THE SCALE FOR THE CROP MAPS.

In constructing the scale adopted for the several crop maps (dairy products excepted) of the present volume, the number of bushels, tons, or pounds (according to the unit of quantity appropriate to the special crop) produced in each county, by turns, was divided, first, by the number of inhabitants, and, second, by the number of acres of improved land in the county; the two quotients thus obtained were multiplied together, and the square root of the product taken as the measure of the productive power, in respect to that crop, of the county. This mode of constructing the scale for the crop maps must be admitted to be somewhat arbitrary. The Superintendent can only say for it that he believes it effects the object in view better than any other, and that he knows of no other scheme for exhibiting these features of production to which more objections do not lie than to the one here adopted.

The problem in respect to any crop is to exhibit the importance of the crop to each section of the country, and also to exhibit the importance of the section, so to speak, to the crop of the country. Moreover, if it should prove in any way practicable, it would be in every way desirable, to exhibit productive capacity as well as actual production, or at least to give those sections in which an industry is not yet extensively pursued, but where the facts of present production indicate a capability of increase, a certain preference over sections which show the same absolute yield, yet have manifestly reached their maximum limit of production.

Such being the points which it is desirable to compass in a pictorial representation of a given crop, say wheat, several modes of obtaining the relative power, in this respect, of different sections, States, or counties, suggest themselves to the mind. More than one of these might, perhaps, be advantageously adopted, were it practicable in the construction of such a map to take the township as the unit of treatment; but as this is wholly impracticable in dealing with so large an field as the United States, the county—embracing, as counties generally do with us, town and country, manufacturing, commercial, and agricultural populations alike—being the lowest unit of treatment that can be taken for the purpose, the reflections and the tentative computations of the Superintendent satisfied him that no one simple ratio could be found which would not, in many cases, grossly exaggerate, and in other cases as unjustly disparage, the importance of the crop to the county and of the county to the crop.

It is evident, without argument, that to say that one county raises twice or three times as much wheat as another, without any reference to the extent of lands embraced in each, is to furnish no just ground for a comparison of the two counties in respect to their wheat production. On the other hand, to divide the aggregate crop of each county by the population, and thus to obtain the per capita production of wheat, yields just as little of a true measure, without reference being had to the proportion of persons in each pursuing commercial or manufacturing industry. For example, one county of an equal breadth of agricultural lands, and with a much higher yield per cultivated acre than a neighboring county, might be brought far below that other upon a per capita scale, by reason of the fact that it possessed, in addition, a considerable manufacturing industry, or embraced within its limits a single large town. Orange County, New York, compared with almost any other county of the same State, is a case in point.

Again, the per capita test may be defective in another and large class of cases, as between agricultural sections sparsely settled and agricultural sections densely populated. Thus, of two counties of equal area, and with populations wholly devoted to agriculture, and even to the culture of that one crop only, a county having ten thousand inhabitants, and producing three-quarters of a million bushels of wheat, or seventy-five bushels per capita, ought, unquestionably, to be rated higher on the scale of wheat production than the other, having but five thousand inhabitants, yet producing to the extent of four hundred thousand bushels, or eighty bushels per capita. One thousand farmers, sprinkled over a large western county, and picking out only spots especially favorable for cultivation, ought to produce a larger per capita crop than three thousand or five thousand farmers whose operations would cover the whole available surface of the county, and call into cultivation even the least desirable soils.
The considerations thus briefly sketched will probably suffice to show the unsuitess of any one of the ratios already treated of to exhibit by itself the agricultural or crop rank of counties. The ratio more popularly taken for the purpose, viz, that between the number of acres cultivated in the crop and the yield thereof—that is to say, the number of bushels, tons, or pounds to the acre—would be still more unsuited to the object, even were the requisite data given in the census, as they are not. Without reference to the breadth of land sown, the report of the average yield per acre affords a most fallacious representation of the productive power of any region. The cultivation of any crop as a fancy crop, or upon the more favorable soils only, gives results wholly disproportionate to what would be the fact were that crop to be generally cultivated as an essential part of the industry of the people, and extended over a considerable area. There are sections of the United States at the present time where wheat is grown upon narrow strips of land along streams, with a yield reaching thirty-five, forty, and forty-five bushels to the acre, where, if the crops were to be extended over anything approaching the proportion of land which, in a county of Iowa or Minnesota, is put into wheat, the yield would not average ten bushels to the acre. These are extreme cases, but the objection lies, in a degree, against the use of the “average” test, as between any two agricultural sections.

The above somewhat desultory remarks, though far from exhausting the subject, will, perhaps, suffice to show that no one element affords the means of truly measuring the productive power of counties relatively to each other. It was these considerations, and others into which it is not deemed necessary to enter at this time, which convinced the Superintendent that it was desirable to compound at least two elements for the purpose. The two elements taken are, as stated in the first paragraph of these remarks, first, the number of bushels, tons, &c., to each inhabitant; and, second, the number of bushels, pounds, &c., to each acre of improved land. These are believed to be the elements having the most importance in the connection, and the method of treating them, viz, by compounding them and taking the square root of the product, is believed to be the best method, as tending to reduce any extravagant excess of one element over the other, due to exceptional conditions. Undoubtedly, instances may be found on the maps thus constructed affording opportunity for cavil, and even occasion for legitimate criticism; but the Superintendent is satisfied, and believes that any one who carefully examines the subject will be satisfied, that the effect has been, in respect to each crop to which a map is devoted, to exhibit, almost without an exception, the important and the insignificant sections of the country distinctly from each other; and, secondly, that the sections which are of importance in respect to any crop thus represented will be found to be ranged very generally in the true order of their importance.

Nota Bene.—Exception to the above statements must be made to this extent, viz, that in the Territories of the United States, where counties are oftentimes as large as whole States East, small portions only being settled, the county was dropped as the unit of treatment, and the field of actual settlement, great or small, was treated according to the method herein adopted.