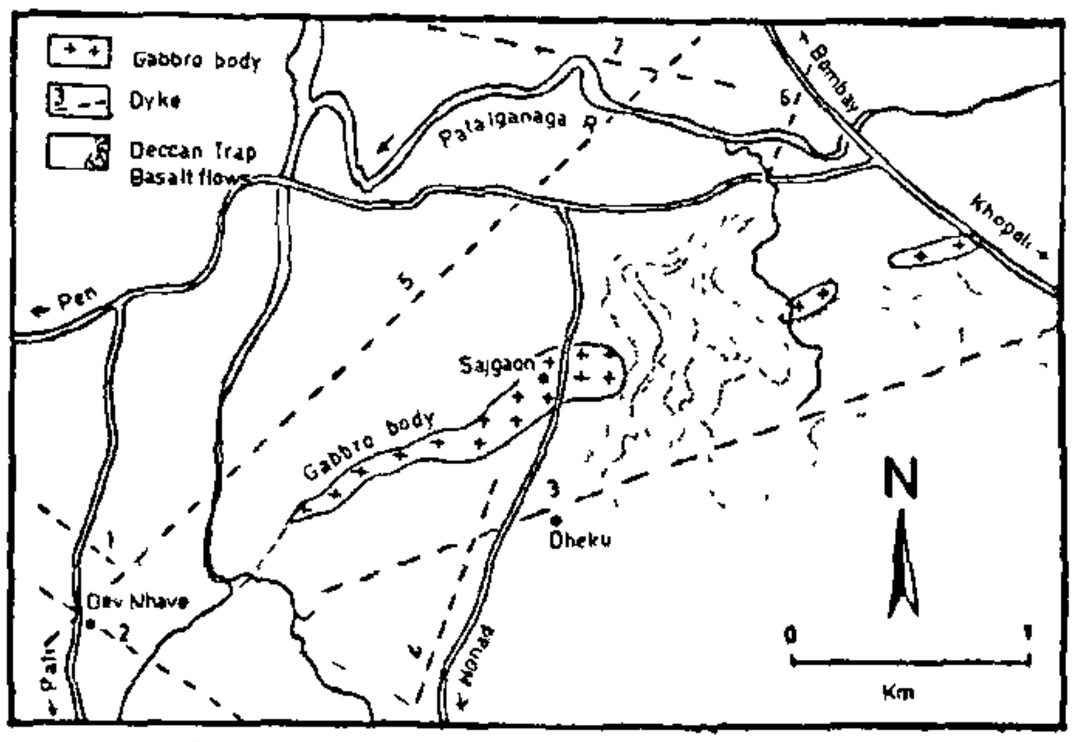

FIG. 1. Photogeological map of the area around Khopoli showing the location of the Gabbro body.

Dev Nhave is also controlled by this fracture zone. This indicates that the magmatic material has followed a fracture zone. The occurrence of dyke, near Dheku village, having the same ENE–WSW trend, supports the view that the fracture pattern trend in ENE–WSW direction was existing in this area prior to the intrusion of magmatic material. The gabbro body exhibits typical tor topography and probably because of this nature, the intrusive body has been indicated as 'stony waste' on Survey of India toposheet No. 47 F/5. The country rock in this area is amygdaloidal basalts and has become reddish along the boundary of the intrusive body due to the contact effects.

In thin sections under microscope plagioclase plates enclose pyroxene and olivine giving rise to poikilitic texture. The modal analysis shows that olivine is 45%, pyroxene 25%, plagioclase 18% and glass, iron ore, etc., 12%. Alteration of olivine to iddingsite is very common. The vertical section of the intrusive body is not available. Therefore samples of the rock specimens were collected only from the outcrop which in all probability is the top portion of this body. That the exposure of this intrusive body represents the top of it, is evident from the fact that the outcrop is concealed at one place below a ridge and at another by a hummock of basalt flows into which it has intruded. The presence of glass can therefore be attributed to fast cooling near the top surface of the intrusive body.

The occurrence of gabbro intrusions has been reported north of Bombay in Bassain area near Nale Sopara and near Bhoyapada[1] along coastal tracts. However this is probably the first report of the occurrence of the gabbroic intrusion in this area and that too far towards east from West coast and immediately below the Western Ghats. Near Vajrat there is a gabbroic intrusion[3] but it is in Precambrian rocks.

The petrographical and petrochemical study of the gabbro body is in progress which is likely to throw some light on the post-trappean igneous activity of the Deccan trap basalts of this region.

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Department of Geology, J. G. MULAY.
University of Poona, V. V. PESHWA.
Pune 411 007,
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DISCOVERY OF CONODONTS IN THE CAMBRIAN OF SPITI, TETHYS HIMALAYA*

IN connection with the demarcation of Precambrian-Cambrian boundary and for advancing the knowledge of the Cambrian stratigraphy under the aegis of the International Geological Correlation Programme Project No. 29, the authors have recovered an assemblage of conodonts from the dolomitic bands of the Cambrian Parahio Series (Hayden[1], Pascoe[2]) of the Spiti region of Tethys Himalaya.

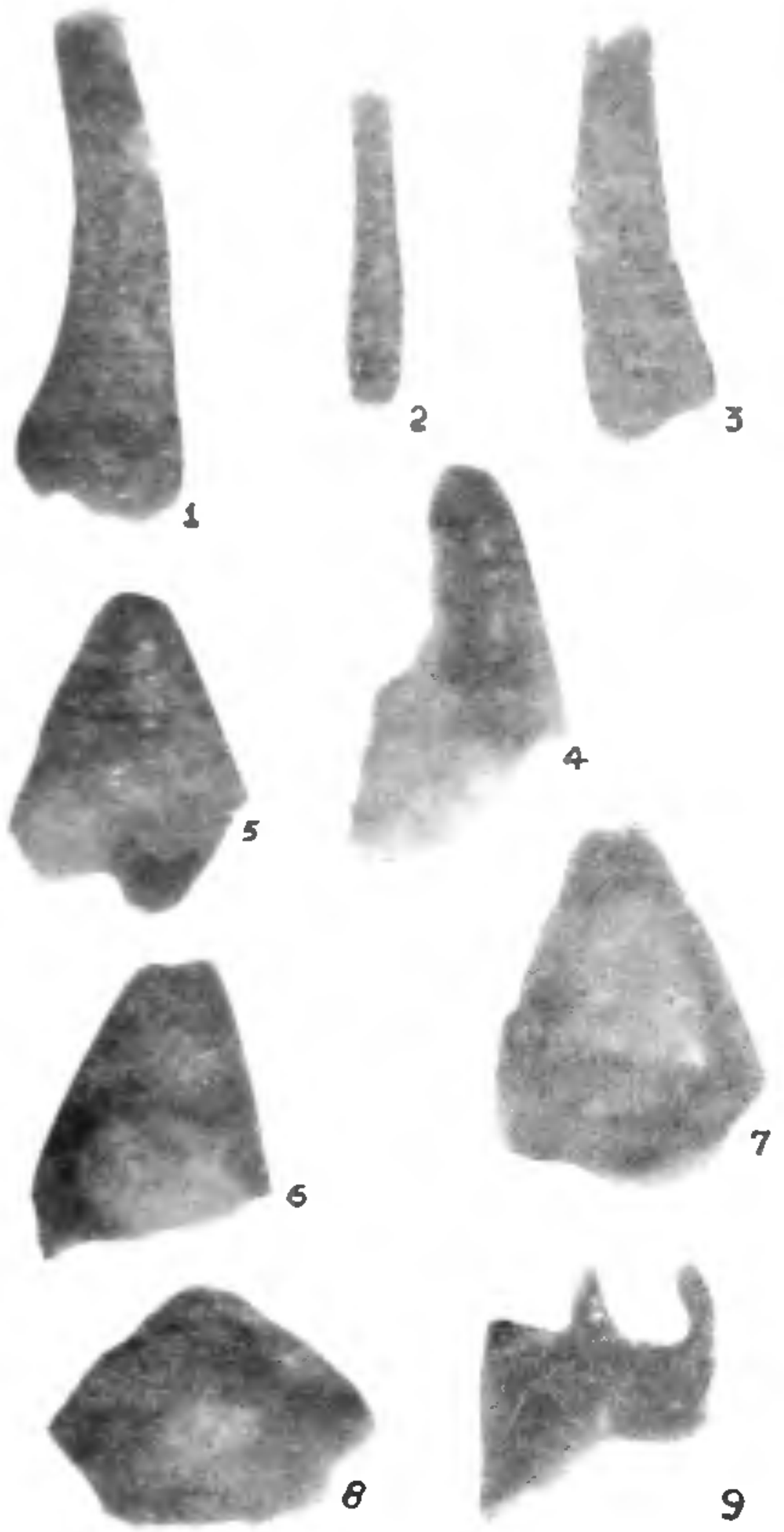
The meagre record of conodonts in the Cambrian rocks in the world so far, consists only from North America (Muller[3], Koucky *et al.*[4], Goodwin[5], Lochman[6], Miller[7], etc.), Sweden (Muller[3,8]), Iran (Muller[9]), China (Nogami[10,11]) and Australia (Jones[12]).

The present find consisting of 5 elements constitutes the first record of Cambrian conodonts from the Indian sub-continent. One of the elements recorded here is presently kept under paraconodonts.

Location and Stratigaphic Horizon

The dolomite samples which have yielded the conodonts were collected from the left bank of the Parahio river (a tributary of Pin river), about 1·75 km upstream of Thidim (32° 02′ : 77° 57′), Pin valley, Lahaul and Spiti district, Himachal Pradesh. The Pin river constitutes one of the main tributaries of the Spiti river.

In all there are eight bands of grey dolomite, weathering to brown colour, in the section examined;



FIGS. 1–9. Figs. 1–3. *Oneotodus* spp., 1, *O.* sp. 1, × 80, G.S.I. type No. 19604, 2, *O.* sp. 2, × 55, G.S.I. Type No. 19605, 3, *O.* sp. 3, × 70, G.S.I. Type No. 19606; Fig. 4. *Sagittodontus* sp., × 35, G.S.I. Type No. 19607; Figs. 5–7, *Problemoconites* spp., 5, *P.* sp. 1, × 45, G.S.I. Type No. 19608, 6, *P.* sp. 2, × 45, G.S.I. Type No. 19609, 7, *P.* sp. 3, × 60, G.S.I. Type No. 19610; Fig. 8. *Furnishina* sp., × 60, G.S.I. Type No. *19611*; Fig. 9. ? *Westergaardodina* sp., × 60, G.S.I. Type No. 19612.

all the bands have yielded conodonts except the topmost one. Some of the bands are thin (0·3 m) and are of lenticular nature. The oldest dolomite band overlies the greenish to greyish-white quartzite containing trail marks of trilobites and worms of lower Cambrian affinity, and, in turn, is overlain by dark-grey micaceous shale containing Middle Cambrian trilobites, *viz.*, *Agraulos* sp., *Opsidiscus* sp., *Oryctocephalus* sp., *Emmrichella* sp., *Liostracina* sp., besides abundant *Ptychoparia* spp., and brachiopods. This suggests that the present conodont elements come from the Middle Cambrian strata. However, the dolomite bands higher up in the section may lie in Upper Cambrian, for which the mega-faunal control is not in hand at present. The detailed study is under progress.

Check-list of Conodonts and Paraconodont:

1. *Oneotodus* spp.
2. *Sagittodontus* sp.
3. *Problemoconites* spp.
4. *Furnishina* sp.
5. ? *Westergaardodina* sp.

The element listed at 3 is considered to be a paraconodont. All the illustrated specimens are housed in the Palaeontology Division, Geological Survey of of India, Calcutta, bearing G.S.I. Type Nos. 19604 to 19612.

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Palaeontology Division,
Northern Region,
Geological Survey of India,
84 B, Nirala Nagar,
Lucknow 226 007,
October 22, 1979.

D. K. BHATT.
GOPENDRA KUMAR.

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