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On the fossil flora of Greenland

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that these creatures fulfil the function of males, as Fritz Müller very distinctly perceived. Subsequently the cloacal pellicle is cast, carrying with it the skins of the Cyprids, and the cloaca opens.—*Comptes Rendus*, November 5, 1883, p. 1012.

On the Fossil Flora of Greenland. By Prof. O. HEER.

Through the author's researches 617 species of fossil plants are now known from Greenland, of which 335 belong to the Cretaceous and 282 to the Tertiary epoch. The Cretaceous plants occur in three distinct stages, described as the beds of Kome, Atane, and Patoot.

In the *Kome beds* vascular Cryptogamia (especially *Gleichenia*) and Gymnosperms (namely 10 Cycadeæ, forms analogous to the *Zamia*, and 21 Conifers, including 5 *Sequoia*) are found almost exclusively. The Dicotyledonæ are represented only by a single species, *Populus primæva*. The general character of the flora of these deposits, which may be compared with the Urganian strata, indicates a subtropical climate.

In the *Atane beds* there occur, besides vascular Cryptogamia (some of which are arborescent) and Gymnosperms (8 Cycadeæ, 27 Conifers; among others *Cycas Steenstrupi* with well-developed carpels), 90 species of Dicotyledonæ, the appearance of which was very sudden. Here also the flora indicates a subtropical climate. The Atane beds may be compared with the Cenomanian strata.

In the *Patoot beds* 20 vascular Cryptogamia, 18 Gymnosperms, 5 Monocotyledonæ, and 66 Dicotyledonæ have been found. Among the Conifers the most abundant species is *Sequoia concinna*, Heer (branches and fruits), nearly related to the Tertiary *Sequoia Couttsia*; *Sequoia Lanysdorfii*, Brgr., a Tertiary species, is also frequently met with. The Dicotyledons consist of birches, alders, elms, fig-trees, walnuts, oaks, and planes (the last two genera in great numbers); then come laurels, cinnamons, aralias, magnolias, &c. &c. The Patoot beds also contain marine animals, which enable us to make an exact comparison with the deposits of other countries, and approximate them to the Upper Senonian of Europe, consequently to the Upper Chalk.

The Tertiary flora of Greenland is derived either from an Eocene deposit or from Lower Miocene beds. It includes in all 282 species, 2 of which also appear in the Chalk; 20 others are derived from Cretaceous plants, but the rest show no relationship to the Cretaceous flora. Moreover, tropical forms are entirely wanting, so that the climate had been profoundly modified; the mean temperature of the year in Greenland at the epoch of the Lower Miocene must have been about 12° C. (=53°·6 F.), as evidenced by the presence of two fan-palms, *Magnolia*, *Sapindus*, *Dalbergia*, &c. The Tertiary flora of Greenland has 114 species like those of Europe.—*Bibl. Univ., Arch. des Sci.* October 15, 1883, p. 355.

On the Pelagic Fauna of the Swiss Lakes.

By Dr. O. E. IMHOFF.

The author gives a brief summary of the investigations hitherto