part of the province of Malmöhus. This formation consists partly of sandstones with impressions of plants (cycads, ferns, &c.), and partly of clay-beds with coal.

The Cretaceous formation occurs in the provinces of Malmohus and Christianstad. Also some spots of this formation are found in the province of Blekinge. The Cretaceous beds of Sweden belong to the most recent division of the Cretaceous formation (chalk and dan- ien). In many parts it has all the characteristics of a coast-deposit.

The most recent deposits of Sweden date from the Glacial and Post-Glacial periods. At the beginning of the Glacial period the height of Scandinavia above the level of the sea was greater than at present, Sweden being then connected with Denmark and Germany and also across the middle of the Baltic with Russia. On the west the North Sea and Cattegat were also dry land. On the elevated parts of this large continent glaciers were formed, which, proceeding downwards to the lower levels, gave origin to large streams and rivers, the abundant deposits of which formed the diluvial sand and the diluvial clay. In most parts of Sweden these deposits were swept away when the ice advanced, but in Skåne they often form still, as in northern Germany, very thick beds. At its maxi­mum the inland ice not only covered Scandinavia but also passed over the present boundaries of Russia and Germany. When the climate became less severe the ice slowly receded, leaving its mor­aines, called in Sweden *krosstenslera* and *krosstensgrus.* Swedish geologists distinguish between *bottengrus* (bottom-gravel, bottom moraine) and ordinary *krossgrus* (terminal and side moraine). The former generally consists of a hard and compact mass of rounded, scratched, and sometimes polished stones firmly imbedded in a powder of crushed rock. The latter is less compact and con­tains angular boulders, often of a considerable size, but no powder. Of later origin than the krosstensgrus is the *rullstensgrus* (gravel of rolled stones), which often forms narrow ranges of hills, many miles in length, called *åsar,* running generally, independent of the relief of the country, in a north-and-south direction or towards the south-east. They are of the same nature as the kames and eskers in Ireland and Scotland, and consist of rolled pebbles and sand. It is very probable that these åsar were formed on the bottoms of rivers which cut their way in the inland ice. During the disap­pearance of the great inland ice large masses of mud and sand were carried by the rivers and deposited in the sea. These deposits, known as glacial sand and glacial clay, cover most parts of Sweden south of the provinces of Kopparberg and Vermland, the more ele­vated portions of the provinces of Elfsborg and Kronoberg excepted. In the glacial clay shells of *Yoldia arctica* have been met with in many places *(e.g.,* near Stockholm). At this epoch the North Sea and the Baltic were connected along the line of Vener, Vetter, Hjelmar, and Mälar. On the other side the White Sea was con­nected by Lakes Onega and Ladoga with the Gulf of Finland and the Baltic. In the depths of the Baltic aud of Lakes Vener and Vetter there actually exist animals which belong to the arctic fauna and are remnants of the ancient ice-sea. The glacial clay consists generally of their darker and lighter coloured layers, which give it a striped appearance, for which reason it has often been called *hvarfvig lera* (striped clay). The glacial clay of the Silurian regions is generally rich in lime and is thus a marl of great fertility. The deposits of glacial sand and clay are found in the southern part of Sweden at a height ranging from 70 to 150 feet above the level of the sea, but in the interior of the country at a height of 400 feet above the sea.

On the coasts of the ancient ice-sea, in which the glacial clay was deposited, there were heaped up masses of shells which belong to species still extant around Spitzbergen and Greenland. Most renowned among these shell-deposits are the Kapellbackarne near Uddevalla. With the melting of the great ice-sheet the climate became milder, and the southern part of Sweden was covered with shrubs and plants now found only in the northern and alpine parts of the country *(Salix polaris, Dryas octopetala, Betula nana,* &c. ). The sea fauna also gradually changed, the arctic species migrating northward aud being succeeded by the species existing on the coasts of Sweden. The Post-Glacial period now began. Sands *(mosand)* and clays *(åkerlera* and *fucuslera)* continued to be deposited on the lower parts of the country. They are generally of insignificant thickness. In the shallow lakes and enclosed bays of the sea there began to be formed and still is in course of formation a deposit known by the name *gyttja,* characterized by the diatomaceous shells it contains. Sometimes the gyttja consists mainly of diatoms, and is then called *bergmj'öl.* The gyttja of the lakes is generally covered over by peat of a later date. In many of the lakes of Sweden there is still in progress the formation of an iron-ore, called *sjömalm,* ferric hydroxide, deposited in forms resembling peas, coins, &c., and used for the manufacture of iron.@@1 (P. T. C.)

*Flora.—*Of the whole area of Sweden about 132,000 square miles are covered with wild vegetation. This may be broadly divided into five different sorts, viz., the forest, bush, marsh, heath, and prairie vegetations, of which the first-mentioned covers by far the largest area, or upwards of 40 per cent. of the whole surface of Sweden. In the northern part of the country the fir *(Pinus sylvestris)* and the pine *(Pinus Abies)* are the predominating trees; south of Dal Elf the oak *(Quercus pedunculata),* and in the southern and south-western provinces the beech *(Fagus sylvatica),* are, together with the fir and pine, the forest-forming trees. Besides these, there are two species of birch *(Betula verrucosa* and *B. odorata),* which form considerable forests. The bush vegetation derives its character from various species of *Salix, Rubus,* and *Rosa,* from *Prunus spinosa* and several other species. The marsh vegetation is composed of some low bushes, of *Cyperaceæ, Gramineæ,* and a small number of dicotyledonous and large-flowered monocotyledonous plants. The heath vegetation consists princi­pally of social *Ericaceæ,* especially heather *(Calluna vulgaris),* and the prairie vegetation of a considerable variety of plants.

The Swedish phanerogamic flora is angiospermous, with about thrice as many dicotyledonous as monocotyledonous plants. The gymnosperms are only about 0·25 per cent. of the species of the flora. Its largest families are (in the order of number of species) *—Compositæ, Gramineæ, Cyperaceæ, Cruciferæ, Papilionaceæ, Rosaceæ, Personatæ, Ramrnculaceæ, Umbclliferæ, Alsinaceæ, Labiatæ,* and *Orchideæ,* the first-named being represented by 160, the last-named by 38 species. The number of families repre­sented amounts to 99. The largest genus of the flora is *Carex,* with 88 species. More than 250 genera are represented by only one species each. The whole number of phanerogamic species now known in Sweden is 1475. Of these only a very small number can be supposed to have originated in the country ; the greatest number have immigrated from the south or east after the Glacial period, or have been introduced in one way or another by man. Among the immigrated species about 400 are more or less generally spread over the polar countries of the present period, or are to be found in southern countries as alpine plants. The great mass of these Glacial plants, the earliest inhabitants of the country, are confined to the northern part of Sweden ; a smaller number are also to be found, or are only to be found, in the south and in particular localities ; a larger number—about 70 species—are abundantly distributed over the whole country.

The Glacial plants were followed and superseded partly by sub­arctic or subglacial species. Of these the Swedish flora has about 300, of which 50 are abundantly spread over the country, and 80 are pretty generally and abundantly distributed. The principal mass of the remaining species of the flora have immigrated in the same period as the oak, and have spread over the country south of Dal Elf, or also to the provinces immediately to the north of this river ; some are outlying steppe-plants ; some have entered with the beech, the last immigrated forest-tree of Sweden ; and a small number of species, now limited to the west of the country, have possibly entered during a period before that of the beech, when the climate was warmer and moister than at present. (F. K.)

*Fauna.—*After the close of the Glacial period a twofold immigra­tion of animals occurred,—from the south-west through Denmark, and from the north-east through Finland. Of the existing fauna, many species are widely spread. Especially in the north we find boreal circumpolar forms (wild reindeer, glutton, arctic fox, ptarmigan, several birds of prey, *Grallæ,* and aquatic birds). Others, such as the bear, the wolf, the fox, the magpie, &c., are to be found only in the Old World, but are represented in America by forms resembling them so much as to be regarded by many as only local varieties. Many of the commonest species, *e.g.,* the squirrel, the woodpeckers, the crow, most of the singing-birds, &c., though wanting in the New World, are distributed over Europe and parts of northern Asia.

Besides these we find also specially eastern, southern, and western forms, which have immigrated from widely separated regions. Thus, the northern hare, *Lepus timidus,* properly an inhabitant of Russia and Siberia, but also to be found in the mountainous tracts of central Europe, is common in most parts of Sweden, while the European hare, *Lepus europæus,* w’hich is spread over central and western Europe, and is also to be found in Denmark, is wanting. Most of the field-mice, and many birds which have an exclusively eastern range, have immigrated from Siberia. Among mammals, which nearly all belong to Europe, may be mentioned the roe-deer and the red-deer, the dormouse and the hedgehog; the last-named is common in central and southern Sweden. The elk is considered to have immigrated from the south.

Not very long ago the bear, lynx, and wolf were common in all the forests of northern and central Sweden, but their number has rapidly decreased during the last fifty years. The bear is now confined to the wildest mountain and forest regions of Norrland and Kopparberg län. The wolf was formerly common throughout the country, aud between 500 and 600 were killed annually fifty

@@@1 The geology of Sweden has been worked out principally by Hisinger, Forselles, Erdmann, Törnebohm, and others. A systematic geological survey of Sweden was set on foot by the Government in 1858. The geology of the fossiliferous strata of Sweden has been elaborated chiefly by Nilsson, Angelin, Linnarsson, Lind­ström, Nathorst, and others, and that of the Glacial and Post-Glacial periods by Sefström, Von Post, Torell, and others.