

Early lower carboniferous conodonts from the Lipak Formation of Spiti, Himalaya, India

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The present note records the occurrence of conodonts from the lower part of the Lipak Formation exposed near Losar ($32^{\circ}26'30''$: $77^{\circ}45'10''$) of the upper Spiti Valley. The Lipak Formation in this area lies conformably above the Muth Quartzite and consists of about 100 metres thick succession of dark grey, black and pink limestone which at places is interbedded with white quartzites and carbonaceous shales. The dark grey limestone constituting the basal part of the Lipak Formation has yielded brachiopods (*Chonetes kashmiriensis*, *Syringothyris cuspidata*, *Tomiproductus sartchevae*, etc.) bryozoans (*Polypora* sp.), corals and crinoids on the basis of which Tournaisian to Early Visean age is assigned to the Lipak Formation. A sample of dark grey limestone on maceration in acetic acid has yielded well preserved conodonts (*Clydagnathodus gilwernensis*, Rhodes, Austin and Druce), (*Bispathodus aculeatus plumulus*, Rhodes, Austin and Druce, *Ozarkodina* sp; *Lonehodina* sp; *Hindeodella* sp.).

Clydagnathodus gilwernensis has been recorded from the early Tournaisian rocks of Britain (Rhodes *et al* 1969), Australian (Druce, 1969), and Kashmir (Savage, 1982). *Bispathodus aculeatus plumulus* ranges in age from late Devonian to early Tournaisian (Ziegler *et al* 1974). The conodonts are suggestive of Tournaisian age for the beds yielding them. These conclusions are in line with the generally accepted age of the Lipak Formation.

The occurrence of lower carboniferous conodonts had earlier been recorded from Lahaul (Gupta, 1980; Ahluwalia *et al* 1981), Ladakh (Gupta and Kachroo, 1976, 1978) and Kashmir (Tewari *et al* 1977; Savage, 1982).

References

- AHLUWALIA, A. D., GUPTA, V. J., BUDUROV, K. J. and KANWAR, S. S., (1981) Lower Carboniferous conodonts from Upper Chandra Valley of Lahaul, Himalaya, India. *Rec. Res. in Geol.*, v. 8, pp. 279-280.
- DRUCE, E. C., (1969) Devonian and Carboniferous conodonts from the Bonaparte Gulf Basin, Northern Australia. *Bur. Miner. Resour. Australia Bull.*, v. 98, pp. 1-242.
- GUPTA, V. J., (1980) Lower Carboniferous conodonts from the Baralacha Ban Area, Lahaul Valley, Himachal Pradesh. *Bull. Indian Geol. Assoc.*, v. 13, no. 1, pp. 71-72.
- GUPTA, V. J. and KACHROO, R. K., (1976) Carboniferous conodonts from Ladakh. *Chayanica Geologica*, v. 2, no. 1, pp. 12-36.
- (1978) Carboniferous conodonts from the Luneak Valley of Zanskar Tehsil, Ladakh District, Jammu and Kashmir. *Rec. Res. in Geology*, v. 3, pp. 206-208.
- RHODES, F. H. T., AUSTIN, R. L. and DRUCE, E. C., (1969) British Avonian (Carboniferous) conodont faunas, and their value in local and intercontinental correlation. *Bull. Brit. Mus. Nat. Hist. (Geol.) Suppl.*, v. 5, pp. 1-313.
- SAVAGE, N. M., (1982) Early lower carboniferous conodonts from the syringothyris Limestone of Kashmir. *Jour. Geol. Soc. India*, v. 23, no. 3, pp. 101-111.
- TEWARI, B. S., SRIVASTAVA, P. and GUPTA, V. J., (1977) Conodonts from the Syringothyris Limestone of Kashmir. *Him. Geol.*, v. 8, no. 1, pp. 144-148.
- ZIEGLER, W., SANDBERG, C. A. and AUSTIN, R. L., (1974) Review of *Bispathodus* group (conodonts) in the Upper Devonian and Lower Carboniferous. *Geologica et Palaeontologica*, v. 8, pp. 97-112.

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Figure 1 a, b. *Bispathodus aculeatus plumulus* (Rhodes, Austin and Druce, 1969), $\times 120$
Figure 2 a, b. *Clydagnathodus gilwernensis* (Rhodes, Austin and Druce, 1969), $\times 120$