that under turnips has considerably declined, partly owing to the increased use of artificial stuffs in cattle-feeding. The following table (XV.) shows the number of live stock in different years, with the average number to every 1000 acres of cultivated land in 1885 in Scotland and England :—

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Yearly Average. | | 1880. | 1885. | Average per 1000 Acres 1885. | |
| 1867-70. | 1871-75. | Scot- Eng­land. land. | |
| Horses (including ponies)— Used solely for agricultural  purposes | 138,564  134,307 | 136,689  41,963 | 141,332  52,6S1 | 141,522  46,770 | 29  10 | 30  13 |
| Unbroken horses and mares kept for breeding |
| Total horses |
| @@1172,871 | 178,652 | 194,013 | 188,292 | 39 | 43 |
| Cattle—  Cows and heifers in milk or in calf |
| 380,509  249,541  392,336 | 392,252  267,920  467,165 | 3S7,195  258,967  453,124 | 419,210  260,505  496,289 | 87  54  102 | 74  43  72 |
| Other cattle—two years old and above..  ,, under two years  Total cattle |
| 1,022,386 | 1,127,337 | 1,099,286 | 1,176,004 | 243 | 189  407 ' 269 |
| Sheep-  One year old and above.... Under one vear old |
| 4,582,885  2,355,142 | 4,735,008  2,426,114 | 4,651,116  2,420,972 | 4,560,430  2,396,762 | 941  495 |
| Total sheep |  |
| 6,987,977  153,959 | 7,161,122 | 7,072,0S8 | 6,957,198 | 1436 | 676 |
| Pigs |
| 166,148 | 120,925 | 150,984 | 31 | 82 |
|  |

This table does not indicate any constant decrease or increase in any of the classes of live stock. It will be observed that the average number of cattle to the acreage of cultivated land in Scotland is about a third more than in England, and of sheep more than double as many ; but the number of pigs in England is more than double as many to the acreage of cultivated land as it is in Scotland, and the number of horses is greater. The special breeds of horses in Scotland are the Shetland ponies, the Highland ponies, and the Clydesdale draught horses, the latter originally bred in the Clydes­dale district from crossing with Flemish stallions imported about the beginning of the 18th century. The breeds of cattle include the Ayrshire, which, since they are chiefly noted for their yield of milk, and are specially adapted for dairy farms (which prevail especially in the south-west of Scotland), have in a great measure supplanted the Galloway in their native district, except where these are kept for feeding purposes ; the polled Angus or Aberdeen, fair milkers, but chiefly valuable for their beef-making qualities, and on this account, as well as their hardihood, in especial favour in the north-east of Scotland, where the art of cattle-feeding has reached its greatest perfection ; and the west Highland breed, noted for their long horns, their shagginess, the decided character of their various colours—black, red, dun, cream, and brindle— and their power of thriving on wild and heathy pasture. The special breeds of sheep are the fine-woolled breed, peculiar to Shet­land ; the blackfaced, native to the Highland districts ; and the Cheviots, native to the range of hills of that name, and now the favourite breed in the south of Scotland, although border Leicesters and other English breeds, as well as a variety of crosses, are kept for winter feeding on the lowland farms.

The area under orchards as returned on 4th June 1885 was 1892 acres and under nursery grounds 1654. Orchards, chiefly for apples, are most numerous in the Carse of Gowrie and the neighbourhood of Perth, and along the banks of the Clyde above Hamilton. The area under woods in 1812 was 907,695 acres, of which 501,469 acres were natural woods and 406,226 planted ; by 1872 it had declined to 734,490, but by 1881 **(*i.e*.,** by the latest return) it had increased to 829,476, the principal increase having been in Aberdeen, Perth, and Inverness, the counties where the growth of woods is largest. The Board of Trade returns do not distinguish between planted and natural woods, but it is well known that large cuttings have been made in the indigenous forests of the Highlands, while at the same time considerable attention has been paid within the present century to the growth of plantations in the Lowlands, partly as a covert for game ; the science of forestry has made great ad­vances within recent years owing to the encouragement and guid­ance of the Scottish Arboricultural Society, established in 1854, and of the Highland and Agricultural Society. The modern planta­tions are formed chiefly of Scotch fir with a sprinkling of larch. On the botany of Scotland H. C. Watson’s *Topographical Botany* (1883) may be consulted.

According to the report of the crofters commission, the area under deer forests in Scotland is 1,975,209 acres, or about one-tenth of the whole area of the country. The species of deer peculiar to the Scottish Highlands is the red deer ; the fallow deer is not uncommon

in the Lowlands, especially in the hilly south-western districts. The grouse moors of Scotland occupy a much more extensive area, and are also much more widely distributed, while they supply sport to a much greater number of persons. Ptarmigan and blackcock are abundant in many districts ; and pheasants and partridges, as well as hares, are carefully preserved on many estates in the cultivated districts. Rabbits are common throughout the whole country. Fox­hunting is a fashionable sport in most of the Lowland counties ; but otter-hunting has almost died out. The bear, wolf, and beaver, at one time common in Scotland, have become extinct. The last wolf, it is said, was killed by Sir Ewen Cameron of Lochiel in 1680. The wild cat is still to be found in the Highlands, and the polecat, ermine, and pine marten exist in considerable numbers. The golden eagle and the white-tailed eagle tenant the wilder mountainous districts, but other larger birds of prey, as the osprey and the kite, are becoming scarce. In all there are more than 300 species of birds in Scotland, including a great variety of water-fowl in the sea and inland lochs.

*Fisheries.—*Details regarding the Scottish fisheries will be found under Fisheries (vol. ix. pp. 257-262). The former Board of White Herring Fishery was abolished in 1882 and the Fishery Board of Scotland established, which has devoted more systematic attention to the collection of statistics and the general encouragement of the industry. In 1856 the herring and deep-sea fisheries engaged only about 30,000 persons in Scotland, but in 1884 they employed directly or indirectly 103,804 persons, while the total estimated produce in 1884 was valued at £3,351,848,—the value of cured fish being £2,279,614 (herrings, £2,121,346; cod, ling, and hake dried, £149,407 ; ditto pickled, £8861); of white fish sold fresh, £716,295 (haddocks, £300,712 ; herrings, £150,720; cod, ling, and hake, £97,443 ; torsk and saithe, £10,481; whitings, £32,808; sprats, £5232 ; mackerel, £5286 ; turbot, £9368 ; holibut, £17,624 ; flounders, £47,723 ; skate, £14,171 ; soles and other flat fish, £24,727); of shell-fish, £80,939 ; and of salmon, £275,000.

*Mining Industries.—*The chief sources of the mineral wealth of Scotland are coal and iron, which are generally found in convenient juxtaposition. The principal coal-fields are described under Coal (vol. vi. p. 52 *sq. ).* The privilege of digging coal in the lands of Pittencrieff was conferred by charter on the abbot and convent of Dunfermline in 1291, and at a very early period the monks of Newbattle Abbey dug coal from surface-pits on the banks of the Esk. Æneas Sylvius (afterwards Pope Pius II.), who visited Scotland in the 15th century, refers to the fact that the poor people received at the church doors a species of stone which they burned in place of wood ; but, although the value of coal for smith’s and artificer’s work was early recognized, it was not generally employed for domestic purposes till about the close of the 16th century. In 1606 an Act was passed binding colliers to perpetual service at the works at which they were engaged, and their full emancipation did not take place till 1799. An Act was passed in 1843 forbidding the employment of children of tender years and of women in underground mines. According to the census of 1851, the number of persons engaged in connexion with coal-mining was 36,973 males and 358 females (the latter employed above ground), and in 1881 the numbers were 53,340 and 401. According to the mineral statistics of 1885 there were 69,425 persons employed in the coal-mines of Scotland,—45,082 in the western and 24,343 in the eastern district. The output within twenty years has been more than doubled. In 1854 it was 7,488,000 tons, by 1866 it had increased to 12,034,638, and in 1884 it was 21,186,688.

The rise of the iron industry in Scotland dates from the establish­ment in 1760 of the Carron ironworks near Falkirk. The number of persons employed in iron-mining in 1851 was 7648, and in iron manufacture 13,296 ; and by 1881 the numbers had increased respectively to 10,473 and 38,309. The total output of iron ore and ironstone in Scotland in 1884 was 1,885,376 tons, valued at £854,416, less than the estimated amount in 1858, which was 2,312,000 tons, valued at £750,000. There has been no increase in the manufacture of pig-iron since about 1866. The imports of iron ore were 356,380 tons in 1883, valued at £359,918, and in 1884 406,007 tons, valued at £356,451. The production of pig-iron increased with great rapidity after the introduction of railways. In 1796 the quantity produced was 18,640 tons, and in 1830 only 37,500 ; in 1840 it had risen to 241,000, in 1845 to 475,000, in 1865 to 1,164,000 ; but in 1884 it was only 988,000, the industry being confined to Ayrshire, Fifeshire, and Lanarkshire. The iron-mills and forges in operation are confined to the last county, there being in 1884 22 works, 334 puddling furnaces, and 82 rolling mills. In 1884 there were 63 open-hearth steelworks in operation, of which 46 were in Glasgow, 10 in Holytown, 4 in Motherwell, and 3 in Wishaw, the quantity made in 1884 being 208,650 tons.

Since about the years 1850-55 shale-mining has become an im­portant industry, especially in Linlithgowshire and Midlothian, the total quantity raised in Scotland in 1884 being 1,469,649 tons, valued at £370,024. Lead ore is worked at Abington in Lanark­shire and Wanlockhead in Dumfriesshire ; the dressed lead ore obtained amounts to 4327 tons, valued at £34,997, and yielding

@@@1 These figures are for 1870 only.