REPORT OF AMMONITES FROM GONDWANA PLANT BEDS AT TERANI, TIRUCHIRAPALLI DISTRICT, TAMIL NADU

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During a recent field trip to the Tiruchirapalli area, the authors J. V. S. & V. D. M. collected some ammonites and plant fossils occurring within the Gondwana plant beds near Terani (11°06′ : 78°52′30″); the plant beds in this area lie on the eroded surface of Archaeans overlain by the Utatur shales.

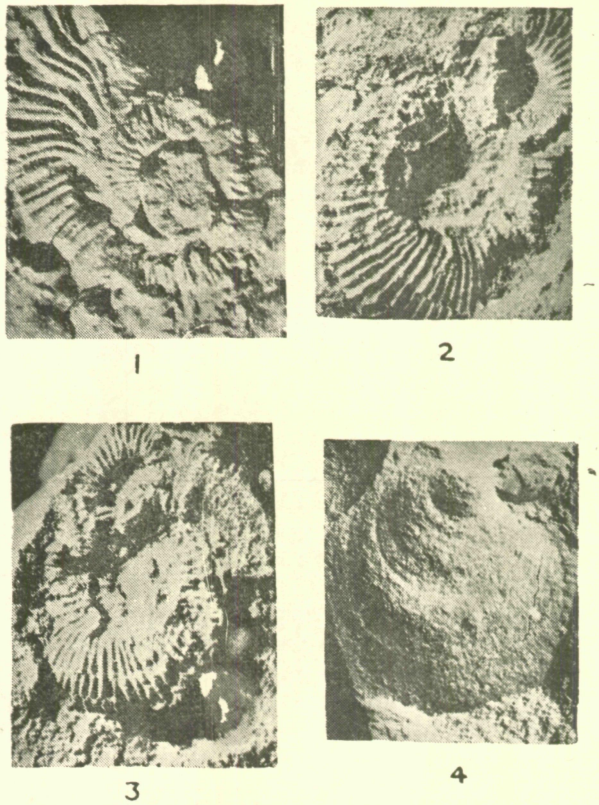

Figure 1. Ammonites from Gondwana beds at Terani.
1. *Gymnoplites cf. simplex* Spath × 2.
2 & 3. *Pascoeites cf. crassus Spath* × 2.
4. *Inoceramus* sp. × 2.

The fossil material comes from a quarry section. The collection contains three well preserved specimens of ammonites referable to *Gymnoplites cf. simplex* Spath (Fig. 1) and *Pascoeites cf. crassus* Spath (Figs. 2 & 3) associated with a solitary specimen of ? *Inoceramus* sp. (Fig. 4). Besides these, plant fossils are also recorded,

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some of which for the first time from east coast Gondwanas. The ammonites of Terani indicate an Upper Neocomian (Barremian) age, equivalent to the Sriperamatur and other marine horizons along the east coast (Spath, 1933). The succession of beds and the contained fauna and flora are given below:

Lithology	Thickness in metres	Fossils
Soil cover	2.00	—
White to ash grey clay	0.75	—
Ferruginous sandy clay with lenses of coarse calcareous sandstone	0.30	—
White to ash grey clay	0.75	—
Three bands of ferruginous sandstones alternating with ash grey clays	1.25	—
White to ash grey clay	1.25	*Ptilophyllum cutchense*
Sandy clay with ferruginous sandstone	10 30	—
Ash grey clay	0.70	*Ptilophyllum cutchense*
Two bands of ferruginous brown sandstone with a thin clay band in between	0 30	—
Ash grey clay with plant fossils	0.75	**Rhizomopteris* sp. *Ptilophyllum cutchense* **Pseudoctenis footeanum* **Nilssonia fissa* **Araucarites cf cutchense* **Desmiophyllum* sp and * *?Ginkgoites* sp.
Ferruginous sandstone	0 15	
Ash grey clay and sandy clay with ammonites and plant fossils	2.00 (Base not exposed)	*Ptilophyllum cutchense* *Pascoeites cf crassus* *Gymnoplites cf simplex* and *? Inoceramus* sp.

* indicates first record from Terani as well as east coast Gondwanas.

The surface exposures with marine intercalations along the east coast have been known so far from Raghavapuram shales, Vemavaram shales, Budavada sandstones and Sriperamathur beds. The present record made for the first time, comes from a locality about 150 km south of Sriperamathur. The southernmost outcrop of the Gondwanas at Sivaganga in Ramnad district of Tamil Nadu lies about 75 km south of Terani plant beds.

The record of ammonites from Terani proves the extensive development of the Lower Cretaceous sea along the east coast with intervening brackish and fresh water conditions. It appears that the marine upper Cretaceous beds along the Coromandel coast were not a sequel to an independent transgression but formed part of the continuous depositional processes that started with fluactuating marine, fresh water and

later brackish water conditions ultimately culminating in well established marine conditions. The present find also suggests that the Gondwana sedimentation along the east coast was more extensive than hitherto believed, and there is every possibility of finding Gondwana sediments below the Cretaceous outcrops along the Coromandel coast.

REFERENCE

SPATH L. F., (1935) *Pal. Ind.* N. S. v. IX, Mem. 2.

CARBONATITE DYKE IN MYSORE STATE

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This note records the occurrence of carbonatite in Mysore State for the first time. The carbonatite is located about half a kilometre west of Hogenakal Falls (12°07' : 77°47') in Kollegal Taluk, where it occurs as small lenticular bodies of varying petromineralogy and texture, emplaced along a deep crustal fault (Grady, 1971). The carbonatite which extends in the north for a considerable distance in Tamil Nadu (V. Srinivasan, personal communication) is exposed for over a length of 2 km with a width of about 5 to 10 metres, south of Cauvery river. Further southerly extensions are lost under the Cauvery alluvium.

The Archaean terrain around the Hogenakal Falls consists of biotite-gneisses (migmatites), charnockites, norites, dolerites and linear aplo-granite bodies. The carbonatite-syenite-orthoclasite dyke complex is emplaced within the migmatites. The regional strike of the rocks is NNE–SSW with moderate easterly dips. The major faults as well as intrusions follow the *wegsamkeit* direction. Intense deformation is evidenced in the area by ultra-mylonitisation of charnockites and crushing of dolerites and aplo-granites.

The carbonatites are of three main petrological types: (1) pure calcitic sövites (2) diopside-biotite-apatite sövite (silico-carbonatite) (3) and carbonatite agglomerate. The pure microcrystalline calcitic sövite is a fine grained grey to pink rock analysing 53.50% CaO and 0.10% MgO. Sometimes the rock grades into felspathic sövite containing phenocrysts of brick-red orthoclase. Silico-carbonatite is the most common type. It is a medium grained 'gritty' rock of pink, dark green and dark grey colours, and is composed of calcite mosaic, diopside, biotite, apatite, orthoclase-microperthite and sodic plagioclase with accessory allanite, monazite and opaques. The apatite is of pink and yellow colours and forms about 10% of the rock. The vent agglomerate consists of a silico-carbonatite matrix in which are embedded rounded pebbles of syenite and coarse felspar (Fig. 1). The pebbles show varying degrees of metasomatic alteration, such as microclinisation of orthoclase and conversion of biotite to a confused aggregate of pyriboles.

The metasomatic changes around the carbonatite are rather atypical (Heinrich, 1966, pp. 90-92) in that a diopside syenite zone surrounds the carbonatite in place of the common fenite, rich in alkali pyriboles. The diopside syenite is made up of