small term separation increases linearly with m ($\sim 0{\cdot}010\,m$). Accurate figures for the electronic frequencies cannot be obtained (~ 29750 cm.$^{-1}$) owing to the difficulties in computing the series down to their origins. If we denote by σ and ϵ the quantum numbers of the total electronic angular momenta parallel and perpendicular to the figure axis of the dipole, it appears from the analysis that the initial term contains distinct σ, ϵ components, while in the final state, $\sigma = 0$, $\epsilon = \frac{1}{2}$. The nuclear spacing of the molecule in its final state is $r_0 = 1{\cdot}10 \times 10^{-8}$ cm.

The above statements are in agreement with the hypothesis on the appearance of Q-branches in band spectra, and also point to some clear relations holding between this spectrum and those of the hydrides as they appear in the periodic table. All the known hydride spectra are associated with electronic transitions of the type $S \longrightarrow S$ or $S \rightleftarrows P$. These two types can sometimes be distinguished from each other by the fact that bands of the first type contain only P- and R-branches, while those of the second type have Q-branches in addition. This seems to be a general rule holding for all band spectra. Consequently we assign to the β-group of the NH spectrum a $^3P \longrightarrow {}^1S$ transition, where ^3P separations should agree in magnitude with those in the spectrum of the preceding atom, here carbon, which spectrum, however, is still imperfectly known.

While the spectrum discussed above apparently forms the spectrum of the non-vibrating molecule ($n_1 = 0$, $n_2 = 0$), the secondary maximum at λ 3370 with the faint triplets on both sides of it can be explained in detail as the corresponding first vibration spectrum ($n_1 = 1$, $n_2 = 1$).

The triplets in the β-group are of the same type as those forming the bands of the second positive group of nitrogen. It is, however, interesting to note here that the regular alternation of intensity observed in the short-waved component (a narrow doublet) of the N_2 triplets has no counterpart in the NH triplets, the components here being all single so far as can be judged from our spectrograms. This also confirms the assumption of Mecke, according to which such anomalies are to be found in the spectra of symmetric molecules as H_2, He_2, HCCH, N_2 (see also Slater's hypothesis on this problem, NATURE, April 17, 1926, p. 555).

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Icebergs in Relation to Water-Temperature.

IN an article in NATURE of Nov. 20, p. 750, which discusses means of enabling a vessel to detect the proximity of icebergs at sea, a remark is made which indicates that the attempt to do so by means of the temperature of the water has proved unavailing. When the conditions are considered it could scarcely be otherwise. I was impressed by this during two seasons spent in investigating the currents in Belle Isle strait, in 1894 and 1906, when the matter was looked into.

In that strait the surface water may warm up to 57° F. in summer, while the deeper water remains little above freezing point. Hence, with a heavy wind across the strait, the surface water may be driven to the leeward shore, allowing the cold under-water to come up to the surface. A vessel on its way through the strait might thus find the temperature so low as 45° or even 35° in the summer time, which is a large change compared to any lowering of the temperature by ice.

It is also to be noted that in currents at sea the velocity decreases from the surface downward; and an iceberg which may have a draught of 150 feet to 300 feet (as shown by the depth in which it grounds) will move at the average velocity of the current between the surface and that draught. Accordingly, there is normally a flow of surface water past an iceberg, due to difference of velocity, when it travels in a marine current. The only chill to the water is therefore in the tailing or wake, on one side of the iceberg, in the line of flow. Unless a vessel approaches towards that side it would detect no difference in the water temperature.

The amount of chill in the region of Belle Isle strait, in water which is already cold, was investigated with a boat, going close up on all sides of the icebergs. When the general surface temperature was 35·5° F. the water tailing from an iceberg was 35°, while on its other sides no difference was found. A small berg aground in a bay in which the surface temperature ranged from 34° to 34·5°, chilled the water to 33·5° close around it. In the case of a large iceberg (780 feet by 290 feet at the water-line, and aground in 57 fathoms) the water temperature, 37°, did not vary within 130 feet of it. Such small differences could not be considered as an indication of practical value, especially when within a few hundred feet of the bergs.

Nevertheless, Dr. H. J. Barnes was hopeful of more definite indications by means of his highly sensitive thermometer, especially near the meeting-place of the Labrador Current and the Gulf Stream, where the water is warmer and almost motionless. But a further feature was encountered under these conditions; for the water chilled by the iceberg sank vertically down from its sides. With an iceberg in relatively warm and still water there is thus theoretically a movement of the surface water inward towards the berg, instead of any spread of chilled water around it. The lowered density of the sea water due to dilution from the melting ice does not seem to counteract this, because of the rapid rate of increase in the density of water with fall of temperature.

When such conditions are understood, the uncertainty of any temperature warning against floating ice will be appreciated.

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The Chromosome Number in *Dactylis glomerata* (Cocksfoot).

IT is only recently that the attention of cytologists has been directed to the ascertaining of the chromosome number in the herbage grasses. In a letter to NATURE of Dec. 11 (vol. 118), p. 841, Mr. Gwilym Evans states that he has discovered the number in the Lolium spp. and has given a tentative estimate of the number in the two varieties of *Festuca elatior*.

Whilst engaged at the Welsh Plant Breeding Station, Aberystwyth, in carrying out preliminary investigations on the genetical behaviour of *Dactylis glomerata*, it was thought expedient to ascertain the chromosome number of this species. The nuclear divisions, both somatic and meiotic, have been extensively investigated; the root-tips being selected as the most promising material for an examination of the somatic, whilst the meiotic divisions were studied in the anther.

The root-tips were fixed in Flemming's Solutions, in some cases a little modified. For the fixation of the anthers, Flemming's Solutions proved entirely unsuitable. Excellent fixation was, however, obtained with Bouin's Picro-formol and with Allen's modifica-