the boundary\* between South Dakota and Iowa. To the west of this stream and almost parallel with it is the James or Dakota river, which rises in North Dakota and follows a general course southward until it joins the Missouri river near Yankton. From the west the Missouri receives the Grand, Moreau or Owl, Cheyenne and White rivers. Of these the Cheyenne is the most important, being formed by two branches, the BelIe Fourche and the South Fork, which, after almost completely encircling the Black Hills, unite at a point nearly 350 m. from their sources. Many of the smaller streams in the Black Hills lose their waters in their lower courses through seepage and evaporation. The Minnesota river has its source in the north-east, and the Big Stone Lake, a body of water about 25 m. long and 3 m. wide, forms a connecting link between its headwaters and the rest of the stream. North of this lake lies Lake Traverse, 27 m. long and 3 m. wide, whose waters flow north into the Bois de Sioux river, whence they flow into the Red River (of the North). The portion of South Dakota east of the Missouri river is dotted with numerous lakes, ranging from small ponds to bodies of water from 10 to 15 m. in diameter. The plains, except in the south-east corner, are under- laid by sheets of water-bearing sandstone, which carry a volume of water under such pressure that in the valleys of the James river and the Missouri river and its western tributaries a strong surface flow may be obtained from artesian wells. In 1905 over a thousand wells had been sunk east of the Missouri, and the flow was estimated at 7,000,000 gallons per day.

*Fauna and Flora.—*Large game within the state is practically extinct. The herds of bison, antelope and elk that once roamed the prairies have vanished, but a few mountain sheep still graze on the grass-covered mesas in inaccessible portions of the Bad Lands. There, too, the grey (or timber) wolf and the coyote are found. The species of small animals do not differ from those found in other parts of the Middle West.

The total woodland area has been estimated at 2500 sq. m., about 3∙25% of the land area, and of this amount 2000 sq. m. are in the Black Hills district. All the higher lands of this area are covered by forests; but the Red Valley, lying between the outer ridges and the main uplift, is treeless. Most of the forest consists of yellow pine, but the spruce, aspen, white birch, bur oak, box elder, red cedar, white elm and cottonwood are among the other varieties found. With the exception of narrow strips of woodland along the courses of the larger streams, the rest of the state consists of treeless prairie-lands, which are usually covered with valuable grasses. In the more arid regions the sage-brush and cactus make their appearance. Two national forests contained (1910) 2022 sq. m.

*Climate.—*The climate of South Dakota is of a continental type. Owing to the northern latitude, comparatively high altitudes, and the great distance from the ocean, there are great annual variations of temperature and a very small amount of rainfall. The state is coldest in the north-east and warmest in the region south of the Cheyenne and west of the Missouri rivcr. The isothermal lines trend from south-east to north-west. The winters are long and marked by exceedingly low temperatures, but as they are the driest season of the year, the extremes are not so disagreeable as they would be in a more humid region. The mean winter temperature ranges from 13° F. at Aberdeen in the northern part of the James River Valley to 25° at Rapid City, in the Black Hills district. The absolute minima at these two places are respectively—46° and -29°; the absolute maxima, 111° and 106o, and the mean annual temperatures, 42° and 46°. At Brookings, in the extreme east, the mean annual temperature is 43°; the mean for the summer is 68° with an extreme recorded of 104°; the mean for the winter is 15° with an extreme recorded of -41°. At Ashcroft, in the ex- treme north-west, the mean annual temperature is 44°; the mean for the summer 68°; and for the winter 20°; while the highest and lowest temperatures ever recorded are respectively 114° and 44°.

The average annual amount of rainfall for the state is about 20 in., ranging from 13∙9 in. at Ashcroft to 25∙9 in. at Aberdeen, lt is usually greatest in the valleys of the James and Big Sioux rivers and least in the extreme north-central and north-western parts of the state. The average amount of rainfall for the spring is 6 or 7 in. ; for the summer, 8 or 9 in. ; for the autumn, 3 or 4 in. ; and for the winter, 1 or 2 in. The snows are generally light, and cattle may graze on the prairies during most of the winter; but there are occasional severe "blizzards,” which are accompanied by intense cold and high winds.

*Soils.—*The glacial drift east of the Missouri river, unlike that of the New England states, is remarkably free from boulders and gravel, except in a few morainic belts. It is often locally enriched by vegetable mould, and is well adapted for wheat-growing. West of the Missouri river the drift gives place to a fine soil of sand and clay, with deposits of alluvium in the vicinity of streams. Though lacking in vegetable mould, these soils are generally capable of producing good crops where the water-supply is sufficient. The larger valleys of the Black Hills district contain fertile alluvial deposits washed from the neighbouring highlands, but in the plains adjoining these mountains the soils consist of a stiff gumbo suit­able only for pasture land. There are throughout the state occasional tracts in which, owing to deficient drainage, an excess of alkali has accumulated, and which require special treatment before they can be made again productive.

*Irrigation.—*South Dakota in 1889 had only 15,717 acres of irrigated land. Ten years later this area had increased to 43,676 acres. Of the total, 38,453 acres were irrigated by streams and 5,223 acres by wells. The area irrigated by streams was con- fined largely to the Black Hills region, the water being supplied by the North Fork and the South Fork rivers, which are tributaries of the Cheyenne. The artesian basin of the east part of the state is fairly well developed, several wells having a flow of from 2000 to 4350 gallons per minute and a pressure of 150 lb to the square inch. Under the Reclamation Act passed by Congress in 1902 the irriga- tion of 100,000 acres in the Belle Fourche Valley adjacent to the Black Hills region was provided for. It provides for a dam across Owl Creek 6500 ft. long and 20 ft. wide on top, and for two main canals from this distributing centre, one the north canal supplying water for the irrigation of 66,857 acres north of the Belle Fourche river and east of Owl Creek, and the other the south canal for the irrigation of 28,240 acres south of the BelIe Fourche. Lateral canals are provided from the main canals to each farm.

*Agriculture.*—Agriculture is the leading industry in South Dakota; in 1900 out of 137,156 persons engaged in occupations, 82,857 followed agricultural pursuits. In 1890 the total acreage devoted to farming was 11,396,460, which in 1900 had increased to 19,070,616. The percentage of improved acreage, however, fell during the same period from 61∙1% in 1890 to 59∙2% in 1900. This was due largely to the opening up of land which had formerly not been utilized. The average size of farms (excluding farms under 3 acres with products valued at less than $500) was 227∙2 acres in 1890 and 364·1 acres in 1900. The value of all farm property increased from $145,527,556 in 1890 to $297,525,302 in 1900. The average farm value also rose during these ten years from $2901 to $5654, and the value per acre advanced from $12·77 to $15·60. Fewer farms were worked by owners in 1900 than in 1890, the percentage in the former year being 78∙2 and in the latter year 86∙6. In 1900 share tenants worked 18∙4% of the farms and cash tenants, 3·4%. The total value of farm products in 1899 was $66,082,419 as against $22,047,279 in 1889. Of the total product value in 1899, 78∙3% was represented by cereals, South Dakota ranking sixteenth among the states in cereal production. Wheat constituted 6o∙7% of the total for all cereals, Indian corn 21∙1%, oats 11∙9% and barley 5∙8%. A considerable area was devoted to the cultivation of apples, plums and cherries. The total acreage of spring wheat, the state’s leading crop, in 1909 was 3,375,000 with a yield of 47,588,000 bush. valued at $42,829,000, South Dakota ranking third among the states. Next in importance in 1909 came Indian corn with an acreage of 2,059,000 and a product of 65,270,000 bush. ($32,635,000). Oats had an acreage of 1,450,000 and a product of 49,600,000 bush. ($14,790,000). Barley was cultivated on 1,021,000 acres, the product amounting to 19,910,000 bush. ($8,960,000). In the quantity of barley produced the state ranked fifth. In its output of flax, grown almost entirely for the seed, the state held second rank with a product of 5,640,000 bush. ($8,516,000). The hay acreage was 536,000 and the production, 804,000 tons. Wheat grows chiefly in the east and north-east parts of the state, especially in Brown, Spink, Roberts, Day and Grant counties, the largest crop in 1899 being that of Brown county, 3,320,570 bush., or about one-twelfth of the state’s product. Corn grows throughout the western half of the state, and especially in the south-western parts, in Lincoln, Clay, Union, Yankton and Bonhommie counties, the largest crop in 1899 being that of Lincoln county, 3,914,840 bush., nearly one-eleventh of the state crop. Oats has a distribution similar to that of corn, the largest crop in 1899 being that of Minnehaha county, 1,666, 110 bush., about one-nineteenth of the state crop. Barley grows principally in the eastern and southern parts of the state—Minnehaha, Moody, Lake and Brookings counties—the largest crop in 1899 being that of Minnehaha county, 932,860 bush., more than one-seventh of the state.

The state is especially well adapted for grazing, and during 1890-1900 there was a large increase in the number of farm animals. The gain was chiefly confined to cattle, but the number of horses, sheep and swine also showed substantial increases. The value of all livestock in 1890 was $29,689,509 and in 1900, $65,173,432. The number and value respectively of the various farm animals on the 1st of January 1910 were as follows: horses, 612,000 ($64,260,000), dairy cows, 656,000 ($21,648,000); other cattle, 1,341,000 ($28,832,000); swine, 805,000 ($8,936,000); and sheep, 829,000 ($3,316,000).

*Mining.—*The minerals of South Dakota, of which gold is the most important, are chiefly found in the Black Hills region. This section covers about 3500 sq. m. in the south-east part of the state and includes the counties of Lawrence, Custer, Meade, Pennington and Fall River. Silver follows gold in importance, but the other minerals met with, including gypsum, mica, petroleum, natural gas, granite, marble and tin are not found in paying quantities.

Gold was first discovered in French Creek, Custer county, on the 27th of July 1874 by miners who were with Custer’s expedition. Gold was also found later in Lawrence county north of Custer..