A comparison of the South American species, *Solanum calcense*, and the British species, *S. tuberosum* var. Great Scot, was carried out with root excretions from tubers of similar size grown in sand. The initial oxygen tension of 1·0 parts per 100,000 was reduced to 0·6 by the British, and to 0·7 by the South American species, when the roots were removed 2 hr. later. The 'amount' of respiring root tissue per unit volume, using 'amount' for the combination of 'mass' and 'quality' concerned, was therefore greater in the former case. As the object of the experiment was to test the immunity of the South American species, the test was heavily weighted against immunity by diluting the solution from the British species twofold; the relative 'strengths', in the present sense, were now in the ratio of 2 : 3, that is, the solution from the South American was now 50 per cent stronger than that from the British species. Nevertheless the stronger solution stimulated fewer larvæ to emerge, the figures being 137 and 343 respectively, from 50 cysts; and the mean values for larvæ/cyst differed significantly. Without some method of standardization it would be impossible to say that this difference was not due to the activity of the material available; but while no finality is claimed for the figures, it is clear that in this experiment, from equivalent respiring root masses, either the South American species produced less root excretion of the same type as the British, or it produced root excretion of a different and far less effective type. It must be emphasized that the assumption on which the technique rests, namely, that the metabolic rate of root, as measured by its oxygen consumption under the somewhat abnormal conditions of the experiment, is necessarily related to the rate at which it produces root excretion, is by no means proved; however, the fact that potato root eelworm larvæ almost invariably enter the root immediately behind the growing point[4] suggests that this may indeed be so.

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Æstivation among Terrestrial Isopoda

So far as I am aware, æstivation among the terrestrial Isopoda (woodlice) is unknown, and among the freshwater forms I know of only one example, that recorded by Mackin and Hubricht[1], who in writing on *Caecidotea spatulata* Mac. and Hubr. state, "When the ponds dry up at the beginning of summer, they burrow into the mud, construct a small cell in which they remain dormant until the pools again fill with water the following spring".

Recently, when cleaning some Petri dishes, I turned out of one a circular cake of soil $\frac{3}{8}$ in. in thickness which, owing to its dry condition, broke into a number of pieces when laid on the bench. This particular dish had not been in use since May 10. From the broken soil two specimens of *Trichoniscus pusillus* Brandt were seen to creep slowly out. On more closely examining the pieces of the cake of soil, an empty space or cell could be distinctly made out, where these two specimens had lived for just over two months.

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Rotational Analysis of Ultra-Violet Bands of Silicon Monosulphide

SILICON monosulphide is a member of a group of diatomic oxides, sulphides, selenides and tellurides of carbon, silicon, germanium, tin and lead which has formed the subject of some recent spectroscopic investigations[1]. Its rotational constants are therefore of interest for comparison with other molecules of this group, and also for comparison with P_2, which possesses the same number of extra-nuclear electrons.

It was found some time ago[2,3] that a heavy-current positive-column discharge through the vapour of silicon monosulphide gave rise to a band-system in the region 2575–3875 A. The mode of production of this system in emission and the observation of a few of the stronger bands in absorption identified the carrier as SiS, and the values of the constants derived from the vibrational analysis suggested that the electronic transition involved was analogous to those responsible for the well-known ultra-violet systems of CS and SiO and the "Fourth Positive" ($A^1\Pi \rightleftharpoons X^1\Sigma$) system of CO. These observations on SiS have now been extended by a partial rotational analysis of the ultra-violet system.

The emission spectrum in the region 2800–3100 A. was photographed in a fourth order of the 10 ft.-concave grating at the Imperial College, London, the dispersion being about 1·28 A./mm. In spite of considerable overlapping and blending of the band lines, particularly near the origins, it has been possible to identify P, R and Q branches in the 0,1, 0,2, and 0,3 bands. Since the ground-state is almost certainly $^1\Sigma$, this indicates a $^1\Pi \rightarrow {}^1\Sigma$ transition, as expected. The values of the rotational constants obtained from these three bands are given below: they were derived from $\Delta_2F(J)$ differences involving only unblended lines and taking $D = 4B^3/\omega$.

Band	B''	B'	
0,1	0·3014 cm.$^{-1}$	0·2656 cm.$^{-1}$	B'_0 (mean) = 0·2655.
0,2	0·2998	0·2656	
0,3	0·2983	0·2654	

The ground-state constants can be expressed by the equation

$$B_v'' = 0{\cdot}3037 - 0{\cdot}0015_5(v'' + \tfrac{1}{2}),$$

so that $B_e'' = 0{\cdot}3037$. Although branches were followed beyond $J = 100$, effects due to Λ-type doubling of the $^1\Pi$ state were found to be smaller than the experimental error: this would be expected by analogy with the results[4] for SiO.

From the above value of B_e'', the value of the equilibrium internuclear distance is found to be 1·928 A. for $^{28}Si^{32}S$. This may be compared with the single-bond covalent distance as taken, for example, from the tables of Schomaker and Stevenson[5], namely, 2·15 A. The observed shortening of the length, 0·22 A., is evidence for a bond order