ture of 33° Fahr, (0o∙3 C.) charged with Radiolarians, *Polythalamæ, Globigerinæ, Biloculinæ, Dentalia,* and *Nonioninæ,* together with some Annelids *(Spiochætopterus* and *Cirratulus),* two Crustaceans *(Cuma rubicunda* and *Apseudes),* one Mollusc, two *Holothuriæ,* one *Gephyrea,* and one Sponge. Even at a depth of 15,900 feet animal life was found in unexpected profusion, the mud consist­ing almost entirely of brown and white *Foraminiferæ,* among them one Crustacean (a species of *Cuma).* But marine life is much poorer on the east coast, resembling that of Greenland.

Man does not live on Spitzbergen, and the attempts of the Swedes to winter there have for the most part proved failures, except in the case of the “Sofia” expedition, which succeeded in wintering without great loss, though not without suffering from scurvy. None but the Russian “Pomory ” (inhabitants of the Murman coast) have succeeded in enduring the arctic winters. The patriarch of Spitzbergen, the Pomor Staraschin (Starostine), spent no less than thirty-two winters (fifteen being consecutive) ou the islands, dying of old age in 1826. There was a time in the 17th and 18th cen­turies when thousands of Dutch, Danes, and others were attracted to Spitzbergen by the whale-fishing. Whole villages sprang up on the shores, the best being that of the Dutch—Smeerenberg—which is said to have been visited by 18,000 men in a single summer. The “right whale” having disappeared, the whalers ceased to visit Spitzbergen, and only quite recently an attempt has been made to renew the pursuit of the *Balænoptera boops.* The chief object of pursuit is the walrus, carried on by Norwegians ; sea-birds and eider are also occasionally sought.

*History.—*Spitzbergen was discovered in 1596 by William Barents, and his companion, Cornelius Rijp, is believed to have circumnavi­gated the archipelago. Nevertheless it was long considered as a part of Greenland, and described under the names of East Green­land, Newland, King James’s Land, until the old name of Spitz­bergen gained the ascendency. But long before Barents discovered it the Russians had known it under the name of Grumant (a word of unknown origin), and when Chancellor arrived at Archangel in 1553 he learned that the Russians visited Grumant for hunting purposes. After the 17th and 18th century whalers, the Russians began to visit the group, chiefly for walruses, seals, foxes, rein­deer, bears, and birds ; their huts and crosses are met with at very many places on the coast. Many wintered for several consecutive winters. Since 1830 their visits have almost ceased. The Nor­wegians began to visit the archipelago about 1795, and their small vessels now visit the Spitzbergen waters in considerable numbers. In 1822 a party wintered successfully, but later attempts have for the most part proved fatal on account of scurvy. To these ex­perienced arctic navigators—assisted by Norwegian *savants—*we are indebted for so many important discoveries in the Barents, Kara, and Siberian Seas.

Several expeditions have made Spitzbergen their base in attempts to reach the north pole. The Russian admiral Tchitchagoff visited it twice, in 1765 and 1766, and reached 80° 28' N. lat. John Phipps mapped the north of Spitzbergen in 1773, and reached 80° 37' N. lat. In 1818 Buchan and Franklin reached 80° 34' to the north of the archipelago. Clavering and Sabine in 1823 explored the islands, and Sabine made his remarkable magnetic observations, while Clavering reached 80° 20' N. lat. Parry, shortly after his return from his third voyage, went to Spitzbergen and reached 82° 44' N. lat. on sledges. In the same year the Norwegian geologist Keilhau visited the group and has related his experiences in a remarkable book, *Resa i Ost og West Finmarken.* The Swedish pro­fessor Lovén was the first to undertake, in 1837, dredging and geological explorations in Spitzbergen and its vicinity. Next year a body of French, Swedish, Danish, and Norwegian naturalists, among whom was Charles Martins, visited the western coast. From 1858 onwards the archipelago has been the object of a series of scientific expeditions. At the suggestion of Lovén, Otto Torell, accompanied by Nordenskjöld and Quennerstedt, opened the series, making many important observations and bringing home rich geological collections. In 1861 a larger expedition led by Torell, Nordenskjöld, Malmgren, Chydenius, and Petersen set out with the object of finding how far it was possible to obtain a measurement of an arc of meridian of sufficient extent. This aim was only partly accomplished, but the expedition returned with an invaluable stock of various observations. The work of the measurement of the arc was completed in 1864 by another expedition conducted by Nor­denskjold, assisted by Malmgren and Dunér, who returned again with a vast number of new and important observations. This ex­pedition was followed in 1868 by that of the “Sofia,” under Nor­denskjold, having on its scientific staff Holmgren, Malmgren, and F. Smitt, zoologists ; Berggren and Fries, botanists ; Lemström, physicist ; and Nauckhoff, geologist. They were prevented by ice from getting higher than 81° 42' N. lat. ; but, to use Oswald Heer’s words, the expedition “ achieved more and gave a wider extension to the horizon of our knowledge than if it had returned merely with the information that the ‘Sofia’ had hoisted her flag on the north pole.” In 1870 two young Swedish savants, Nauckhorst and Wilander, visited Spitzbergen in order to examine the phosphoric

deposits, and two years later a colony was formed in Ice Fjord, and a small railway constructed to work the beds. The attempt, how­ever, did not prove successful. Mr Leigh Smith and the Norwegian Captain Ulve visited and mapped parts of East Spitzbergen in 1871, returning with valuable information. They reached 81“ 24' N. lat. In the same year Mr Lamont visited the archipelago. In 1872 a great polar expedition set out to winter on Spitzbergen with the intention of attempting in the spring to advance towards the pole on sledges drawn by reindeer. But the expedition encountered a series of misfortunes. The ships were beset in the ice very early in Mussel Bay, and, six Norwegian fishing vessels having been like­wise overtaken and shut in, the expedition had to feed the crews on its provisions and thus to reduce the rations of its own men. The reindeer all made their escape during a snow-storm ; and, when the sledge party reached the Seven Islands, they found the ice so packed that all idea of going north had to be abandoned. Instead of this, Nordenskjold explored North-East Land and crossed the vast ice-sheet which covers it. The expedition returned in 1873 with a fresh store of important scientific observations, especially in physics and submarine zoology. In 1873 Drasche, the geologist, paid a short visit to Spitzbergen, and the Dutch polar expedition approached it in 1882. In 1882 the Swedish geologists Naathorst and De Geer made a journey to which we are indebted for most interesting data about the flora of the islands. In the same year a polar meteorological station was established at Cape Hordsen for carrying on the observations desired by the international polar committee. The year 1883 being very favourable, the Norwegian walrus-hunters Andreasen and Johannesen pushed to the north-east of Spitzbergen and discovered new land to the north-east of the archipelago apparently extending as far as 39° E. long.

*Bibliography.—*The literature of the subject is very voluminous, and for full bibliographical details reference must be made to such works as Chydenius’s *Svenska Expeditionen til Spetsbergen,* translated into German by Passarge (Jena, 1869); A. Leslie’s *Arctic Voyages of A. E. Nordenskjold* (London, 1879); and Chavanne’s *Bibliographie der Polar-Regionen,* 1878. The earliest maps of Spitzbergen up to 1864 have been reprinted in a Dutch publication *(Tijdschrift van het Aardrijkskundig Genotschap te Amsterdam,* pt. iii.) ; it contains the maps of 1596, 1612, 1625, 1634, 1642, 1648, and so on. *Petermann's Mittheilungen,* with *Ergänzungshefte,* the *Geographische Jahrbücher,* the *Imer* (journal of the Swedish Geographical Society), and the *Journal of the Roy. Geog. Society* con­tain more or less detailed accounts of all the Swedish expeditions up to date. The scientific results of the Swedish expeditions are embodied in very many papers, amounting to from 6000 to 7000 printed pages, reference to which will be found in the above-mentioned works and periodicals. Oswald Heer’s *Flora Fossilis Arctica* deserves special mention. Every volume of the memoirs and proceedings *(Handlingar* and *Förhandlingar)* of the Swedish Academy of Sciences contains some remarkable contributions to our scientific knowledge of the far north, and the same can be said of many volumes of the Christiania Academy of Sciences and the Swedish Geological, Botanical, and Zoological Societies. (P. A. K.)

SPLEEN. See Vascular System. For diseases of the spleen, see Pathology, vol. xviii. p. 376 *sq.;* also Malaria and Wool-Sorter’s Disease.

SPOHR, Ludwig (1784-1859), violinist and composer, was born at Brunswick on 25th April 1784, but spent his childhood at Seesen, where in 1789 he began to study the violin, and worked so industriously that at six years old he was able to take the leading part in Kalkbrenner's trios. He received his general education at the Brunswick gram­mar-school,—taking lessons on the violin from Kunisch and studying composition under Hartung. The little he learned from the last-named professor was the only theoreti­cal instruction he ever received, for, as he himself tells us, he taught himself to compose by studying the scores of Mozart. After playing a concerto of his own at a school concert with marked success, he was placed for a time under Maucourt, the leader of the duke’s band ; and so rapid was his progress that in 1798 he was able to start on his first artistic tour. This proved a failure ; but on his return to Brunswick the duke gave him an appointment in his band, and defrayed the expense of his future educa­tion under Franz Eck, in company with whom he visited St Petersburg and other European capitals. His first violin concerto was printed in 1803. In that year Spohr returned to Brunswick and resumed his place in the duke’s band. A visit to Paris was prevented by the loss of his favourite violin,—a magnificent Guarnerius, presented to him in Russia. Having played in Berlin, Leipsic, Dresden, and other German towns, his increasing reputation gained for him in 1805 the appointment of leading violinist at the court of the duke of Gotha. Soon after this he married his first wife, Dorette Scheidler, a celebrated harpist. At Gotha he composed his first opera, *Die Prüfung,* but did