and constructed in the shop of this laboratory. The new plates show clearly that the bands of the *B-A* system, originally analysed by Dieke and Hopfield, consist of *R* and *P* branches only, in contrast to Hori's assumption of an *R* branch plus coincident *P* and *Q* branches. On this new interpretation a complete verification of the combination principle has been obtained. The lines show clearly the alternating intensity to be expected for a symmetrical molecule.

While this work was in progress there appeared an article by Kemble and Guillemin (*Proc. Nat. Acad. Sci.*, **14**, 782; 1928), in which they conclude, on theoretical grounds, that the *B-A* bands must consist of *R* and *P* branches only. Using the published data of Dieke and Hopfield (*Phys. Rev.*, **30**, 400; 1927) and of Witmer (*Phys. Rev.*, **28**, 1223; 1926), they then calculated, on this interpretation, a moment of inertia for the *B* level of 1.51×10^{-40} . Because of the incompleteness and relative inaccuracy of the data, no great accuracy is to be expected for this value.

Our own data are far more complete and accurate, the lines having been measured directly against first order iron standards. The spacing of the rotational levels (values of ΔF) for the band progression B_0-A_n fulfils accurately the expected relations between the vibrational and rotational energy constants. Hence it is possible to obtain a very trustworthy value of the moment of inertia. Using the best analytic method now known, we obtain on the basis of the old quantum mechanics, for the zero vibrational level of the *B* state, $B_0 = 19.46 \pm 0.04$, giving with the usual constants, $I_0 = (1.423 \pm 0.003) \times 10^{-40}$ gm.cm.². The rotational energy is given by $B_0 h m^2 + D_0 h m^4 + \dots$, with *m* a half-integer to within about 0.005. In obtaining the calculated value of $D_0 (= -4B_0^3/\omega_0^2)$ we used $\omega_0 = 1330$ cm.⁻¹, derived by us from the recent accurate data of Richardson and Davidson (*NATURE*, **121**, 1018; 1928), in place of the value 1325 given in the table previously mentioned. Analysis of the higher vibrational levels of the *B* state is in progress.

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University of California,
Jan. 1.

Homing of an Owl.

THE following authentic case of the homing of an owl is of general interest in connexion with the fascinating, but often very baffling, problem of how animals find their way about.

A pair of Cape barn owls (*Strix flammea maculata* Brehm.) had taken up their abode in the roof of the verandah of the homestead of Mr. F. C. Pope-Ellis in Natal (Ashburton, altitude 2302 ft.), and one of the fledglings was reared by hand. One of the wings was afterwards partially clipped, and this prevented any great power of flight. The bird was free, but was quite tame; it was fed regularly by hand and never appeared to go far from the homestead. With the clipped wing the bird was unable to fly more than about fifty yards without alighting, and it was never seen to fly to any appreciable height in the air. It retired at will to a sheltering box provided for it.

At the age of seven months the owl was taken (Dec. 3, 1928, at 9 A.M.) in a closed box by motor-car to another farmstead (Cotswold, altitude 4807 ft.) which is distant about sixty miles from the first-mentioned farm. In its new quarters the bird remained for four days and then disappeared. Eight days later, at 6 A.M., it was found in its shelter at its original home and in a perfectly placid condition.

Thus in eight days the young bird, with weak powers

of flight owing to its cut wing, travelled sixty miles over hilly and much broken country, including both bush and veld. How did the bird find its way back?

We cannot invoke racial memory as in the case of a fixed annual migration to a distant land. Apparently the only other alternatives are: (1) that in its original home the bird had acquired a general knowledge of the major distant features of the landscape and was led back by such clues, or (2) that it was conducted back by certain orientating influences, the nature of which we can only dimly surmise.

The tendency at the present time is to deny the existence of these obscure directing influences in the homing of animals; and in the case of pigeons, bees, etc., it seems to be experimentally proved that the ability to return depends mainly on the recognition of clues in the surroundings which show the way home.

The existence of recondite influences which are capable of directing movement is, however, evidenced by the assembling of male moths around the female, and it is extremely probable that the meeting of the sexes in many animals is largely affected by analogous influences.

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Anomalous Magnetic Rotation of Excited Neon.

IN a paper on the anomalous magnetic rotation in excited neon (*Phys. Rev.*, **32**, 681; 1928), I published values of the dispersion constants determined from the anomalous rotation which were erroneous. Due to the omission of the factor $\pi/180$ from the numerical part of equ. (4) of that paper, the values of the dispersion constants given are much larger than they should be. If this factor is included, the values so found are considerably smaller than those of Kopferman and Ladenburg, instead of much larger. This result is also more in accordance with what one might expect from their work on the effect of the different conditions of excitation on the anomalous dispersion. The pressure in the tube and the exciting current used by me were both such as to give results considerably below the maximum, whereas the values of Kopferman and Ladenburg are saturation values.

The corrected values for each wave-length are given below in the second column, in comparison with those of Kopferman and Ladenburg in the third column.

6266	.	0.55 × 10 ¹¹	2.15 × 10 ¹¹
6532	.	0.34	1.36
6163	.	0.31	1.32
6506	.	0.75 × 10 ¹¹	3.38 × 10 ¹¹
6382	.	0.60	2.45
6096	.	0.44	2.15
6074	.	0.29	1.40
6304	.	0.22	0.9
6029	.	0.24	-0.6
6402	.	3.06 × 10 ¹¹	7.25 × 10 ¹¹
6143	.	1.14	2.16
6334	.	0.97	3.26
5944	.	0.58	1.59
6217	.	0.34	0.9
5881	.	0.35	1.0
5975	.	0.28	-0.5

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