

using powdered crystals, so that a large field of observation is opened up.

I propose to explore this field, determining first the best arrangement of apparatus, and then making observations on different salts in powder form. It is hoped that even opaque powders can be dealt with in this way.

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#### Fossil Laterite from Southern Queensland.

IN view of the diverse opinions held by pedologists as to the occurrence of laterites in extra-tropical regions, I wish to direct attention to what I regard as a true laterite in Southern Queensland.

Some authorities, of whom one need mention only Glinka, appear to hold that true laterites are confined to tropical regions of heavy rainfall and that laterites reported from extra-tropical regions are either (i.) not true laterites, (ii.) are developed where climatic conditions closely resembling those of the humid tropics exist, or (iii.) are fossil soils which were originally developed under tropical conditions. In the case under discussion the laterite appears to be true to type, but the climatic conditions are far removed from those considered by Glinka as necessary for the formation of laterites, so that the most reasonable explanation would seem to be to consider the soil a fossil laterite.

At many places about Brisbane there occur deep red soils to which the somewhat comprehensive adjective 'lateritic' may be safely applied, but the occurrence to which I wish to direct attention is at Scarborough, a seaside resort twenty miles north of Brisbane and in Lat. 27° 15' S. The average annual rainfall of the locality is 47.5 inches, of which 32.5 inches falls in the summer between Nov. 1 and April 30. The highest monthly average is February with 6.64 inches, and the lowest August with 1.57 inches. No temperature records are available for the spot, but those of Brisbane should be close enough to give a general indication of conditions at Scarborough. The Brisbane figures are: Mean annual shade temperature, 68.9°. The highest monthly mean is 77.0° (January), and the lowest, 58.5° (July). The natural vegetation at present growing on the laterite is open savannah forest characterised by eucalypts with a ground covering of grasses and herbaceous plants.

A typical section of the soil at Scarborough gave the following profile:

Red-brown soil, with definite crumb structure . . . . .	2 ft. 6 in.
Brick-red soil with crumb structure . . . . .	3 ft. 6 in.
Red soil thickly studded with rounded black ferruginous concretions $\frac{1}{8}$ in. to $\frac{1}{2}$ in. in diameter . . . . .	2 ft. 3 in.
Red and white mottled horizon with larger less regular ferruginous concretions . . . . .	3 ft. 6 in.
Red-brown and purple reticulate and cellular ironstone in parts mottled with white clay . . . . .	3 ft. +

The uppermost horizon is the least lateritic. May this indicate a tendency of the soil towards a condition more nearly in equilibrium with the present climatic conditions?

A more detailed account of this occurrence is at present in preparation as a contribution to the *Proceedings* of the Royal Society of Queensland.

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#### A Crystalline Tripeptid from Living Cells.

THE sulphur-containing tripeptid glutathione was originally obtained by Hopkins (*Biochem. Jour.*, 15, 286; 1921) as a slightly impure non-crystalline powder. Hopkins has now succeeded in obtaining the substance in a pure crystalline form (*NATURE*, Sept. 21, p. 445). On repeating with this pure glutathione the experiments of Hopkins and Dixon (*Jour. Biol. Chem.*, 54, 527; 1922) and of Hopkins (*Biochem. Jour.*, 19, 787; 1925) on the oxidation of tissue proteins, we have found differences in behaviour which must have an important bearing on the glutathione problem.

We find that pure glutathione is unable to catalyse the oxidation of the proteins of thermostable muscle preparations, although we have confirmed that impure glutathione rapidly does so. On the addition of pure oxidised glutathione to a muscle preparation, no oxygen uptake is produced. The crystalline reduced form, like the earlier preparations, is autoxidisable owing to the presence of minute traces of catalytic metals; but so far from catalysing the oxidation of the proteins its autoxidation is itself inhibited by the addition of the muscle preparation. On addition of muscle powder to a solution of reduced glutathione the oxygen uptake ceases, and on filtering off the muscle a solution of 'stabilised' glutathione is obtained which shows practically no oxygen uptake. This effect is not due to removal of catalytic metals by the muscle, for the stabilised glutathione solution is not rendered autoxidisable by the addition of iron or copper salts or hæmatin, even in considerable amount. It is, however, re-activated by the addition of a small amount of impure glutathione.

A solution of crystalline reduced glutathione is also rendered stable to oxygen by treatment with kaolin. This is, however, simply due to the removal of catalytic metals by adsorption on the kaolin, and in this case the filtrate is re-activated by the addition of traces of ferrous salts, etc.

It is clear that, while the oxidation of glutathione depends on the presence of catalytic metals, these are not by themselves sufficient, and the simultaneous presence of some additional factor is essential. This factor, which appears to be present in considerable amounts in the impure glutathione but only in traces in the crystalline preparation, is removed from the solution by the thermostable muscle preparation, which thus stabilises the glutathione. We think it probable that the substance forms a catalytically active complex with the metals present, since the free metallic salts, and any complexes which they may form with glutathione, are inactive. The nature of the extra factor has not yet been definitely settled, and further work is in progress.

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#### Ionisation Potentials and Conductivities of Metals.

ON the hypothesis of the existence of 'free electrons' in metals, Drude, Lorentz, and recently Sommerfeld have explained the Wiedemann and Franz law, namely, that the ratio of the thermal and electrical conductivity is the same for all metals, and is proportional to the absolute temperature. In a paper by Mukherjee and Ray, to appear shortly, the authors, in order to explain the conductivity of metals, have pictured the 'valency shells' of the neighbouring atoms as touching each other, and thus forming a large equipotential surface in the metal crystal. Electrons in this surface travel freely without