rhynchonellids, *Placenticeras*, *Inoceramus*, *Cardium*, *Venus*, etc.

The Upper Coralline Limestone of the Chirakhan-Deola area resembles the Lower Coralline band to a great extent in lithology and in external appearance, and but for the intervening band of Marl, cannot be easily distinguished. In certain western exposures of the Bagh Beds, Coralline Limestones are reported to be capping Nodular Limestone with the supposed intervening Marl missing, its absence being attributed to its soft nature and its consequent denudation. In the light of the present discovery it appears very probable that the Coralline Limestones of the western exposures are in their normal position and correspond to the Lower Coralline Limestone horizon of the Chirakhan area and not to the (Upper) Coralline Limestone as suggested by the previous authors.

The discovery of a lower horizon of Coralline Limestone therefore necessitates the amendment of the stratigraphical sequence of the Bagh Beds as shown in the above Table.

K. P. RODE.
G. W. CHIPLONKAR.

Department of Geology,
Benares Hindu University,
September 15, 1935.

[1] *Jour. As. Soc. Bengal*, 1858, **27**.
[2] *Mem. G.S.I.*, 1869, **6**, Pt. 3.
[3] *Mem. G.S.I.*, 1884, **21**, Pt. 1.

On a Fossil Wood and Breccia Zone in the Deccan Trap in Deola-Chirakhan Area, Central India.

DURING a recent visit to the Chirakhan area, we have noticed more or less continuous zone of fossil wood and breccia at the contact of Traps and the Bagh Beds. It is a very definite horizon being met with in almost all the localities wherever the Bagh Beds are overlain by the Traps. It has a sharp junction with the underlying coralline limestones but has no such demarkation on its upper limit where it merges into the normal traps.

In most places this zone is characterised by the exclusive abundance of fossil wood strewn over the surface, in a loose condition, under a thin covering of trappean soil. Fossil wood specimens, which to all appearances are dicotyledonous in nature, range in size from small fragments to huge tree trunks about 4 ft. in diameter and more than 40 ft. in length. The wood has been completely jasperised and is left with practically no trace of internal structure; the gross surface features and sometimes the rings of growth are very clearly seen.

In certain localities as near Badiya, Phutabaodi and Chirakhan, in addition to fossil wood, we also observe in the same zone an extensive occurrence of breccia in the form of a scattered band irregularly spread over the surface. Anything approaching a regular band occurs only at Badiya. The rock is a hard indurated type of breccia composed of variously sized angular or subangular fragments of limestones, sandstones, jasper and pieces of fossil wood, all heterogeneously cemented in a calcareous and ashy material. The fragments vary in size from tiny grains to blocks more than a foot in diameter. This unassorted and fragmental nature of the material may be due to absence of any sorting action of water or may indicate formation of the rock *in situ*. The presence of the ash in the matrix demonstrates its close association with the volcanic activity as also does the presence of jasper which is usually found in steam cavities in lavas.[1] The complete loss of internal structure in the fossil wood may be due to the heat of contact with the lava or due to rapid replacement of wood tissues by heated solutions. These considerations together with the strictly sub-trappean position of the band in the field strongly suggest that the formation of the breccia and the fossilisation of the wood are very intimately connected with the activity of the lava flows. It is not thus unlikely that the forest growth together with the rock debris was overwhelmed by volcanic ash and was subsequently buried under a lava flow, the heated fluids bringing about the cementation of the debris into a hard breccia and also the fossilisation of the plant remains with almost complete obliteration of the structure, the cold surface waters having little part in the formation of either. The fossil wood and breccia thus characterise the lowest flows of the Deccan Trap in this region.

K. P. RODE.

Department of Geology,
Benares Hindu University,
September 26, 1935.

[1] Goodchild, 'Precious Stones,' 1908, pp. 165, 175.

The Age of the Inter-Trappean Beds near Rajahmundry.

In the course of a recent examination of the several inter-trappean exposures near Kateru, Pungadi and Dudukur, we have made two important observations which throw some light on the age of the Deccan traps—a subject on which there has recently been some comment by Dr. Sahni[1] and Dr. Fox.[2]

Thin sections of the limestones forming the lowest beds of the Deccan inter-trappean series near Pungadi and Dudukur have revealed, among other fossils, remains of algæ belonging to the family Dasycladaceæ. Some of these slides were sent to Dr. Julius Pia (of the Natural History Museum, Vienna) for identification, and he has recognised *Acicularia* as the most common of these algæ. It is well known that, though members of the family Dasycladaceæ were fairly common throughout the Mesozoic, *Acicularia* is essentially a Tertiary form. This find of a Tertiary fossil alga from these beds is of great significance, especially in view of Dr. Sahni's discovery of fossil plants of Tertiary affinities among the fresh water inter-trappeans of Nagpur-Chhindwara region.

Among the inter-trappean beds near Kateru, we have noticed the occurrence of numerous Charophytic remains in an excellent state of preservation. Among these the following species of *Chara* have been tentatively identified: *C. Wrightii*, *C. helicteres*, *C. corlata*, *C. vasiformis*. *C. turbinata*, and *C. strobilocarpa*; and all of these are seen to be of distinctive Tertiary affinities.

In view of the fact that the traps near Rajahmundry must be considered as belonging to the lowest division of the Deccan traps as a whole, the two palæobotanical evidences we have cited above appear to be definitely in support of Dr. Sahni's suggestion that the Deccan trap flows are of an early Tertiary age.

S. R. Narayana Rao.
K. Sripada Rao.

Department of Geology,
Mysore University,
November 3, 1935.

[1] *Curr. Sci.*, 1935, **3**, 134.
[2] *Curr. Sci.*, 1935, **3**, 428.

Phosphatases of the Brain.

Two phosphatases, distinguished as acid and alkaline phosphatases and characterised by differences in optimal p_H are known to occur together in certain organs of the body. Thus, liver, kidney (Bamann and Riedel[1]) and spleen (Davies[2]) contain the two phosphatases. On the other hand, bone, intestines, blood plasma and erythrocytes contain only one type of the enzyme.

The phosphatases of the brain have not been investigated from this point of view. The present note relates to the presence and behaviour of two phosphatases in the brain (of the sheep). The alkaline phosphatase has an optimal reaction of p_H 9·6, and is activated by magnesium ions, the increases in activity exceeding 100 per cent. when magnesium is added in optimal quantities (0·001 M—0·002 M); the acid phosphatase which has an optimal reaction of p_H 5·0 is not activated by magnesium and resembles the urine[3] and salivary[4] phosphatases. The two phosphatases of the brain are thus similar to those of the other organs, in their behaviour towards magnesium.

Waldschmidt-Leitz and Nonnenbruch[5] consider that the alkaline phosphatase is typical for all organs; they suggest that the acid phosphatase demonstrated by Bamann and Riedel[1] is really due to the presence of erythrocytes in their extracts. This, however, appears to be untenable because the erythrocyte phosphatase is activated by magnesium salts, while the acid phosphatase extracted from the brain and the organs is not so activated.

Further work on the phosphatases of the brain is in progress.

K. Venkata Giri.
N. C. Datta.

Department of Biochemistry,
Indian Institute of Science,
Bangalore,
November 6, 1935.

[1] Bamann and Riedel, *Zeitschr. f. Physiol. Chem.*, 1934, **229**, 125.
[2] Davies, *Biochem. J.*, 1934. **28**, 529.
[3] Kutscher, *Zeitschr. f. Physiol. Chem.*, 1935, **235**, 62.
[4] Giri, K. V., unpublished work.
[5] Waldschmidt-Leitz and Nonnenbruch, *Naturwissen.*, 1935, **23**, 164.