the Upper Old Red series of sandstones; but the junction between the two is faulted between Balfron and Kippen; the fault runs E.N.E.- W.S.W. Then follows the Carboniferous system which occupies the rest of the county. The lowest member, the Calciferous Sand­stone group, consisting of clays and maris with cement nodules, may be seen on both sides of the Campsie Fells; it is well exposed near Strathblane in Ballagan Burn. These beds are succeeded by alternating beds of contemporaneous tuffs and sandstones and then by great sheets of diabase-porphyrite which attain a considerable thick­ness and form well-marked ridges on the southern side of the Campsie Hills; they are best developed north of Kilsyth and east of Fintry. Meikle Bin and Dungoil mark the sites of the vents from which some of these volcanic rocks were erupted. The Carboniferous Limestone series is the next in order and the lower beds may be found resting upon the volcanic rocks except where the junction is faulted and this series is let down, as it is between Strathblane and the Carron Water. As in the neighbouring counties, this series consists of a lower limestone group—with the Index, Calmy.and Castle Cary limestones—a middle group with coals and clay iron-stones and an upper limestone group with the Hosie and Hurlet limestones; below the latter is a bed of alum shale. These rocks are considerably folded about Kilsyth and in the directions of Banton and Cairnbeg; the " Riggin ” near Kilsyth is a noteworthy example of an anticlinal fold. The next series is the Millstone Grit—sand­stones with some coal-seams and fireclays—which occurs towards the eastern boundary. The true Coal-measures are well developed between Grangemouth and Stenhousemuir and about Falkirk. The more important seams are the Virtuewell (the highest), the Splint, Craw and Coxhead coals. Intrusive sheets of basalt have penetrated the Carboniferous rocks and are now quarried for road metal ; Abbey Craig and Stirling Castle hill are formed of one of the more important of these intrusions. Later basalt dikes of Tertiary age are not uncommon. A good deal of boulder clay covers the older-rocks and an interesting blue marine clay is found beneath it in the Endrick valley. The Carse of Stirling is overlaid by the muds and sands of the 50 ft. raised beach; and traces of the 100 ft. beach are also to be found.

*Climate and Agriculture.—*The rainfall for the year varies from 35 in. in the far east to 55 in. in the Highland region in the extreme north-west. The mean annual temperature is 47∙50 F. ; for January 380 F., for July 59° F. The arable soils are of two kinds, locally distinguished as “ carse ” and “ dryfield,” the rest of the land being composed of pasture, moor and peat. The “ carse ” extends along the valley from Buchlyvie to the eastern boundary, a distance of 32 m. (by the river), with a breadth of 1 to 4 m. The soil consists of the finest clays, without stones, but interspersed with strata of marine shells. It has been largely stripped of the overlying peat, ,and by draining, subsoil ploughing and the use of lime has been converted into a rich soil, especially adapted for wheat and beans. The “ dry field,” mostly reclaimed since the beginning of the 18th century, occupies the valleys and the higher ground bordering the carse. It is fertile and well suited for potatoes and turnips. In the order of their importance the grain crops are oats, barley and wheat. Beans are also extensively grown. Livestock is raised in increasing numbers. The sheep are chiefly black-faced, the cattle Irish, short­horns and cross-breeds. Ayrshires are the principal breed on the “ dryfield ” farms, where butter-making is largely carried on. Horses are kept only for farming operations or for stock, and a considerable number of pigs are reared. The average size of the holdings is from 70 to 80 acres. The area under wood is small. Birches grow naturally on the lower slopes of the mountains in Buchanan and Drymen, and oaks freely on the banks of Loch Lomond. Larch and Scots fir are the leading trees in modern plantations.

*Other Industries.*—The coalfield of the south-east supplies the staple industry. Iron ore, fireclay and oil-shale are also obtained, while limestone is extensively wrought in the Campsie district, and sandstone is quarried in ∙many parts. The ironworks at Carron and Falkirk are important. Woollens are manufactured at Stirling and Bannockburn; calico-printing and bleaching are established in the south-west, especially at Lennoxtown, Strathblane and Milton. There are chemical works at Falkirk, Stirling, Denny and Lennox- town. Throughout the county there are several breweries and distilleries, and at Grangemouth, the principal port, shipbuilding is carried on. The southern and south-eastern districts are served by the North British railway from Edinburgh to Glasgow (via Falkirk) and the Caledonian railway from Glasgow to Stirling (via Larbert), while branches connect Grangemouth, Denny and other places with the through-lines. The Forth & Clyde railway crosses the shire, mostly in the north, from Stirling to Balloch, and the North British also runs from Glasgow to Aberfoyle. In the tourist season there is a steamer service from Leith to Stirling (37 m.).

*Population and Administration.—*In 1891 the population numbered 118,021, and in 1901 it was 142,291, or 315 persons to the square mile, an increase for the decade exceeded only by the shires of Linlithgow and Lanark. In 1901 there were ten persons who spoke Gaelic only and 2014 Gaelic and English. The principal towns are Falkirk (pop. 29,380), Stirling (18,697), Grangemouth (8386), Kilsyth (7292), Stenhousemuir (5184), Denny and Dunipace (5158), Bridge of Allan (3240), and Bonny- bridge (3009). The shire returns a member to parliament, and Stirling and Falkirk respectively belong to the Stirling and Falkirk district groups of parliamentary burghs. The police burghs include Falkirk, Grangemouth, Kilsyth, Denny and Dunipace and Bridge of Allan. The shire forms a sheriff­dom with the counties of Dumbarton and Clackmannan, but there is a resident sheriff-substitute at Stirling and another at Falkirk. The shire is under schoolboard jursidiction, and there are secondary as well as science and art schools at Stirling and Falkirk. The town councils of Stirling and Kilsyth subsidize classes in science and art, besides manual instruction, and Denny and Dunipace maintains a mining instruction class.

*History and Antiquities.—*The wall of Antonius,. built by Lollius Urbicus, in a.d. 142, connecting the Forth and Clyde, passed through the south-east of the county, in which it is locally known as Graham’s Dyke. At Castlecary and Camelon, which were both stations of consequence on the line of the wall, many interesting relics have been found. The Camelon cause­way, a Roman road, ran eastwards from Castlecary, crossed the rampart at Camelon, whence it proceeded northwards to Stirling and the Forth, where there was a station near the present bridge of Drip. Thence it crossed the river to Keir and Dunblane in Perthshire. To the north-east of the Car­ron foundry there stood, till its demolition in 1743, a fine circular Roman building called Arthur’s Oon (oven), or Julius’s Hof, but the two mounds in Dunipace parish supposed to have been raised as monuments of peace between the Romans and Caledonians are probably of natural origin. After the with­drawal of the Romans the county once more fell into the hands of the Picts, the original inhabitants, who, however, gradually retired before the advance of the Saxons and Scots. By the time of Malcolm Canmore (d. 1093) the lowland area had be­come settled, but the highland tract remained a disturbed and disturbing region until the pacification following the Jacobite rising of 1745-46. The county played a conspicuous part in the struggle for Scottish independence, being particularly associated with many of the exploits of Sir William Wallace and Robert Bruce. The three great battles of the independence were fought in the shire—Stirling Bridge (1297), Falkirk (1298), Bannockburn (1314). James III. was stabbed to death in a cottage in the village of Milton after the battle of Sauchieburn (1488), but apart from the disastrous defeat of the Covenanters at Kilsyth (1645) and the transitory triumph which Prince Charles Edward won at Falkirk (1746), the history of the shire practically centres in that of the county town.

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STIRRUP (O. Eng. *stirap, stigrap,* Μ. Eng. *stirop, styrope,* &c., *i.e.* a mounting or climbing-rope; O. Eng. *sligan,* to mount, climb, and *rap,* rope, cf. Du. *stijbeugel,* literally mounting bow or loop, Ger. *Steigbügel),* a loop usually of metal, suspended by an adjustable strap from the saddle and used as a support for the foot of a rider of a horse when seated in the saddle and as an aid in mount­ing. The earliest use of stirrups seems to have been in the East, for they are mentioned in early Chinese literature and examples which must be earlier than the 7th century a.d. have been found in Japan. The Greeks and Romans did not use them but mounted by vaulting or from a mounting block (see Saddlery and Harness). The earliest evidence of their use in Europe is in the *Art of War* of the emperor Maurice (a.d. 582-602). They were probably brought into use by the nomad horsemen of Asia. The stirrup of the early middle ages seems to have been light and semicircular or triangular in shape. By the 14th century the footplate became broader and the sides heavier and orna­mented. By the 16th century this ornamentation increases