

Cases I., II., and III. would involve treating Rafinesque's Caretteri (April 1810) and his Indice (May 1810) as two parts of one and the same paper.

The rigid enforcement of the rules would retain *Carcharias* vice *Odontaspis*, *Eulamia* vice *Carcharhinus*, and *Carcharhinus* vice *Carcharodon*.

IV. In *Aëtobatus*, *Raja* (*Aëtobatus*) *vulgaris* to be understood as *Raja aquila*, for which it was obviously intended. This replaces *Myliobatis* Cuvier and leaves *Stoasodon* for *narinari*.

V. Suppression of "Synoptisches Verzeichnis . . . der Baikalflohkrebse" in *Bull. Internat. Acad. Pol. Sci. et Let.*, 1926, pp. 1-77, from nomenclatorial consideration. Examples of generic names used: *Siemienkiewicziechinogammarus*, *Cancelloidokytodermogammarus*, *Loveninuskytodermogammarus*, *Parapallaseakytodermogammarus*.

VI. *Lithostrotion striatum* Fleming, 1828, to be declared genotype of *Lithostrotion*, in place of *L. floriforme* designated by Edwards and Haine, 1851.

Zoologists interested in these cases are cordially invited to communicate their views to the Commission not later than Jan. 1, 1928.

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Odours and Visual Imagery.

THE relative inhibition of cortical brain functions and the progress of uncritical activities, such as imagery, during the initial and terminal phases of sleep (cf. NATURE, Aug. 7, Sept. 11, and Oct. 30, 1926), may find a parallel in certain cases of visual imagery induced by odours. The following illustration may be of interest. A small bottle containing methyl salicylate was associated consciously and deliberately with a number of circumstances in which some experiments had been carried out three or four years ago. On withdrawal of the stopper, the odour induced a visual image of a medical practitioner in a bedroom, merging into the image of a table with a tumbler of water and a spoon. Afterwards, the image, or images, were found to be as blended as the content of a dream, since the room, the doctor, and the table, had to be referred to widely separated times and places. *Litera odorata manet*.

The similarity between such a smell association and dream phenomena calls to mind the argument put forward by Dr. Halliday (*Glasgow Med. Jour.*, Mar. 1926) as to the correspondence between verbal aphasia conditioned by deterioration of the neo-pallium and the natural aphasia as regards names for smells, due to the absence of higher integrating levels in the archi-pallium.

The above considerations, together with numerous records of smell associations, reinforce a suggestion (*Brit. Med. Jour.*, 1922, i. p. 904) that odours should be used in psycho-analytical practice. In the treatment of neuroses on analytic lines, the overcoming of a high resistance in certain patients by means of images recalled by olfactory stimuli has been found recently to be of some considerable practical value.

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Effect of Temperature on the Refractive Index of Rocksalt.

WE are writing to direct attention to a source of error which may occur in spectroscopic investigation of the infra-red region of the spectrum. On reviewing the literature in which experimental work in this

region is reported, we find that usually no note is made of the temperature of the prism at the time when the experiment is being conducted. In the course of investigations which we have been carrying on for some time on the absorption of gases in the near infra-red, we have had occasion to observe the important effect of temperature on the refractive indices of rocksalt and fluorite. Thus, a variation of 5° in the working temperature would result in a difference of so much as 0.075 μ (about 180 wave numbers) in certain parts of the near infra-red.

The commonly adopted practice of accepting the 4.4 μ emission band of carbon dioxide, or the quartz reflection bands, as bench marks is misleading unless combined with suitable temperature corrections of the prism used. It is our intention in the near future to deal with these matters fully and to describe the procedure we adopt to ensure greater accuracy in the determination of infra-red bands with prism apparatus.

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The Industrial Revolution.

MISS BUER, in NATURE of May 7, p. 671, is, I think, under a wrong impression in stating that the use of Newcomen's engine (in England) was not widespread. Statistics are not available, but in 1769, John Smeaton obtained a list of 99 engines that had been erected in the Newcastle-upon-Tyne district alone. Pryce, in "Mineralogia Cornubiensis," 1778, gives the figure for Cornwall as 60 at that date. We have to reflect that the materials of one such engine might cost £1000, and its annual upkeep £200.

Nor is there any evidence that the engine "was frequently abandoned owing to the wasteful consumption of fuel." The engine was only applicable to pumping, and its largest sphere of usefulness was at collieries, where fuel consumption was scarcely a consideration at all. An engine was abandoned or transferred when a mine was given up. Far from being 'experimental,' as suggested, the longevity of these engines was sometimes extraordinary, e.g. the one in the Science Museum, South Kensington, was in service for more than a century and a quarter.

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Hardness of Metals in Relation to Periodicity.

IN Mr. Mallock's letter (NATURE, Feb. 19, page 276) he states that the periodicity of the hardness he determined does not fit Mendeléeef's table. It is interesting to note that the hardnesses, and incidentally also the melting-points, fit rather well into the 18-period spectroscopic table which will be found on page v of the appendix of "Astronomy," by Russell, Dugan, and Stewart. Inspection will show that the hard and soft metals are grouped and differentiated, and sequences with rather well-defined maxima and minima may be observed.

A possible interpretation lies, I believe, in the electronic configuration of the atom in question. Those with the complete electron shells, as for example the rare gases, have low melting-points, whereas those with the shells about half complete, such as tungsten, osmium, and carbon, are the hardest, and with highest melting-point.

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