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SUTHERLAND, a northern maritime county of Scotland, is bounded E. by Caithness, S.E. by Moray Firth, S. and S.W. by Ross and a part of Cromarty, and N. and W. by the Atlantic and the North Sea. The area is 1,297,846 acres, or nearly 2028 square miles. The northern and western shores are broken and irregular, in some cases deeply indented, and in the north-west, at Cape Wrath, near Durness, at Whiten Head, and farther south at the island of Handa there are ranges of wildly precipitous cliffs. Numerous islands stud the larger inlets on this coast; the only ones inhabited in 1881 were Oldney with four persons and Roan (in Kyle of Tongue) with forty-three; Handa, which had eight inhabitants in 1871, had none in 1881. On the north coast the principal sea lochs are the Kyle of Tongue, Loch Erriboll, and the Kyle of Durness, and on the west coast Loch Inchard, Loch Laxford, the various branches of Eddrachillis Bay, and Loch Inver. The eastern shore is low and comparatively regular, the only inlets being Loch Fleet and Dornoch Firth. With the exception of the narrow plain along the east coast, various stretches of low ground on the west coast, and the low grounds adjoining the rivers and inland lochs, the surface consists chiefly of a succession of irregular elevations of from 500 to over 3000 feet in height. Much of the western district adjoining the coast from Cape Wrath southwards is occupied by Archaean gneiss, forming a series of bare rounded knolls. Resting unconformably on the gneiss are deposits of grits and sandstones, generally regarded as of Cambrian age, rising into wild cliffs between Cape Wrath and the Kyle of Durness. These are succeeded unconformably by Silurian strata, specially developed in the neighbourhood of Durness and Erriboll; in the former region they form a basin occupied chiefly by the limestone series, containing a remarkable collection of fossils, and at Erriboll, from which the strata at Durness are separated by a great dislocation, they present a remarkable series of horizontal displacements. Towards the east the gneiss is intermixed with granite and syenite, which cap the summits of a few of the mountains. Outliers of Old Red Sandstone also occur in this eastern mountainous region, sometimes in masses of coarse conglomerate. The highest mountain summit in Sutherland is Benmore Assynt (3273 feet), the culminating peak of a fine range of Silurian quartzites and limestone rocks lying to the south-east of Loch Assynt, while to the south-west are the picturesque conical summits of Canisp (2779 feet) and the curious Suliven (2399 feet) with its forked top. The next highest and most picturesque series of mountain groups occurs in the north-eastern region, south of the Kyle of Tongue,—Ben Hope, a rounded mass with imposing precipices rising near Loch Hope to a height of 3040 feet, while to the eastward is the picturesque Ben Loyal or Laoghal (2504 feet), formed of granite, and south from it, near Loch Naver, the great bulk of Ben Klibreck (3154 feet). Numerous other summits attain a height of over 2000 feet, but the greater proportion of the mountainous region consists of elevated moorlands, bleak and uninteresting, except when the heather assumes its purple tints in autumn. In the lower region along the shores of Moray Firth the Old Red Sandstone occurs resting unconformably on the crystalline series of rocks, and is in turn succeeded by an interesting series of Jurassic strata, which, faulted against the older formations, are exposed along the coast from Golspie to Helmsdale. In this series, at Brora,

some seams of coal have been worked, but the presence of iron pyrites greatly lessens its value. Limestone is wrought in various districts, and there are a number of quarries for building stone. Small quantities of gold have been found in some places.

Sutherland has a much greater proportion of its area occupied by water than any other large county in Scotland, the parish of Assynt being completely honeycombed with lochs and tarns. Loch Assynt, the largest of these, 10 miles in length, and narrow and irregular in outline, is entitled to rank, from its picturesque creeks and the grandeur of the adjoining mountain scenery, as the most beautiful loch in Sutherland. Loch Shin, extending 17 miles throughout nearly the whole of Lairg parish, from south-east to north-west, is towards the centre overhung by mountain masses, but otherwise is without interest to any but the angler. It is succeeded northwards by a series of lochs,—Griam, Merkland, More, Stack, Garbadmore, Garbadbeg—extending through the centre of the parish of Eddrachillis. Lochs Merkland and Griam occur, like Loch Shin, in the course of the river Shin, a tributary of the Oykel, which last forms the southern boundary of the county with Ross and falls into Dornoch Firth; Lochs More and Stack are in the valley of the Laxford, running north-westward to Loch Laxford. The Dionard or Grudie flows northwards to the Kyle of Durness, and the Hope, after expanding into Loch Hope, about 10 miles in length, falls into Loch Erriboll. The Borgia, which in its course forms Loch Loyal and falls into Torridale Bay; the Naver, which flows from the loch of that name through a fertile strath to the sea at Bettyhill of Farr; the Strathy; and the Halladale are the principal other rivers flowing northwards. Those entering Moray Firth are the Oykel; the Helmsdale, which reaches the sea at the town of that name; the Brora, which receives various tributaries before it expands into Loch Brora, 3 miles from its entrance into the sea at Brora; and the Fleet, flowing into Loch Fleet.

Agriculture.—According to the agricultural returns of 1886 only 3110 acres out of 1,347,033 were in cultivation, less than a fortieth part of the whole area. The best land is that adjoining Moray Firth, where agriculture is in a very advanced condition. Along the river valleys there are, however, many fertile patches. At the beginning of the 19th century the crofters occupied almost every cultivable spot throughout the county; between 1811 and 1820 they were ejected from their holdings to the number of 15,000, and, according to the statement of Hugh Miller, "compressed into a wretched selvage of poverty and suffering that fringes the county on its eastern and western shores." The homes they left were, he says, "improved into a desert"; but in the opinion of those who made the alteration these mountainous parts were as "much calculated for the maintenance of stock as they were unfit for the habitation of man." The crofters in Sutherland are now (1887) chiefly confined to the western seaboard, the number of crofts, all on the estates of the duke of Sutherland, amounting, according to the *Report of the Crofters Commission*, to 1238, and representing a population of 6190. The general agricultural condition of the county has been much improved by successive dukes of Sutherland, aided by the liberality of the Government in the advancement of money for the construction of roads and bridges; and within recent years large reclamations have been made, in order to obtain a wider area for the growth of fodder and turnips. The following table gives the number and acreage of various classes of holdings in 1875, 1880, and 1885:—

Year.	50 acres and under.		50 to 100 acres.		100 to 300 acres.		300 to 500 acres.		500 to 1000 ac.		Above 1000 ac.		Total.
	No.	Ac.	No.	Ac.	No.	Ac.	No.	Ac.	No.	Ac.	No.	Ac.	
1875	2505	11,994	29	2069	42	6939	9	3576	4	2212	..	2589	26,790
1880	2498	12,539	34	2541	40	6661	15	5730	5	2689	..	2522	30,139
1885	2512	13,232	44	3259	41	7399	14	5224	5	2899	2	3050	48,063

In 1885 of the class of holdings not exceeding 50 acres not exceeding 63 were between 20 and 50 acres each, 661 between 5 and 20, 1764 between 2 and 5, and 19 between $\frac{1}{2}$ and 1 acre.

Out of the 33,110 acres under tillage in 1886 there were 10,343 under corn crops, 5052 under green crops, 9331 rotation grasses,

3602 permanent pasture, and 252 fallow. The principal corn crop is oats, which occupied 8392 acres, barley occupying 1845, rye 63, pease 24, and wheat only 19. Potatoes occupied 2014 acres and turnips and swedes 2981. Cattle, chiefly West Highland, short-horn, and crossbred, numbered in 1886 12,806, of which 5576 were cows and heifers in milk or in calf; horses, which include a large number of ponies, although Clydesdales are used on the large farms, numbered 2665, of which 2015 were used solely for purposes of agriculture; sheep, the rearing of which is the staple business of the county, the principal breed being Cheviots, numbered 211,825, of which 163,901 were two years old and above; and pigs, 1037. According to the *Report of the Crofters Commission*, there were four deer forests within the county, all belonging to the duke of Sutherland, viz., Ben Armin and Coir-na-fearn, 35,840 acres; Dunrobin, 12,180; Glencanisp, 34,490; and Reay, 64,600; in all 157,110 acres, or more than one-ninth of the total area. There is comparatively small area under woods,—only 12,260 acres in 1881.

According to the latest (1873) owners and heritages *Return* the land was divided among 433 proprietors possessing 1,297,253 acres at an annual value of £71,494, or 1s. 1½d. an acre all over. There were 348 proprietors who possessed each less than one acre, the total amount which they owned being only 59 acres. The bulk of the land is possessed by the duke of Sutherland, who owned 1,176,454 acres, the other proprietors possessing above 10,000 acres each being Sir Charles W. A. Ross, 55,000; E. C. Sutherland-Walker, 20,000; Sir James Matheson, 18,490; and the executors of Gordon M'Leod, 11,000. The total value rental of the county in 1874 was only £27,193 Scots or £2266 sterling, while in 1885-86 it was £103,979.

Communication.—The county is well supplied with roads considering its mountainous character and its sparse population. Helmsdale affords the means of export for a considerable amount of farm produce. The Highland Railway enters the county at Inver-shin and after passing northwards to Lairg turns eastwards to the coast, which it skirts to Helmsdale, whence it turns north-westwards along the banks of the Helmsdale, bending afterwards eastwards at Forsinard into Caithness.

Industries.—Various textile manufactures at one time established in the county have been discontinued, the only important manufacture now remaining being that of whisky at Clyne and Brora. Herring fishing prosecuted from Helmsdale is an important industry, and the cod, ling, and other deep-sea fishings engage a large number of boats and men. There are valuable salmon fisheries in several of the rivers.

Administration and Population.—The county contains 13 entire parishes and part of the parish of Reay, the remainder being in Caithness. The county returns one member to parliament, and one is returned for the Wick group of burghs. Dornoch, the only royal burgh, had but 497 inhabitants in 1881, while Golspie had 1548 and Helmsdale 794. The population has not varied greatly in numbers since the beginning of the 19th century. In 1801 the numbers were 23,117, and in 1881 they were 23,370, a gradual decrease having taken place since 1851, when the numbers reached 25,793. In 1881 there were 11,219 males and 12,151 females. Sutherland is the most sparsely peopled county in Scotland, there being only 12 persons to the square mile, while the average for Scotland is 125. Sutherland forms a joint sheriffdom with Ross and Cromarty, and a sheriff-substitute resides at Dornoch. Small debt circuit courts are held at Helmsdale, Tongue, Melvich, and Scourie, and justice of peace courts at Dornoch, Golspie, Brora, and Helmsdale.

History and Antiquities.—The ancient Celtic inhabitants were almost entirely expelled by the Scandinavian settlers who occupied the county after its conquest by the Norse jarl Thorfinn in 1034. The remains of Pictish towers are numerous, as are also stone circles. Of other antiquities mention may be made of the vitrified fort on Dun Greich and of the extensive remains of Dun Dornadilla in Durness parish. After the conquest of the district by the Scottish kings, Sutherland was conferred on Hugh Freskin (a descendant of Freskin of Moravia or Moray), whose son William in 1223 was created earl of Sutherland by Alexander II. The nineteenth earl of Sutherland was created duke in 1833. The seat of the ancient episcopal see of Sutherland and Caithness was at Dornoch, where a cathedral was erected by Gilbert of Moravia (1222-1245), of which the ancient tower, attached to the modern parish church, still remains.

See Sir Robert Gordon's *History of the Earldom of Sutherland*, 1813; Hugh Miller's *Sutherland as it is*, 1843; and G. W. G. St John's *Tour in Sutherland-shire*, 1849. (F. F. H.)

SUTTEE, the name given by English writers to the rite of burning a widow on the funeral pyre of her husband as practised among certain Hindu castes, and especially among the Rajputs. The word *sati* (as it should rather be written) properly denotes the wife who so sacrifices herself, not the rite itself, and means "a good woman," "a faithful wife." The sacrifice was not actually forced on a wife, but

it was strongly recommended by public opinion as a means to her own happiness and that of her husband in the future state, and the alternative was a life of degraded and miserable widowhood. The practice was current in India when the Macedonians first touched that country (Diod. Sic., xix. 33), and it lasted into the 19th century, having been tolerated even by English rulers till 1829. (See INDIA, vol. xii. p. 806.) The subject is illustrated by copious quotations from ancient and modern authorities in Yule's *Anglo-Indian Glossary*, p. 666 sq., and by comparison of similar rites among other nations in Tylor's *Primitive Culture*, ch. xi. It has its root in the primitive view of the future life, which regards the dead as having similar needs to the living. The wife is sent into the world of shades with her husband, just as arms, clothing, or treasure are buried in his tomb, or slaves are slain to attend their master in the underworld. The Indian custom is not, therefore, properly a part of Brahmanism; but it was adopted by the ministers of that religion, who strained their sacred texts to find support for it.

SUTTON COLDFIELD, an ancient market town and municipal borough of Warwickshire, England, is situated on the London and North-Western Railway, 8 miles south of Lichfield and 7 north-east of Birmingham. The town has been greatly increased of late years by the erection of villas for persons having their business offices in Birmingham, Walsall, and other towns. The church of the Holy Trinity—Early English and Late Perpendicular, restored in 1874 and enlarged in 1879—contains a fine Norman font and the tomb of Bishop Vesey. He obtained from Henry VIII. the grant of the park and manorial rights for the benefit of the town, the annual value (now about £2000) being expended in charities and education. On the picturesque park near the town, 2400 acres in extent, the inhabitants have the right of grazing horses and cattle at a small fee. A town-hall was erected in 1859; in it there is a good library. The corporation formerly consisted of a warden and 24 members; but in 1885 Sutton obtained a municipal charter, by which it is divided into six wards, with an alderman and three councillors for each ward. The population of the township in 1871 was 5936, and in 1881 it was 7737.

Sutton was at one time a royal manor and an apanage of the earls of Warwick. It owes much of its prosperity to the gifts of John Vesey (Voysey), bishop of Exeter in the 16th century, who was a native of the place. In its charter of incorporation, 20th Henry VIII., it is called the royal town of Sutton Coldfield.

SUTTON-IN-ASHFIELD, a town of Nottinghamshire, England, is situated on an eminence on the Nottingham and Worksop and the Erewash Valley Railways, 3 miles west-south-west of Mansfield. The church of St. Mary Magdalene of the 12th century was restored in 1868. In the churchyard is a yew tree reputed to be 700 years old. There are a number of collieries and limeworks in the vicinity. Cotton hosiery and thread are the principal manufactures. The duke of Portland is lord of the manor. The population of the urban sanitary district (area, 4855 acres) in 1871 was 7574, and in 1881 it was 8523.

SUWAEKI, a government of Russian Poland, occupies the north-east corner of the kingdom, extending to the north between East Prussia and the Russian governments of Kovno, Vilna, and Grodno. Its area is 4846 square miles. It covers the east of the low swelling, studded with lakes, which skirts the south coast of the Baltic (see POLAND), its highest parts reaching 800 to 1000 feet above the sea. Its northern slopes descend to the valley of the lower Niemen, while in the south it falls away gently to the marshy tract of the Bebrz. The rivers flow there in deep gorges and valleys, diversifying the surface. Suwaki is watered by the Niemen, which forms its eastern and its northern boundary and is largely used as a channel of communication; it has many affluents from both slopes

of the swelling. The Augustowo Canal connects the navigable Hancza, tributary of the Niemen, with a tributary of the Bebrz, which belongs to the basin of the Vistula, and an active traffic is carried on on this canal. The population was 606,573 in 1883, the increase being 3400 during the year. It has a most varied composition, embracing Lithuanians (the prevailing element), who number about four-fifths of the whole (Zhmuds, 31.5 per cent.; Lithuanians proper, 10.3), Poles (28.4, of whom 5.3 are Mazurs), Jews (17.2), Germans (6.8, but they are rapidly increasing), and White Russians (4.6). In religion the Catholics are predominant (449,476 in 1883); the Jews come next (98,743); there are also 38,610 Protestants, 13,275 Orthodox Greeks, and 6246 Raskolniks.

Tertiary and Chalk deposits are widely spread in Suwałki, and the entire surface is covered with Post-Tertiary deposits. The bottom moraine of the great ice-sheet of North Germany, containing scratched boulders and furrowed by depressions having a direction north-north-east to south-south-west,¹ covers immense tracts of the ridge of the lake-districts and its slopes, while limited spaces are covered with well-washed glacial sands and gravel. On the northern slopes of the coast-ridge, the boulder-clay being covered with lacustrine deposits, there are at many places layers of fertile soil; and in the southern parts of the province the boulder-clay is very stony, and sometimes covered with gravel. Still, nearly nine-tenths of the surface are considered suitable for cultivation. Agriculture is the chief occupation, and potatoes are extensively grown for export to Prussia, where they are used for the manufacture of spirits, which are smuggled into the province. The manufactures are unimportant (600 workmen; annual produce valued at £124,000, one-half being due to distilleries). All manufactured wares are imported, mostly from Prussia; and all trade is in the hands of Jews. The educational institutions include two gymnasia for boys, one for girls, one seminary for teachers (at Weiwery), one Catholic seminary, and 196 lower grade schools, having altogether an aggregate of 13,193 scholars in 1884. Suwałki is divided into seven districts, the chief towns of which with their populations in 1882 were—SUWAŁKI (see below), Augustowo (11,100), Kalwarya (10,600), Mariampol (5610), Seiny (4085), Wilkowszki (6700), and Władysławow (9300). Wierzbolowo (3550), an important custom-house, situated on the railway from St Petersburg to Berlin, also has municipal institutions.

SUWAŁKI, capital of the above government, is situated at the source of the Hancza, tributary of the Niemen, 75 miles north-west of Grodno. In the 15th century it was but a small village, lost amidst forests, and peopled by Lithuanians. In the end of the 18th century it became the capital of the Augustowo government, but never had any importance, except as the seat of the local authorities. Since 1834 it has been the capital of the government of Suwałki. Its population was 18,640 in 1882.

SUWAROFF, or SUVOROFF, ALEXANDER VASILIEVICH (1729-1800), Russian general, was born at Moscow on 24th November 1729, the descendant of a Swede named Suvor who emigrated to Russia in 1622. Suwaroff entered the army at an early age and first distinguished himself at the battle of Kunersdorf in 1759, where he acted as aide-de-camp to General Fermor. Throughout the Seven Years' War he was conspicuous for his bravery and military skill. He next took part in the battles between the Russians and Poles at the period of the first dismemberment of Poland. Being afterwards transferred to the banks of the Danube (1773), he there in the campaigns against the Turks laid the foundation of his reputation as a military commander. In 1775 he put an end to the formidable revolt of Pugatcheff, who was brought in chains to Moscow and there decapitated. In 1789 Suwaroff defeated the Turks at Fokshani (Moldavia), and again in the same year on the Rinnik. In 1790 he took by assault the town of Ismail, on which occasion he sent his well-known couplet to the empress. On the termination of this war Suwaroff was summoned to another campaign against the Poles. After the defeat of Kosciuszko by Fersen at Macieowice in Siedlee (1794) he marched on

¹ Hedroits, in *Proc. Russ. Geol. Committee*, iii., 1884.

Warsaw, and captured its suburb Praga, where 15,000 Poles were massacred. Upon this the city capitulated, and the Russian general was made field-marshal. He remained in Poland till 1795 and was received in triumph on his return to St Petersburg. In November 1796 the empress Catherine, his firm friend and admirer, died. On the accession of Paul, who always laboured to undo his mother's work, Suwaroff fell into disgrace and was banished to his country-seat at Koutchanskoe in the government of Novgorod. There he remained some time in retirement. He unsparingly criticised the new military tactics and dress introduced by the emperor, and some of his caustic verses reached the ears of Paul. His conduct was therefore watched and his correspondence with his wife, who had remained at Moscow—for his marriage relations had not been happy—was tampered with. On Sundays he tolled the bell for church and sang among the rustics in the village choir. On week days he worked among them in a smock frock. But in February 1799 he was summoned by the emperor to assist in the campaign with the Austrians against the French. Suwaroff took command of the combined forces at Verona. He attacked Moreau, the French general, at Cassano, the ford of the Adda, and completely defeated him, taking about 3000 prisoners; he then made a triumphal entry into Milan. He next defeated Macdonald on the Trebbia in a sanguinary engagement which lasted three days, from the 17th to the 19th of June (1799). Soon afterwards Joubert was defeated and slain at Novi (15th August). But the importance of these successes was neutralized by the constant squabbles between Suwaroff and the Austrian commanders. The Russian general now received orders to join Korsakoff in Switzerland and to assist him in driving the French from that country. He accordingly crossed the Alps, suffering severe losses, but on his arrival learned that Korsakoff had been previously defeated by Masséna. It only remained for him to effect a retreat with the shattered remains of his army. He finally reached his winter quarters, between the rivers Iller and Lech, and thence directed his homeward march to Russia. The emperor Paul, who soon after this time entirely changed his policy and made an alliance with Bonaparte, recalled Suwaroff in disgrace, and on his return refused to see him. The veteran retired to his country-seat, where he died on the 18th of May 1800. Lord Whitworth, the English ambassador, was the only person of distinction present at the funeral of this remarkable man. He lies buried in the church of the Annunciation in the Alexandro-Neviskii monastery, the simple inscription on his grave being, according to his own direction, "Here lies Suwaroff."

Among the Russians the memory of Suwaroff is cherished as that of a great and successful general, but he hardly enjoys such a reputation among foreigners, who generally look upon his victories as due rather to the huge masses of men under his control than to military genius. His tactics seem to have been somewhat Oriental. He formed no general plans for his campaigns, but trusted to celerity of movement and blows rapidly struck. He was terribly reckless of human life, neither sparing his own soldiers nor showing mercy to the conquered. And yet we find him the subject of exaggerated eulogy among English writers in the early part of the 19th century. He was a man of great simplicity of manners, and while on a campaign lived as a common soldier, sleeping on straw and contenting himself with the humblest fare. But he had himself passed through all the gradations of military service, and had been for many years a private soldier; moreover, his education had been of the rudest kind. He affected the habits of a humourist, and his gibes procured him many enemies. He had all the natural contempt of a man of ability and action for ignorant favourites and ornamental carpet-knights. Droll stories, in keeping with the well-known eccentricity of his character, are told of his manner of life in camp.

SVEABORG, an important fortress of Finland, built by Count Ehrensward in 1749 on seven small islands off the harbour of HELSINGFORS (*q.v.*). It is the seat of a great naval harbour and arsenal.

SWABIA, SUABIA, or SUEVIA (Germ. *Schwaben*), is the name of an ancient duchy in the south-west part of Germany, afterwards transferred to one of the ten great circles into which the empire was divided in the reign of Maximilian I. (1493-1519). At present the official use of the name is confined to a province of Bavaria (capital, Augsburg), comprising a mere fragment of the former Swabia, but in common use it is still applied to the districts included in the old duchy. The duchy of Swabia was bounded on the N. by the Rhenish Palatinate, on the E. by the Lech (separating it from the duchy of Bavaria), on the S. by Switzerland, the Lake of Constance, and Vorarlberg, and on the W. by the Rhine. It corresponds roughly to the modern Württemberg, Baden, and Hohenzollern, with part of Bavaria. The circle of Swabia coincided more nearly than most with the duchy from which it was named, but was rather more extensive. It was bounded by Switzerland, France (after the cession of Alsace), and the circles of the Upper and Lower Rhine, Franconia, Bavaria, and Austria. Its area was about 13,500 square miles. The Swabian circle contained more independent states of the empire than any other, including the countship (afterwards duchy) of Württemberg, the margraviate of Baden, the principalities of Hohenzollern and Liechtenstein, a whole series of smaller secular and ecclesiastical principalities, and upwards of thirty free imperial towns (Augsburg, Ulm, &c.). Swabia is intersected from west to east by the Danube, and is one of the most mountainous (Black Forest, Swabian Jura) and picturesque parts of the German empire. It is also very fertile. The Swabians are a strong, big-framed, and good-humoured race, and, though in several popular legends the "Schwab" plays the part of a "wise man of Gotham," he is probably no denser than his neighbours.

The use of the name of Swabia in connexion with the south-west part of Germany, previously called Alemannia (see ALEMANNI), begins with the 5th century of our era, when the Suevi poured into the country and amalgamated with the Alemanni. It was not, however, till the 8th century, when the dukedom of Alemannia was abolished and Rhetia and Alsace separated from it, that Swabia became the recognized name of the district, henceforth administered by nunci camera, as representatives of the Frankish emperors. One of these nunci, who usurped the ancient title of duke of Alemannia, was executed in 917, but two years later Henry I. yielded to the popular will in allowing Count Burkhard I. to style himself duke of Swabia. The dukedom thus founded, which lasted for more than three centuries, repeatedly changed hands, and was generally conferred by the emperors and kings of the Saxon and Franconian lines on members of their own families. In 1079 it passed into the hands of Frederick I. of Hohenstaufen, the progenitor of a line of German monarchs, and under his successors Swabia had the reputation of being the most civilized and prosperous part of Germany. As, however, the Hohenstaufen line gradually lost strength in its hopeless struggle with the papacy, the Swabian nobles increased in power at the expense of the dukes, and several of them became "immediate." No duke of Swabia was appointed after the death of Conradin, the last of the Hohenstaufen, in 1268, and his place was henceforth filled in some degree by the count of Württemberg as *primus inter pares*. For the next 250 years or so the history of Swabia consists of an endless series of feuds between the different members of the duchy, mingled with more or less abortive attempts of the German emperors and others to restore peace. The lesser nobles fought with the greater nobles, the towns banded themselves together against both, and alliances and counter-alliances were formed and dissolved with bewildering rapidity. The "Schleglerkrieg" is the name given to a bloody contest between the counts of Württemberg and the lesser nobles in 1367. The most important of the various leagues formed by the towns was the "Schwäbischer Städtebund" of 1376, the point of which was directed against Württemberg. In 1488 the Swabian estates,—nobles, prelates, and towns,—weary of constant dissension, joined in the Great Swabian Confederation, the object of which was to maintain peace throughout the country. This league possessed a carefully drawn up constitution and exercised executive and judicial functions throughout the whole of Swabia, maintaining a standing army to give force to its decrees. Though not successful in completely abolishing war within Swabia, the confederation was by no means a failure. It was, for instance, the general of the confederation that put an end to the calamitous Peasants' War of 1525. The Reformation found

ready acceptance in Swabia. Württemberg, Ulm, and some of the other estates even joined in the Schmalkald League; but for this they afterwards had to pay large fines to the emperor, while the towns lost their democratic constitution, and with it most of their political importance. The outstanding feature of Swabian history, for some time afterwards may be said to be the struggle for supremacy between the Protestant Württemberg and the Roman Catholic Austria. In 1512, when all Germany was divided into ten circles, one of them was named the Schwäbischer Kreis, or Swabian Circle (see above). The circle received its complete organization in 1563, and retained it practically unchanged till the dissolution of the empire in 1806. Swabia suffered severely in the Thirty Years' War, and it was also one of the scenes of the struggles consequent on the French Revolution. But its modern history must be sought for under such headings as WÜRTEMBERG and BADEN.

SWAHILI (*Wa-Swahili*, *i.e.*, "Coast People," from the Arabic *sāhil*, coast), a term now commonly applied to the inhabitants of Zanzibar and of the opposite mainland between the parallels of 2° and 9° S., who are subjects of the sultan of Zanzibar, and whose mother-tongue is the Ki-Swahili language. According to present local usage no person would be called a Swahili unless he verified these two conditions. The Swahili are essentially a mixed people, in whom the Bantu and Arab elements are mingled in the proportion of about three to one; and the same is true of their speech, which of all the Bantu dialects has been most affected by Arab and other influences. The interest attaching to the Swahili people, who have figured so largely in the history of African enterprise during the last half century, is thus of a social rather than of a strictly scientific character. The energy and intelligence derived from a large infusion of Semitic blood has enabled them to take a leading part in the development of trade and the industries, as shown in the wide diffusion of their language, which, like the Hindustani in India and the Guarani in South America, has become the principal medium of intercommunication throughout most of the continent south of the equator. During his journey from the Indian Ocean to the Atlantic Commander Cameron found that a knowledge of this language enabled him everywhere to dispense with the aid of an interpreter, as it was understood by one or more persons in all the tribes along the route. Owing to this circumstance the intelligent and enterprising natives of Zanzibar have been found indispensable assistants in every expedition penetrating from the eastern seaboard to the interior since they began to be employed by Speke and Burton as porters and escorts. Missionary enterprise has been at work amongst the Swahili, who are all Mohammedans, but with poor results. The language, however, has been carefully studied, and is now better known than perhaps any other member of the Bantu family. There are several varieties, of which the chief are—the archaic Ki-Ngozi in the north about the river Tana, mostly free from foreign elements; the Ki-Mvita of the Mombasa district, reduced to writing by Krapf; and the Maneno Unguya of Zanzibar, which is most affected by Arabic, Persian, Indian, and other foreign influences, but which, nevertheless, is now the literary standard; of it complete grammatical treatises have been published, and into it portions of the Bible have been translated by Bishop Steere.¹

SWALLOW (A.-S. *Swalear*, Icel. *Svala*, Dutch *Zwaluw*, Germ. *Schwalbe*), the bird which of all others is recognized as the harbinger of summer in the northern hemisphere; for, though some slight differences, varying according to the meridian, are constantly presented by the birds which have their home in Europe, in northern Asia, and in North America respectively, it is difficult to allow to them a specific value; and consequently a zoologist of wide views,

¹ The language was first reduced to writing by the Arabs, who still use the Arabic character. But the European missionaries have wisely replaced this by the Roman system, which is far more suited for the transliteration of most African, and especially of the Bantu, tongues.

while not overlooking this local variation, will regard the Swallow of all these tracts as forming a single species, the *Hirundo rustica* of Linnaeus.¹ Returning, usually already paired, to its summer-haunts, after its winter-sojourn in southern lands, and generally reaching England about the first week in April, it at once repairs to its old quarters, nearly always around the abodes of men; and, about a month later, the site of the nest is chosen, resort being had in most cases to the very spot that has formerly served the same purpose—the old structure, if still remaining, being restored and refurnished. So trustful is the bird that it commonly establishes itself in any of men's works that will supply the necessary accommodation, and a shed, a barn, or any building with an open roof, a chimney² that affords a support for the nest, or even the room of an inhabited house—if chance should give free access thereto,—to say nothing of extraordinary positions, may be the place of its choice. Wheresoever placed, the nest is formed of small lumps of moist earth, which, carried to the spot in the bird's bill, are duly arranged and modelled, with the aid of short straws or slender sticks, into the required shape. This is generally that of a half-saucer, but it varies according to the exigencies of the site. The materials dry quickly into a hard crust, which is lined with soft feathers, and therein are laid from four to six white eggs, blotched and speckled with grey and orange-brown deepening into black. Two broods are usually reared in the season, and the young on leaving the nest soon make their way to some leafless bough, whence they try their powers of flight, at first accompanying their parents in short excursions on the wing, receiving from them the food themselves as yet unable to capture, until able to shift for themselves. They collect in flocks, often of many hundreds, and finally leave the country about the end of August or early in September, to be followed, after a few weeks, by their progenitors. The Swallows of Europe doubtless pass into Africa far beyond the equator,³ and those of Northern Asia, though many stop in India or Burmah, even further to the southward, occasionally reaching Australia, while those of North America extend their winter-wanderings to southern Brazil; but, whithersoever they then resort, they during that season moult their feathers, and this fact affords one of the strongest arguments against the popular belief (which, curious to say, is still partly if not fully entertained by many who should know better) of their becoming torpid in winter, for a state of torpidity would suspend all animal action.⁴ The chestnut forehead and throat, the shining steel-blue upper plumage, and the dusky-white—in some cases reddening so as almost to vie with the frontal and gular patches—of the lower parts are well known to every person of observation, as is the markedly forked tail, which is become proverbial of this bird.

¹ Dr Stejneger (one of the chief leaders in the recent American movement, the results though not the intention of which would be the subversion of much of the nomenclature of birds hitherto thought in Europe to have been established on tolerably firm principles) would apply to the Swallow the generic term of *Chelidon*, generally accepted for the MARTIN (vol. xv. p. 581), and to the latter *Hirundo*. Herein he is technically incorrect, for one of the first principles of zoological nomenclature has always been that a generic term, to be valid, must be defined. In the absence of definition such a term may be, by courtesy, occasionally accepted; but this courtesy has never been, nor except in America is likely to be, extended to the misapplication here in question.

² Hence the common English name of "Chimney-Swallow." In North America it is usually the "Barn-Swallow."

³ It must be noted that the Swallow has been observed in England in every month of the year; but its presence from the beginning of December to the middle of March is an extremely rare occurrence.

⁴ See John Hunter's *Essays and Observations in Natural History*, edited by Sir R. Owen in 1861 (ii. p. 280). An excellent bibliography of the Swallow-torpidity controversy, up to 1878, is given by Prof. Coues (*Birds of the Colorado Valley*, pp. 878-390), who seems still to hanker after the ancient faith in "hibernation."

Taking the word Swallow in a more extended sense, it is used for all the members of the Family *Hirundinidae*,⁵ excepting a few to which the name MARTIN (vol. xv. p. 581) has been applied, and this Family includes from 80 to 100 species, which have been placed in many different genera. The true Swallow has very many allies, some of which range almost as widely as itself does, while others seem to have curiously restricted limits, and much the same may be said of several of its more distant relatives. But altogether the Family forms one of the most circumscribed and therefore one of the most natural groups of *Oscines*, having no near allies; for, though in outward appearance and in some habits the Swallows bear a considerable resemblance to SWIFTS (*q. v.*), the latter belong to a very different Order, and are not Passerine birds at all, as their structure, both internal and external, proves. It has been sometimes stated that the *Hirundinidae* have their nearest relations in the FLYCATCHERS (vol. ix. p. 351); but the assertion is very questionable, and the supposition that they are allied to the *Ampelidae* (*cf.* WAXWING), though possibly better founded, has not as yet been confirmed by any anatomical investigation. An affinity to the Indian and Australian *Artanus* (the species of which genus are often known as Wood-Swallows, or Swallow-Shrikes) has also been suggested; and it may turn out that this genus, with its neighbours, may be the direct and less modified descendants of a generalized type, whence the *Hirundinidae* have diverged; but at present it would seem as if the suggestion originated only in the similarity of certain habits, such as swift flight and the capacity of uninterruptedly taking and swallowing insect-food on the wing.

Swallows are nearly cosmopolitan birds, inhabiting every considerable country except New Zealand, wherein only a stray example, presumably from Australia, occasionally occurs. (A. N.)

SWAMMERDAM, JOHN (1637-1680), may be ranked almost with Leeuwenhoek as one of the most eminent Dutch naturalists of the 17th century. Born at Amsterdam in 1637, the son of an apothecary and naturalist, he was destined for the church; but he insisted on passing over to the profession of medicine, meanwhile passionately devoting himself to the study of insects. Having necessarily to interest himself in human anatomy, he devoted much attention to the preservation and better demonstration of the various structures, and he devised the method of studying the circulatory system by means of injections, so doing the greatest service to practical anatomy. The fame of his collection soon became European; thus the grand-duke of Tuscany offered him 12,000 florins for his collection, on condition of his coming to Florence to continue it. His *General History of Insects* and other kindred works lie at the foundation of modern entomology, and include many important discoveries. Thus he cleared up the subject of the metamorphosis of insects, and in this and other ways laid the beginnings of their natural classification, while his researches on the anatomy of mayflies and bees were also of fundamental importance. His devotion to science led to his neglect of practice; his father greatly resented this, and stopped all supplies; and thus Swammerdam experienced a period of considerable privation, which had the most unfortunate consequences to his health, both bodily and mental. In 1675 he published his *History of the Ephemera*, and in the same year his father died, leaving him an adequate fortune, but the mischief was irreparable. He became a hypocondriac and mystic, joined the followers of Antoinette Bourignon, and died at Amsterdam in 1680.

SWAN (A.-S. *Swan* and *Swon*, Icel. *Svanr*, Dutch *Zwaan*, Germ. *Schwan*), a large swimming-bird, well known from being kept in a half-domesticated condition throughout many parts of Europe, whence it has been carried to

⁵ An enormous amount of labour has been bestowed upon the *Hirundinidae* by Mr Sharpe (*Cat. B. Br. Museum*, x. pp. 85-210), only commensurate, perhaps, with that required for an understanding of the results at which he has arrived. Nothing can better shew the difficulty of unravelling the many puzzles which the Family offers than this; and it is to be hoped that in his finely-illustrated *Monograph*, which is now in course of publication he will succeed in clearing up some of them.

other countries. In England it was far more abundant formerly than at present, the young, or Cygnets,¹ being highly esteemed for the table, and it was under especial enactments for its preservation, and regarded as a "Bird Royal" that no subject could possess without licence from the crown, the granting of which licence was accompanied by the condition that every bird in a "game" (to use the old legal term) of Swans should bear a distinguishing mark of ownership (*cygnetota*) on the bill. Originally this privilege was conferred on the larger freeholders only, but it was gradually extended, so that in the reign of Elizabeth upwards of 900 distinct Swan-marks, being those of private persons or corporations, were recognized by the royal Swanhound, whose jurisdiction extended over the whole kingdom. It is impossible here to enter into further details on this subject, interesting as it is from various points of view.² It is enough to remark that all the legal protection afforded to the Swan points out that it was not indigenous to the British Islands, and indeed it is stated (though on uncertain authority) to have been introduced to England in the reign of Richard Cœur de Lion; but it is now so perfectly naturalized that birds having the full power of flight remain in the country. There is no evidence to shew that its numbers are ever increased by immigration from abroad, though it is known to breed as a wild bird not further from our shores than the extreme south of Sweden and possibly in Denmark, whence it may be traced, but with considerable vacuities, in a south-easterly direction to the valley of the Danube and the western part of Central Asia. In Europe, however, no definite limits can be assigned for its natural range, since birds more or less reclaimed and at liberty consort with those that are truly wild, and either induce them to settle in localities beyond its boundary, or of themselves occupy such localities, so that no difference is observable between them and their untamed brethren. From its breeding-grounds, whether they be in Turkestan, in south-eastern Europe, or Scania, the Swan migrates southward towards winter, and at that season may be found in north-western India (though rarely), in Egypt, and on the shores of the Mediterranean.

The Swan just spoken of is by some naturalists named the Mute or Tame Swan, to distinguish it from one to be presently mentioned, but it is the Swan simply of the English language and literature. Scientifically it is usually known as *Cygnus olor* or *C. mansuetus*. It needs little description: its large size, its spotless white plumage, its red bill, surmounted by a black knob (technically the "berry") larger in the male than in the female, its black legs and stately appearance on the water are familiar, either from figures innumerable or from direct observation, to almost every one. When left to itself its nest is a large mass of aquatic plants, often piled to the height of a couple of feet and possibly some six feet in diameter. In the midst of this is a hollow which contains the eggs, generally from five to nine in number, of a greyish-olive colour. The period

¹ Here, as in so many other cases, we have what may be called the "table-name" of an animal derived from the Norman-French, while that which it bore when alive was of Teutonic origin.

² At the present time the Queen and the Companies of Dyers and Vintners still maintain their Swans on the Thames, and a yearly expedition is made in the month of August to take up the young birds—thence called "Swan-opping" and corruptly "Swan-hopping"—and mark them. The largest Swannery in England, indeed the only one worthy of the name, is that belonging to Lord Ichester, on the water called the Fleet, lying inside the Chesil Bank on the coast of Dorset, where from 700 to double that number of birds may be kept—a stock doubtless too great for the area, but very small when compared with the numbers that used to be retained on various rivers in the country. The Swanpit at Norwich seems to be the only place now existing for fattening the Cygnets for the table—an expensive process, but one fully appreciated by those who have tasted the results. The English Swan-laws and regulations have been concisely but admirably treated by the late Sergeant Manning (*Penny Cyclopædia*, xxiii. pp. 271, 272), and the subject of Swan-marks, elucidated by unpublished materials in the British Museum and other libraries, is one of which a compendious account, from an antiquarian and historical point of view, would be very desirable.

of incubation is between five and six weeks, and the young when hatched are clothed in sooty-grey down, which is succeeded by feathers of dark sooty-brown. This suit is gradually replaced by white, but the young birds are more than a twelvemonth old before they lose all trace of colouring and become wholly white.

It was, however, noticed by Plot (*N. H. Staffordshire*, p. 228) 200 years and more ago that certain Swans on the Trent had white Cygnets; and it was subsequently observed of such birds that both parents and progeny had legs of a paler colour, while the young had not the "blue bill" of ordinary Swans at the same age that has in some parts of the country given them a name, besides offering a few other minor differences. These being examined by Yarrell led him to announce (*Proc. Zool. Society*, 1838, p. 19) the birds presenting them as forming a distinct species, *C. immutabilis*, to which the English name of "Polish" Swan had already been attached by the London poulterers.³ There is no question so far as to the facts; the doubt exists as to their bearing in regard to the validity of the so-called "species." Though apparently wild birds, answering fairly to the description, occasionally occur in hard winters in Britain and some parts of the European Continent,⁴ their mother country has not yet been ascertained,—for the epithet "Polish" is but fanciful,—and most of the information respecting them is derived only from reclaimed examples, which are by no means common. Those examined by Yarrell are said to have been distinctly smaller than common Swans, but those recognized of late years are as distinctly larger. The matter requires much more investigation, and it may be remarked that occasionally Swans, so far as is known of the ordinary stock, will produce one or more Cygnets differing from the rest of the brood exactly in the characters which have been assigned to the so-called Polish Swans as specific—namely, their white plumage slightly tinged with buff, their pale legs, and flesh-coloured bill. It may be that here we have a case of far greater interest than the mere question of specific distinction,⁵ in some degree analogous, but yet in an opposite direction, to that of the so-called *Pavo nigriceps* before mentioned (PEACOCK, vol. xviii. p. 443).

Thus much having been said of the bird which is nowadays commonly called Swan, and of its allied form, we must turn to other species, and first to one that anciently must have been the exclusive bearer in England of the name. This is the Whooper, Whistling, or Wild Swan⁶ of modern usage, the *Cygnus musicus* or *C. ferus* of most authors, which was doubtless always a winter-visitant to this country, and, though nearly as bulky and quite as purely white in its adult plumage, is at once recognizable from the species which has been half domesticated by its wholly different but equally graceful carriage, and its bill—which is black at the tip and lemon-yellow for a great part of its base. This entirely distinct species is a native of Iceland, eastern Lapland, and northern Russia, whence it wanders southward in autumn, and the musical tones it utters (contrasting with the silence that has caused its relative to be often called the Mute Swan) have been celebrated from the time of Homer to our own. Otherwise in a general way there is little difference between the habits of the two, and very closely allied to the Whooper is a much smaller species, with very well marked characteristics, known as Bewick's Swan, *C. bewickii*. This was first indicated as a variety of the last by Pallas, but its specific validity is now fully established. Apart from size, it may be externally distinguished from the Whooper by the bill having only a small patch of yellow, which inclines to an orange rather than a lemon tint; while internally the difference of the vocal organs is well marked, and its cry, though melodious enough, is unlike. It has a more easterly home in the north than the Whooper, but in winter not unfrequently occurs in Britain.

Both the species last mentioned have their representatives in North America, and in each case the trans-Atlantic bird is considerably larger than that of the Old World. The first is the Trumpeter-Swan, *C. buccinator*, which has the bill wholly black, and the second the *C. columbianus* or *americanus*—greatly resem-

³ M. Gerbe, in his edition of Degland's *Ornithologie Européenne* (ii. p. 477), makes the amusing mistake of attributing this name to the "fourreurs" (furriers) of London, and of reading it "Cygne du pôle" (polar, and not Polish, Swan)!

⁴ Chiefly in the north-west, but Lord Lilford has recorded (*Ibis*, 1860, p. 351) his having met with them in Corfu and Epirus.

⁵ The most recent authorities on the Polish Swan are Stevenson, in separately-printed advance sheets (1874) of his *Birds of Norfolk* (vol. iii.), and Southwell (*Trans. Norf. & Norw. Nat. Society*, ii. pp. 253-260), as well, of course, as Dresser (*B. Europe*, vi. pp. 429-433, pl. 419, figs. 1, 2).

⁶ In some districts it is called by wild-fowlers "Elk," which perhaps may be cognate with the Icelandic *Aift* and the Old German *Elbs* or *Elps* (*cf.* Gesner, *Ornithologia*, pp. 358, 359), though by modern Germans *Elb-schwan* seems to be used for the preceding species.

⁷ Examples of both these species have been recorded as occurring in Britain, and there can be little doubt that the first has made its way hither. Concerning the second more precise details are required.