

patible with its being an embryo, and that it is more probable that the enclosed skeleton is that of a small individual which had been swallowed by the larger one as food. The specimen is in the Museum at Geneva.—*Verhandl. der Naturf. Gesellschaft in Basel*, part vi. p. 343, 1875.

On the Periodical Movements of the Leaves in Abies Nordmanniana.

By M. J. CHATIN.

Abies Nordmanniana is a Conifer which is now widely diffused, on account of the elegant coloration of its leaves, of which the lower surface is whitish, while the upper surface is of a fine deep green.

Now if this tree is observed early in the morning, or in the decline of the day, its foliage appears uniformly whitish; but in the middle of the day the green tint seems general. On attempting to explain this difference of coloration, it is found to result from a special position of the leaves, which varies during the day and during the night: in the former case the leaves are spread out upon the branch and present their upper surface, producing the greenish aspect of the foliage; during the latter period, on the contrary, it is the lower surface that is presented to the spectator; and this causes the whitish tint of the *Abies*.

Thus there is a *diurnal* and a *nocturnal position*. This merits particular attention on account of the phenomena which cause it: we see the leaves, which are at first horizontal, gradually erect themselves upon the branch, so as to become often nearly perpendicular to the branch; but at the same time this movement of erection is accompanied by a movement of torsion impressed upon the basal part of the leaf, and which may frequently traverse an arc of 90 degrees. In this respect the leaves of the upper branches seem to undergo a sort of accommodation which enables this torsion to persist in them, at least partially. This, however, is a peculiar fact which I shall only indicate at present, with the intention of treating it soon in more detail in another communication, in which I shall have the honour of presenting to the Academy the results furnished by experiments which will soon be completed, and which I have undertaken with the object of ascertaining, in *Abies Nordmanniana* and some other allied forms, the causes and mechanism of the phenomena here mentioned, and the analysis of which enables me to examine, in their principal details, these *movements of torsion*, upon which vegetable physiology possesses but few data. From another point of view their study enables us to extend to the Gymnosperms the existence of the spontaneous movements which old observers have indicated in many Dicotyledons, which M. Brongniart has described in several Monocotyledons, and which, as the present example clearly shows, occur in the three great divisions of phanerogamous plants. —*Comptes Rendus*, January 10, 1876, p. 171.



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