between Gothenburg and the Scaw the greatest depth is between 33 and 55 fathoms. The greatest part of the southern half of the Cattegat has a depth of less than 30 fathoms. The depth of the Sound generally is even less than 12 fathoms. The whole southern part of the Baltic between Sweden and Germany is very shallow. West of Bornholm the depth nowhere reaches 30 fathoms. East of Bornholm the sea is somewhat deeper, and a small area of a depth of 50 to 60 fathoms is found a little east of that island. The whole of that part of the Baltic which lies between Sweden and Russia is divided into two separate basins by a submarine bank. From the southern extremity of Gotland (Hoburg) there extends a nearly uninterrupted bank to the south-west as far as the Prus­sian coast. The depth on this bank nowhere reaches 30 fathoms. The shallowest parts are Hoburg Bank south of Gotland, Mittel Bank south-east of Gland, and Stolpe Bank off the Prussian coast. Between Fårö off the north coast of Gotland and the Gottska Sandö there extends a similar bank, which continues with a somewhat greater depth of about 30 fathoms as far north as Stockholm. The deepest part of the Baltic between these banks is situated in the north part between Landsort and the Gottska Sandö, the maximum depth being about 160 fathoms. Ålands Haf, the channel between the Swedish coast and the Aland Islands, is tolerably deep (100 to 160 fathoms).

The Gulf of Bothnia is divided into two basins by the channel of Qvarken; the southern is the deeper (about 50 fathoms), and the depth increases towards the north­west, where, over a small area off the island of Ulfö near the Swedish coast, it reaches 160 fathoms. The channel of Qvarken is very shallow (8 to 16 fathoms). The basin on the north side is also shallow. Only over a small area off Bjurö Cape does the depth exceed 160 fathoms.

*Climate.—*Sweden is situated between two countries of very dif­ferent climatological conditions. On the west there is the maritime climate of the Norwegian coast, and on the east the continental climate of Russia. It may be said that Sweden alternates between the two. Cold winters alternate with mild ones, and warm and dry summers with cool and rainy ones. But different parts of Sweden have also in this respect a greatly differing climate, of which we readily see the reason if we only recollect the character and the general features of the configuration of the country. Lapland and the western part of the country along the Norwegian frontier have a pronounced continental climate, and so has the high plateau to the south of Lake Vetter. On the other hand, the climate is more maritime the more we approach the coasts of the Baltic, and on the coast of the Cattegat and in Skåne the maritime climate distinctly predominates.

The following table gives the mean annual temperatures (Fahr.) at twenty-eight meteorological stations in Sweden, together with the means for January and July:—

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Station. | Annual. | Jan. | July. | Station. | Annual. | Jan. | July. |
| Lund | 44∙9 | 31∙3 | 61∙7 | Örebro | 41∙6 | 25∙8 | 62∙6 |
| Carlshamn .... | 44∙4 | 31∙1 | 61∙7 | Stockholm | 41∙4 | 26∙1 | 61∙4 |
| Calmar | 44∙2 | 30∙2 | 62∙1 | Carlstad | 41∙6 | 24∙9 | 62∙9 |
| Halmstad | 44∙8 | 30∙5 | 62∙7 | Vesterås | 41∙0 | 24∙7 | 62∙6 |
| Vexio | 42∙3 | 27∙5 | 61∙2 | Upsala | 40∙4 | 24∙5 | 61∙5 |
| Visby | 43∙4 | 30∙7 | 60∙3 | Falun | 38∙7 | 20∙8 | 61∙2 |
| Gothenburg .. | 44∙4 | 29∙8 | 62∙1 | Gefle | 40∙0 | 24∙5 | 61∙0 |
| vestervik | 42∙8 | 28∙1 | 61∙4 | Hernösand .... | 37∙1 | 20∙0 | 58∙9 |
| Jönköping .... | 42∙7 | 28∙6 | 61∙0 | Östersund | 35∙0 | 15∙3 | 56∙4 |
| V enersborg.... | 42∙3 | 27∙5 | 61∙1 | Umeå | 34∙4 | 15∙8 | 58∙8 |
| Skara | 41∙5 | 26∙0 | 60∙3 | Stensele | 31∙7 | 9∙5 | 57∙7 |
| Linköping | 43∙4 | 27∙8 | 63∙9 | Piteå | 33∙8 | 11∙2 | 60∙6 |
| Nyköping | 41∙5 | 26∙6 | 61∙4 | Haparanda.... | 31∙9 | 10∙0 | 59∙4 |
| Askersund .... | 41∙0 | 25∙1 | 61∙2 | Jockmock | 29∙1 | 3∙1 | 58∙0 |

From these figures it appears that, as mentioned above, the climate is most continental in the northern aud interior parts of the country, especially at the two stations of Lapland, Stensele and Jockmock, while it is more maritime on the coasts. For this reason the isotherms for January on the Scandinavian peninsula are linguiform. The warm sea off Norway causes the peculiarity that the western parts of Lapland, although situated at the greatest elevation above the sea, have not so cold winters as the interior parts round the great lakes. Still farther to the east the temper­ature increases again towards the coast of the Gulf of Bothnia.

Thus, for example, the isotherm of 10° F. enters Lapland from the north-east at about 68° N. lat., runs towards the soutli-west over the great lakes as far as about 641/2°, south of Lake Stor-Uman, makes there an abrupt bend towards the east, and runs in a north-easterly direction to Haparanda at the northern extremity of the Gulf of Bothnia. The isotherm of 23° F. runs from the great lake of Mjösen in Norway, north of Christiania, to the southern shore of Lake Siljan, or almost straight east, curves there to the north-east, and reaches the shore of the Gulf of Bothnia a little north of the mouth of Ljusnan. Finally, the isotherm of 30° runs from Gothenburg towards the south-east to the lake of Åsnen, curves towards the north-east, aud passes Calmar and the northern parts of the islands Öland and Gotland. On the summit of the plateau south of Vetter the mean temperature is of course lower than both north and south of the plateau. In July the temperature is almost constant all over the country. With the exception of the interior of Lapland the mean temperature varies generally between 59° and 62°. The warmest point is Linköping on the plain of Ostergötland, between Lake Vetter and the Baltic. The most temperate and most agree­able climate of the whole country is that of the Cattegat coast round Halmstad.

A good indication of the climate, especially that of the winter, is the time during which the freshwater lakes remain frozen. We have seen that nearly

one-twelfth of the

whole surface of

Sweden is covered

with water, and in

Finland the number

of the lakes is still

greater. In both

countries the times

of freezing and

breaking up of a

great many lakes

have been observed

for many years.

From these data we

can calculate the

length of the ice

periods. I f these

periods are entered

on a diagram, we

can draw out the

lines of equal ice

periods, or the equi-

glacial lines. The

accompanying map

shows these lines

for Sweden and Fin­

land. From it we

see that the glacial

period in the south­

ern part of the

country is 90 days,

while in the north­

ern part of Lapland

it has a duration of

no less than 230 of

the 365 days of the

year. The western

lakes of Lapland,

though the higher

in situation, have a

somewhat shorter

ice period than the eastern. The ice period is considerably length­ened on the great plateau south of Lake Vetter.

We have said above that in certain years the climate of Sweden is more maritime, in others more continental. Thus, for instauce, the annual mean temperature of Upsala has varied during the last 30 years between 43°·2 (1859) and 35°·0 (1867). The mean temperature of particular months varies of course in a still higher degree, especially during the winter; thus the mean temperature of January 1873 was 34°·3, but of January 1875 only 12°·2.

The difference between the means of the warmest month and the coldest is the so-called yearly range of temperature. In Sweden July is generally the warmest and February the coldest month. The difference between the January and July temperatures, how­ever, as given in the foregoing table, will show the yearly range approximately. It will be seen that this increases towards the north. For the same latitude, it is greater in the interior of the country than on the coasts.

As is easily understood, the periodic daily range of temperature is least during the darkest part of the year, during December and January, especially in the north part of the country round the polar line, and still farther north, where it is almost nil. The mean range for the whole country is in December only 2°. The