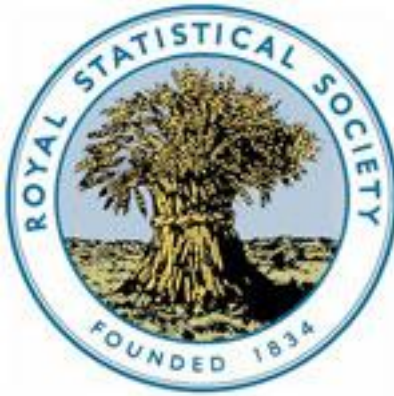


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amount actually spent by the consumers. Cost of manufacture, as in the case of wheat, of slaughtering and dressing in the case of live animals, and in all cases cost of handling and distribution must be added before the amount spent by the consumers could be ascertained. This calculation I shall not attempt. I must be satisfied if I have succeeded on the present occasion in giving some approximate indication of the magnitude of the nation's food supply and the relative proportions of its native and extraneous supplies.

SCOTTISH AGRICULTURAL CHANGES.¹

By Major P. G. CRAIGIE, C.B.

As a sphere of agricultural production Scotland offers a territory of 19,000,000 acres, of which fully 14 per cent. lies 1,500 feet and upward above the level of the sea, and nearly one-half of the measured surface is made up of rough hill-grazings rising in part over that level. This leaves for permanent cultivated pasture, for rotation grasses and clovers, and for the surface over which the plough can annually range—not quite 5,000,000 acres. This “cultivated area” can be shown to have varied in the last half century, if the statistics of the Highland and Agricultural Society in 1854–56 be taken as the starting point. The section regarded as arable appears, however, to be somewhat less now than half a century ago.

The Highland Society's inquiry returned originally 3,500,000 acres under this category on the holdings then embraced, which were those in the occupation of 43,000 farmers, but a supplementary investigation, which extended to 42,000 smaller holdings (under 10l. rental in most, and under 20l. in certain counties), added to this total another 238,000 acres, bringing the arable total to close on 3,750,000 acres. To-day a similarly exhaustive inquiry shows some 350,000 acres less than this. The decline was not, as in England, a continuous one, attributed to agricultural depression. The striking reduction in Scotland occurred in the decade immediately following the 1854–56 inquiries. Between 1856 and 1866, when the official Agricultural Returns began, as much as 390,000 acres of arable land appears to have passed out of that category.

Some incompleteness may be assumed in the very early years of the official statistics, and a more exact comparison in quinquennial periods from 1866 onward shows that, after the decade referred to, the arable area was increased. On a five-year average up to 1870—only 3,360,000 acres could be regarded as arable. This figure rose to 3,670,000 acres in 1886–90 and did not fall below 3,500,000 acres till the twentieth century opened. It was 3,460,000 acres in 1901–05 and just under 3,400,000 in 1906–10, and therefore at the date of the new Census of Production. The earlier changes between 1854–56 and 1866–70 included a diminution coincident

¹ Summary of a paper read before Section M of the British Association, at Dundee, September 6, 1912.

with the abandonment of a large area of wheat after the abnormally high prices of the Crimean War disappeared.

As many as 263,000 acres were shown as under wheat in Scotland in the Highland Society's returns of 1856; and that there was more than this in existence is apparent, since the smaller holdings, on which the individual crops were not distinguished, presumably grew some acres, at all events, of that cereal. The first official inquiry, embracing some 80,000 holdings, both large and small, gave only 110,000 acres of wheat. That was a drop of more than 50 per cent. in the crop on the whole, and the fall was even more striking in individual counties. Aberdeenshire's 15,300 acres of wheat shrunk to less than 600 acres; in Forfar, 25,500 acres dropped to 11,000 acres; in Wigtown, 11,000 acres to 3,300 acres.

The later changes, which we can measure more exactly from 1870 to 1910, show that some 200,000 acres of grain were lost, including another 74,000 acres of wheat; there were nearly 100,000 acres of turnips and potatoes less, but apparently a growth of nearly 200,000 acres of rotation grasses. If crop areas are less the yields are all higher, and the wheat crop of the Census year 1908 reached 41 bushels per acre against less than 28 in the fifties, barley 36 against 33, and oats 39 against 32, while the potato yield of under 4 tons reached 7 tons in 1908.

Meanwhile the cultivated grass returned as permanent pasture has gained largely. Less than 900,000 acres were shown in 1866; a million acres were noted in the following year. A slower rise brought it up to 1,200,000 acres in 1884, 1,400,000 acres was reached when the century closed, and 1,500,000 acres is returned now. This rise is relatively greater than that often commented on in England, and official testimony is forthcoming that it was largely the result of reclamation, for the "laying down to grass," although a feature in some areas, was relatively small. No doubt the quality of much of this grass is low, and only 10 per cent. of the permanent grass of Scotland is now cut for hay, against 39 per cent. in England. Nevertheless, when this notable extension, as well as the larger area of rotation grasses and the vast range of 9,000,000 acres of hill pastures are considered, the "grass" of North Britain covers 12,000,000 acres, or six times the area of all other crops, and raises the question, has it been justified in the out-turn of animal produce.

The cattle maintained in 1854-56 in Scotland exceeded 1,000,000 head. They rose to 1,157,000 in 1884-86, exceeded 1,200,000 head for 1890 to 1906, stood at 1,174,000 in 1908, and are again at 1,200,000 now. This gives no extension in the last 20 years, and the stationary character of the breeding stock of cows in Scotland is unsatisfactory. The record of the flocks is better. The sheep of 1854-56 only numbered 5,900,000. By 1884-86 they reached 6,848,000, reached a maximum of 7,623,000 in 1891, and with only two drops below the seven-millions level were 7,439,000 in 1898, and are still 7,164,000. Herein the Scottish flocks maintained a superiority over all those of Western Europe, where the loss of sheep was large and significant. The pig stock of Scotland has always been a very small factor, but the level of 1908 at 144,000 head was at least above

the total of the fifties, and is to-day over 170,000. These totals, however, are less than a single English county could show. Scotland has not one pig for 10 in Denmark or one for 150 in Germany.

In the light of the new Census the entire saleable output of Scottish agriculture, however, only reaches 23,150,000*l.* per annum. The farm crops so far as sold account for over a fourth, or 6,400,000*l.*, the animals and animal products 16,250,000*l.*, with 500,000*l.* from "fruit, flowers, and timber," of which the fruit is about two-thirds. What these figures teach is a problem worthy of attentive study. They include the timber sales, calculated at 181,000*l.* on 875,000 acres. But these reach only 4*s.* 2*d.* per acre. If this be deducted, there remains an agricultural area of under 14,000,000 acres which would appear to return less than 33*s.* per acre. The Census report suggests that the rough grazings, of which Scotland shows 9,080,000 acres in its utilised area, can be reckoned to yield only 10*s.* to 12*s.* an acre of saleable output, if indeed this figure is not too high, and it is no doubt this item which so lowers the aggregate return.

To arrive at a closer idea of the returns of more ordinary farming, we could indeed deduct the 4,540,000*l.* attributed to these grazing lands, withdrawing at the same time their 9,080,000 acres from the other side of the account; and, similarly, for an opposite reason, we might exclude the 8,000 or 9,000 acres of exceptional lands contributing the fruit sales at an apparent rate of some 37*l.* per acre. This would leave 4,856,000 acres of ordinary "cultivated land"—of which, however, five-eighths are still under grass, and we should then arrive, on the basis of the Census of Production figures, at an approximate return of 3*l.* 14*s.* 8*d.* per acre. Could we go further and apportion the share of this to be credited separately to the grass and the arable land, the result would be of much interest and significance. Such a calculation, however, includes too many items of uncertainty and complication to be of practical value, and it would devolve on the statistician estimates for which we have as yet no exhaustive data respecting the charges for purchased foods and manures, for equipment and for labour, at the cost of which the out-turn of saleable products is secured.

Without entering on this task, the figures I have quoted illustrate the trend of Scottish agriculture in the past half century, and once more emphasize the increasing predominance of the grass areas, and the extreme importance of all that science and practice can teach us as to the modes of effective development of their productive capacity. Nor is it the large farmer and sheep owner who is alone concerned in such inquiries, for the latest returns bring out the fact that the small holders of to-day have relatively a larger interest than the others in share of grass, and especially of rough grazings that they now farm. These features have to be reckoned with in any survey of the remaining scope for agricultural development, and give point to the directions in which the prospects are most hopeful.
