In the "Elements" (p. 57) there are curious notes on the subject of petrifaction, telling of the palæobotanist Goeppert's attempt to "imitate the process" of replacement, by steeping animal and vegetal substances in waters holding siliceous, calcareous, or metallic matters. Strange, indeed, that after a hundred years such an entrancing problem should be as far from a forthright solution as ever.

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Jan. 11.

Antimony Treatment of Kala-Azar

SIR LEONARD ROGERS has recently pointed out[1] the value of antimony in the treatment of kala-azar. We note that all his examples refer to India, China and the Mediterranean, and we would point out that these happy results do not apply to kala-azar in the Anglo-Egyptian Sudan.

Since the early failures reported by Archibald[2] in cases treated on the lines advocated in India, it has been the experience of the majority of British medical inspectors working in kala-azar areas that the immediate results, though apparently successful in many cases, are no criterion of final cure, as a considerable proportion of cases relapse within two years. There is also evidence to indicate that such relapsed cases are very resistant to further antimony treatment, and most of them terminate fatally.

In brief, we consider there is sufficient evidence to demonstrate that antimony is by no means a satisfactory specific for kala-azar in this country, although it is fair to state that up to the present time, it has been the only drug of any value.

We agree with Sir Leonard Rogers that the problem of treatment in a poor country—and the Sudan is a poorer country than India—is still far from being satisfactorily solved.

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Jan. 1.

[1] Rogers, L., NATURE, **144**, 1003 (1939).
[2] Archibald, R. G., *Amer. J. Trop. Med.*, **3**, 307 (1923).

[Sir Leonard Rogers informs us that cases are also occasionally met with in India that are completely resistant to any form of antimony treatment.—EDITORS.]

Points from Foregoing Letters

C. STÖRMER submits a diagram summarizing the results of more than a thousand measurements of the height of mother of pearl clouds observed from Norway during 1926–34. The mean height varied from 23·2 km. to 27·7 km., and the clouds moved south-east at a high velocity.

By means of two separated transmitters the oblique critical frequencies of the *F* region were measured by T. L. Eckersley *et al.* for the two opposite directions of propagation. These frequencies were found to be identical for the two directions, both for the ordinary and extraordinary waves, showing that so far as electron limitation is concerned the conditions for propagation in one direction are the same as in the opposite direction. This special case of reversibility suggests that the law of reciprocity may be more generally valid in the ionosphere, since the critical rays examined are particularly sensitive to the properties of the refracting medium.

The end-point energy of uranium-X_2 has been measured by D. Roaf in a magnetic spectrometer using a new coincidence counter. The end point is found to be 2·3 Mev. This is not in agreement with Wilson chamber measurements.

P. Ohlin has investigated the short wave-length limit of the X-ray spectrum to determine h/e. He finds that the observations are very sensitive to the pressure in the X-ray tube ; this may account for the discrepancies in the values of h/e obtained by this and other methods.

The excitation functions for the reactions $^{14}N + {}^1H \rightarrow {}^{15}O + h\nu$ and $^{16}O + {}^1H \rightarrow {}^{17}F + h\nu$ have been measured by S. C. Curran and J. E. Strothers. The yields expressed in positrons per proton were found to be $1{\cdot}5 \times 10^{-11}$ and $8{\cdot}0 \times 10^{-12}$ at $0{\cdot}96 \times 10^6$ and $0{\cdot}95 \times 10^6$ volts respectively.

From a study of the flame and arc spectra of certain alkaline earth compounds, R. K. Asundi and B. K. Vaidya report the possibility of rearranging the SrCl bands with a doublet separation of about 260 cm.$^{-1}$ instead of 600 cm.$^{-1}$. They further point out that the bright continuous bands associated with the spectra of these salts are probably due to metal molceules of the van der Waals type.

H. Dingle suggests that the statement recently made by K. R. Popper, that 'atomic clocks' are equivalent to 'light clocks' for scientific measurements, exemplifies a tendency in modern physics to divorce theory from experience.

The classical definition of mathematical stability will not meet the requirements of the problems of statistical mechanics. A. Wintner derives a new definition by use of a suitable formulation of Birkhoff's ergodic theorem. It turns out that, in a precise sense of statistical averages, the stability condition is satisfied both for the case of systems of classical integrable type and for the opposite extreme case of complete ergodicity.

E. R. and F. W. Sansome report the occurrence of a genetical type of sterility in *Pisum sativum* occasioned by a complete failure of chromosome pairing at meiosis in the mega- and micro-sporocytes.

M. A. Lipton and C. A. Elvehjem show that the production of cocarboxylase and adenylic acid by the enzymatic phosphorylation of thiamin can be accelerated in the presence of phosphoglyceric acid. Synthesis is stimulated by the addition of cozymase and inhibited by iodoacetate. This is explained by the fact that glucose inhibits the synthesis of cocarboxylase in the presence of phosphoglyceric acid and adenylic acid.

B. A. Toms describes the formation of hydrated stearanilide which after drying contained almost 80 per cent of water.