminently a farmers' state; and to this fact she owes her preeminence among commonwealths. These black soils have been tilled for almost two generations, and, until recently, without thought that their fertility could ever be exhausted. But Science has sounded the warning. The chemist is pointing to the fact that the crops from these soils, as they go out to market, are carrying with them their due proportion of the essential elements of fertility—the nitrogen, the phosphorus, and the potassium; that already some of these soils have reached the point of incipient exhaustion; and that unless the warning of Science is heeded, these black soils of Illinois will surely follow in the wake of the soils of Ohio and of the older states whose value during the last two decades has been decreased by many millions of dollars through soil exhaustion.

At this point enters the controversy which doubtless many

of you have noticed between the Bureau of Soils at Washington on the one hand and our own Soil Department, under Dr. Hopkins, on the other. 'Soil fertility can be indefinitely maintained by cultivation and proper rotation of crops,' declares the Bureau of Soils. 'The fertility of our Illinois soils is being gradually depleted,' says Hopkins. 'Each crop that goes out to market carries with it its share of these essential elements. Potassium fortunately is here in sufficient abundance for centuries to come. Nitrogen, the farmer himself has been taught to replace from the air. But phosphorus, which goes out to market with every grain of corn, and which is already none too abundant in our soils, is being gradually lessened, and can be replaced only by direct addition of phosphate.' 'Cultivate and rotate,' says the Bureau of Soils. 'Cultivate, rotate, and rock phosphate,' says Dr. Hopkins. It reminds us of the married man who, while on a journey, received a telegram which read, 'Your mother-in-law is dead. Shall we cremate or bury?' 'Cremate *and* bury; take no chances,' went back the answer.

When distinguished doctors differ, who shall decide? However, the proof of the pudding is in the eating. Hopkins justly points with pride to the fact that thousands of acres of our Illinois soils have had their crops increased under the direction of the Bureau of Soils from fifteen bushels of corn to the acre to forty-five bushels; to the fact that many of our black soils, under like direction, have had their productiveness increased, and that, too, without loss of fertility; to the fact that during the six years between 1902 and 1908, under this same direction, the value of the corn crop of Illinois was increased, on the average, more than twenty million dollars annually, above the average crop of the twelve years previous. The weight of argument seems to lie with Dr. Hopkins.

After all, the remedy proposed is only a temporary remedy. These great beds of phosphate will surely become exhausted. What then? The needs of to-day and to-morrow are provided for; but what about to-morrow's to-morrow,—the long line of to-morrows of the future? How shall their needs be met? The

generation that legislates for itself alone is a selfish generation. The generation that legislates only for itself and its immediate successors is an unstatesmanlike generation. The generation that, through carelessness or greed, is willing that its heritage should pass on to succeeding generations impaired and impoverished, is an unworthy generation; and it were better for the world it had never been born.

Is the problem of the world's daily bread supply for future generations a hopeless one? We are comforted when we remember that all the elements essential to fertility, all of the potassium, the nitrogen and the phosphorus that were in the world when Adam delved and Eve span, are still in the world somewhere, in some form. We are comforted when we remember that the elements of fertility in the black soil under our feet, that to-day gives to it its wonderful productiveness, will be in the world a thousand, ten thousand, untold thousands of years from now, somewhere, in some form. The problem of science, then, is the proper conservation of these elements. Indeed this is the great problem of our nation, of all nations to-day, conservation of their natural resources. When the question of food supply presses hard, Science will follow the crops as they go out to the markets to do their work in feeding animal and man, will gather up the fragments, will save the refuse and restore it to the soil. Science will teach the farmer that it is as important to care for the manure heap as for the milk supply. In that day of pressure, Illinois with Science will not dig million dollar canals to carry millions on millions of dollars' worth of fertility annually past our borders to be dissipated and lost; but will properly treat the sewage of our cities, and restore this to the soil where the elements may do their work over again. It is said that in China are found farms that have been tilled for untold generations without decrease of their fertility. What the Chinaman has done, the American can and will do when the pressing demand comes upon him.

Illinois without Science? Her black soils gradually robbed of their fertility; fruits and orchards destroyed by insects and

fungus pests; the fountains of her wealth and greatness slowly but surely dried up; her preeminence among commonwealths lost. Illinois with Science? Soil fertility maintained, products protected, the streams from the fountains of her wealth kept up and even increased as the world's increasing population makes added demands upon that which she has to supply. This is the contrast."
