

mouth gestures. I may add that more than twenty of the letters of our own alphabet still show the same influence.

The evidence on which the theory rests will be published elsewhere.

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### Natural History and Folk-Lore.

DR. W. MALDWIN DAVIES'S reference (NATURE, July 13, p. 55) to 'gwas-y-neidr'—the Cymric equivalent of 'ether's mon'—as the name for a dragonfly reminds me that 'gwas-y-neidr' is a not unusual folk-name for the yellow-hammer, although perhaps the bird is more often called 'pen-felen' (= yellow-head). In 1914 I was at Nevin, Carnarvonshire, where a man, about forty-five years of age, asked me if I thought that the 'gwas-y-neidr' was really poisonous. He went on to explain that as boys his companions and he always smashed the eggs of the yellow-hammer if they found a nest, and that when in winter they caught small birds in his father's farm-yard, the yellow-hammers were always killed with a stick, as it was considered dangerous to touch them with a naked hand. The birds had been hatched from eggs laid by adders and the serpentine markings on the eggs in the yellow-hammers' nests were evidence of their reptilian origin; markings which elsewhere have earned for the yellow-hammer the less sinister names of 'writing master' and 'scribbling lark'.

What was substantially the same story was told by peasants and fishermen in other places in Lley, and since then I have met with 'gwas-y-neidr' in other parts of Wales, the bird always being associated, to its detriment, with the adder. At St. David's and at Fishguard, Pembrokeshire, the adder is by some reputed to go into the nest of the 'gwas-y-neidr'; others say that the bird carries food to the adder; and one man told me that he always destroyed the eggs in order to save them from the adder. At Newcastle Emlyn, Carmarthenshire, the 'gwas-y-neidr' is said to warn the adder by its notes of the approach of an enemy.

Dr. Davies cites 'gwas-y-gog' as a Welsh name for the hedge-sparrow. Personally, I have never heard it applied to that bird, but it is a common folk-name for the meadow-pipit, the most frequent fosterer of the cuckoo (gog) on the Welsh moorlands, where the feeding of a young cuckoo by meadow-pipits is a familiar sight in July and August. The name is a singularly apt one, by reason of the unwearied ministrations of the duped pipits which are evoked by the peremptory and incessant hunger-cries of the cuckoo.

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IN reference to Dr. R. J. Tillyard's letter in NATURE of June 1 and succeeding letters in the issues of June 15 and July 13, concerning the dragonfly's being called the 'ether's mon' or 'adder's servant', I may add that in the coal-field districts of South Wales, when I was a boy, we used to call the dragonfly the 'gwas-y-neidr', or 'servant of the snake', and the tradition was that where the dragonfly was seen above the grass, the snake would be found below.

Obviously this would be a likely event if the 'nader' (snake) were the common grass snake, which like the dragonfly frequents marshy meadows and the water-side, but if 'nader' is translated 'adder'

or 'viper' in the modern scientific sense, the association of fly and snake would be accidental at best.

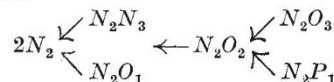
The fact that the tradition exists in the rather isolated valleys of the Welsh mountains and in the Welsh language in precisely the form given by Dr. Tillyard in English, suggests that the legend may be of very ancient origin.

L. ROWLAND.

### Second Spark Spectrum of Selenium (Se<sup>++</sup>).

THE spectrum of selenium obtained by the condensed discharge is much more complicated than that of sulphur under the same condition of excitation. Of the existing data on the subject, Misserschmitt's list of lines given in vol. 6 of "Handbuch der Spectroscopie" by Kayser and Runge appears to be fairly complete, but the abundance of lines in his list and inaccurate values of their intensities were rather perplexing. Bloch's recent record of a few Se<sup>++</sup> and Se<sup>+++</sup> lines (*Comptes rendus*, T. 183, p. 762), and the photographs obtained in this laboratory with a prism spectrograph and a ten-foot concave grating under varying conditions of excitation, have been found to be promising in sorting out lines of Se<sup>+</sup>.

Taking the structure diagram of Se<sup>++</sup>, the possible transitions are



By the application of the extension of the irregular doublet law given by Saha and Kichlu combined with the method of horizontal comparison described by Saha and Majumdar, *PD*, *PP*, and *PS* groups of  $N_2O_1 \leftarrow N_2O_2$  were located graphically at 24000, 28000, and 28400 respectively.

Leading lines of these multiplets in the same transition are:

$$\begin{aligned} {}^3P_2 - {}^3D_3 &= 23979 \quad (\lambda = 4169 \cdot 16) \\ {}^3P_2 - {}^3P_2 &= 27482 \cdot 6 \quad (\lambda = 3639 \cdot 6) \\ {}^3P_2 - {}^3S_1 &= 28210 \cdot 0 \quad (\lambda = 3643 \cdot 8), \end{aligned}$$

the term differences being

$$\Delta P_{01} = 450, \Delta P_{12} = 949, \Delta D_{12} = 187, \Delta D_{23} = 446.$$

A full description of this analysis will appear along with that of Se<sup>+</sup>.

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### Spectrum of Doubly Ionised Arsenic.

THE deepest term of the separation of doubly ionised arsenic (As III) is  $4p \ ^2P_1$ . The values of these doublet terms relative to  ${}^2G$  were reported in a recent paper (*Ind. J. Phy.*, 5, 3, p. 3) to be 220, 221 cm.<sup>-1</sup>. It was found in the course of this work that a number of lines that could be attributed to doubly ionised arsenic remained unclassified. The spectrum has been further investigated. About forty-five of these unclassified lines have entered into quartet systems, the terms identified being:

$$5s' \ ^4P; 5p' \ (^4P, \ ^4S, \ \text{and} \ ^4D) \ \text{and} \ 5d' \ (^4D \ \text{and} \ ^4F).$$

It is found that

$5s', \ ^4P$	separations are	2133 and 1062
$5p', \ ^4P$	" "	1324 and 737
" "	" "	1429 and 793 and 432
and $5d', \ ^4D$	" "	1283 749 and 367
and $^4F$	" "	850 367 and 124.

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