potential of a substance has been established by Richardson, no further information on the nature of the a and b constants has been submitted so far.

I find on examination of the latest experimental data of S. Dushman, I. Langmuir, K. H. Kingdon, L. R. Koller, J. J. Weigle, C. Davisson and L. H. Germer, that, with absolute acceptance of those results for which greatest experimental accuracy may be claimed, and making slight allowance in those cases when, according to the investigators' records of experiments, and, in the case of S. Dushman, in accordance with the investigator's own opinion, such allowances appear to be warranted,

(1) 'a' can be expressed as an exponential function of molecular volume

$$a = Be^{-nv}$$

when B and n are constants.

(2) 'b' can be expressed as a hyperbolic function of molecular volume

$$b = Cv^{-m} - K$$

when C, m and K are constants.

There certainly may be doubt as to the validity of the 'a' equation, as, unfortunately, only six elements are available, and of these, three and two each give a common point on the semi-long curve.

No such doubt is attached to the validity of the 'b' equation, only one element, sodium, out of the fourteen elements, as divergent as tungsten and cæsium, appearing to be seriously out, and even in that case the discrepancy is capable of reduction in the light of Kingdon's equation.

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Seasonal Sunshine in Great Britain.

IN reading the correspondence by Messrs. Harding and Phillips, in NATURE of May 29, regarding the rival claims of the south-east and south-west of England as to sunshine, it seems desirable to point out that in over-stressing quite trivial differences there is some danger of losing sight of the really important climatic fact of sensible equality between the two districts. The difference, for example, quoted between the average daily amount of sunshine through the year, namely, 4·53-4·49 hours, is just about two minutes a day in favour of the south-western counties. Even if such a difference deduced from a limited number of stations over no more than 35 years is real, which may be doubted, it could scarcely be of any medical or other practical importance.

Mr. Phillips objects to the inclusion of South Wales with the south-west counties on the ground that it lowers the sunshine values for the south-west district. The fact, however, that it does so rather tells, in my opinion, in favour of the south-east district, because the sunny conditions of the entire south coast of England stretch much farther north up the east coast than they do up the west coast, leaving the south-east district more centrally situated in the bright belt than the south-west. This may be verified from the sunshine maps in "Book of Normals," Sect. III., and may have some significance.

Sunshine is one of several elements that indicate a sharper seasonal variation when the daylight quarters are employed in preference to the thermal quarters which lag a month behind, namely, November-January, rather than December-February, etc. Still better is the seasonal variation exhibited by taking the four-month summer and winter (May-August) and (Nov.-Feb.) respectively, with the two pairs of equinoctial months for spring and autumn—a scheme coming increasingly into vogue. The English climate is such that the average meteorological sunniness or percentage of possible amount varies in the same sense as the astronomical sunniness or length of day. The result is that the actual amount of sunshine exhibits a very close relationship to the solstices in a land where the days are only $7\frac{1}{2}$ hours at the low solstice and as much as $16\frac{1}{2}$ hours at the high solstice. There are some climates, on the contrary, where, with cloudy summers and clear winters, the summer excess of sunshine is but slight.

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Spatial Relations in a Dream.

IN a letter in NATURE of March 17, 1923, Mr. Gheury de Bray described some observations on time relations in a dream. He mentioned that hypnopompic (or hypnostrophic) images "are generally landscapes passing slowly before one's closed eyes, when in an almost awake condition . . . and having one's full reasoning powers while the illusion proceeds." It seemed "that the speed of succession of the images is an inverse function of the degree of wakefulness." A recent experience would tend to confirm these observations. A succession of faintly coloured landscape images was followed by a less ephemeral and apparently more vivid landscape, while there intruded, at first faintly, then more distinctly, sounds which became identified as knocking on the door. In the dream, the image (a well-known landscape) appeared as if the observer were in a vertical position. But after (? during) the disturbing sounds, an awareness of the actual (*i.e.* horizontal) position of the observer resulted in a conformable orientation of the image. As the observer was lying on his right side, the image seemed to have rotated 90° to the right, and thus the same relative position of observer and image, and also the continuity of the dream, were apparently preserved until completion of the wakening process.

J. H. KENNETH.
The Homestead, Clynder,
Dumbartonshire, June 6.

Television or Teleoptics?

Is it too late to enter emphatic protest against admitting into English vocabulary such an excruciating hybrid as 'television'? I am afraid it is, otherwise this term would not have appeared in this journal (July 3, p. 18) as the title of A. R.'s interesting paper, thereby receiving the *cachet* of NATURE. Hitherto the terminology of science has been framed in scrupulous conformity with the unwritten law or rule against the fusion of different languages in a compound vocable. In this case there is all the less occasion for relaxing the rule because there is ready to hand the term τὰ ὀπτικά, employed by Aristotle to denote all that relates to vision—optics. Surely 'teleoptics' would be as convenient a name as the cacophonous 'television,' and would not upset the equanimity of pedants like myself.

HERBERT MAXWELL.
Monreith.

Rotation and Relativity.

THE case of a vortex ring appears to have a special bearing on the question of rotation in relation to the relativity theory. An observer regarding such a ring can establish definitely that the ring is rotating with respect to himself, but not he with respect to the ring, as in the latter case he would see the ring pass round him, himself passing through the ring (together with the rest of the universe) at each revolution. These two cases are not equivalent, and it is suggested that this affords proof that rotation is not relative, but absolute.

A. JAQUES.
J. S. MORGAN.
Liverpool, July 19.