

Moreover, their curve on p. 548, fig. 1, shows that the normal serum of Cancer is fully saturated at little over 40 mm. But if this were not so, it is not necessary to subject the serum to a pressure of 360 mm. oxygen to ascertain whether the blood is fully saturated. Since the curve for normal serum is itself determined as a preliminary procedure, such information is provided by the fact that over the greater part of the range of pressures employed, the curve is asymptotic to a line parallel with the abscissa.

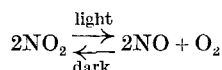
I may further add that the colorimetric method employed is not, as the Stedmans state, a modification of the one proposed by Redfield and Hurd. The colorimetric method for determining the dissociation curve of hæmocyacin advocated by Mr. Pantin and myself (*Jour. Marine Biol. Ass.*, 1925) is in both essential points entirely different from that which Redfield and Hurd applied to the study of *Limulus*.

Zoology Department,
McGill University,
Dec. 4.

LANCELOT HOGBEN.

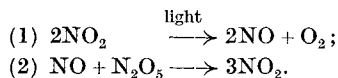
Decomposition of Nitrogen Pentoxide.

IN a recent paper read to the Chemical Society on December 2 last, I described experiments which show that when nitrogen peroxide is illuminated by light from the mercury vapour lamp a photochemical stationary state of the nature



is set up. This change involves a slow but perfectly reversible pressure increase in the gas when illuminated. The light from the mercury vapour lamp between 4360 Å.U. and 3650 Å.U. was shown to be probably wholly photochemically active, but the experiments did not show definitely if light of longer wave-length than this contributed to the effect, since the mercury spectrum is weak between 5460 Å.U. and 4360 Å.U. In view of these results, it does not seem advisable to retain Fazel and Karrer's hypothesis of the photochemical decomposition of nitrogen pentoxide in the presence of nitrogen peroxide (*J.A.C.S.*, 28, 2837, 1926). Arguing from the apparent analogy with other photosensitised systems, these authors suggest that photoactive molecules of NO_2 activate molecules of N_2O_5 by collisions of the second kind, and bring about the decomposition of the latter.

In view of the experiments referred to above, a more probable explanation of the effect of the nitrogen peroxide would seem to be according to the following scheme:



In the absence of N_2O_5 the reverse of equation (1) occurs. If nitrogen pentoxide be added to the system, reaction (2) occurs in preference to the reverse of reaction (1), since it is a bimolecular change, while the latter is definitely termolecular (Bodenstein and Lindner, *Zeit. Phys. Chem.*, 100, 87, 1922). It would therefore appear that the decomposition of nitrogen pentoxide is not a true photosensitised reaction, but rather a secondary dark reaction occurring between the nitrogen pentoxide and one of the products of photochemical decomposition of nitrogen peroxide. It is obvious from this explanation that nitrogen peroxide should have no effect on the thermal decomposition of nitrogen pentoxide, in

agreement with the experiments of Hirst (*J.C.S.*, 127, 657, 1925), and of White and Tolman (*J.A.C.S.*, 47, 1240, 1925).

R. G. W. NORRISH.

Department of Physical Chemistry,
University of Cambridge,
Dec. 9.

Winter Thunderstorms in the British Isles.

APPEALS were made on several occasions during last winter for reports of any thunder or lightning which might be observed during the first three months of 1926. The census of storms was carried out in conjunction with the Meteorological Office, and efforts were made to secure the co-operation of observers in all parts of the British Isles. Between two and three thousand records were sent in, showing the number of days on which thunder or lightning was reported from each country, between Jan. 1 and Mar. 31, 1926, to be as follows:

1926.	England and Wales.	Scotland.	Ireland.	British Isles.
January . . .	17	4	15	21
February . . .	11	6	5	13
March . . .	9	11	6	15
Totals (3 months)	37	21	26	49

The figure—49 days—for the British Isles is eight days less than that obtained during the same period in 1925. The number of days for Scotland and Ireland is very probably too low, on account of the small numbers of observers in those parts.

In England and Wales there were four very prominent stormy areas: one of these was in south-west Yorkshire and south Lancashire, and another was the district round the Severn Estuary. There was a belt of country free from storms in the Midland counties: a similar feature has been noticed in previous winters.

The investigation is being continued during the present season, and I shall be very grateful for reports of any thunder or lightning which may be observed by readers of NATURE before April 1 next. A note of the place, date, and time of the occurrence, with the direction in which the lightning is seen, especially at night, will be very valuable. Any additional information of the following character will be welcome:

1. The time when the storm passed overhead, or was nearest, with its direction; how long it lasted.
2. Severity of storm; much or little thunder, or lightning.
3. Whether it was accompanied by rain, hail, or snow.
4. Direction and strength of wind; change of wind (if any).
5. Whether there was a change in temperature during the storm.

S. MORRIS BOWER.

Langley Terrace,
Oakes, Huddersfield, Jan. 8.

The Infra-Red Spectrum of Hydrogen.

IN view of the considerable attention given to the secondary spectrum of hydrogen in recent investigations, it may be worth announcing that this spectrum has been extended photographically so far as 9300 Å.U. into the infra-red. Neocyanin plates were used, hypersensitised by an ammonia bath. About 170 additional lines to those recently published by Allibone (*Proc. Roy. Soc. A.*, 112, 196, 1926) were measured, about 120 of these being above his uppermost limit. Some of the more intense lines beyond