

# On the occurrence of barite in Kurnool District

B. E. VIJAYAM AND T. STEPHEN GEORGE

## Abstract

Bedded barite occurs in the Vempalle Formation of Cuddapah Supergroup near Brahmanakotukuru, Kurnool District. It is interlayered with chert bands and is associated with chert breccia. A second barite occurrence, near Gargeyapuram is seen in association with chertified stromatolites and chert beds in the Vempalle Formation.

## Introduction

Barite deposits have been classified into three types by Brobst (1973), as vein and cavity fillings deposits, bedded deposits and residual deposits. Bedded barite deposits have been reported from Mangampeta in Cuddapah District, Andhra Pradesh (Karunakaran, 1970) and from Talya, Chitradurga District, Karnataka State (Radhakrishna and Sreenivasaiya, 1974).

Barite deposits of varying sizes have been reported in the Cuddapah basin from the Vempalle and Tadpatri Formations of Cuddapah Supergroup (Coulson, 1933). These are reported to be vein and cavity fillings formed from the barium rich hydrothermal solutions associated with traps and sills intrusive into these formations.

## Geology of the area

The Proterozoic formation in this area consists of the Vempalle Formation of the Cuddapah Supergroup and the Banganapalli, Narji, Auk and Paniam Formations of the Kurnool Supergroup (Fig. 1). The stratigraphic succession of the Proterozoic is as given below:—

			<i>Lithology</i>
Kurnool Supergroup	Paniam Group	Paniam Formation	Orthoquartzites
	Jamalamadugu Group	Auk Formation Narji Formation	Shales Limestones
	Banaganapalli Group	Banaganapalli Formation	Sandstones, Quartzites and Conglomerates
Lower Cuddapah Supergroup	Papagani Group	Vempalle Formation	Limestones, Dolomites Shales and Chert

Vempalle Formation consists of limestones and dolomites with intercalated shales. The formation strikes NE-SW and dips about 10° to 15° due SE. The limestones and dolomites are traversed by numerous bands of chert, which are very conspicuous in the dolomites.

## Description of the Occurrences

Barite is seen at two places in this area. The larger one, which is bedded, occurs about 5 km west of Brahmanakotukuru (15°48'52"N, 78°12'14"E) and 10 km east of Kurnool; while the other, which is crudely bedded, is seen about 4 km southwest of the first locality and about 1 km northwest of Gargeyapuram (15°46'45"N, 78°8'45"E).

**Brahmanakotukuru:** Barite mineralisation is confined to the upper most horizon of the Vempalle Formation which is made up of chert beds and 'Chert breccia'. The term 'Chert breccia' is used to denote beds which have angular and subrounded pieces of chert which are cemented together by chert.

A number of bands of barite with varying thickness occurs in this horizon. Many are only a centimetre or two thick but are traceable laterally. Three bands of barite with a thickness of about a quarter metre are traceable for about 30 metres along the strike direction before they are masked by soil. Barite beds are inter layered with chert beds, which vary in thickness from a few centimetres to about a metre. At places the chert beds are interrupted by chert breccia bands, which also contains barite (Fig. 2).

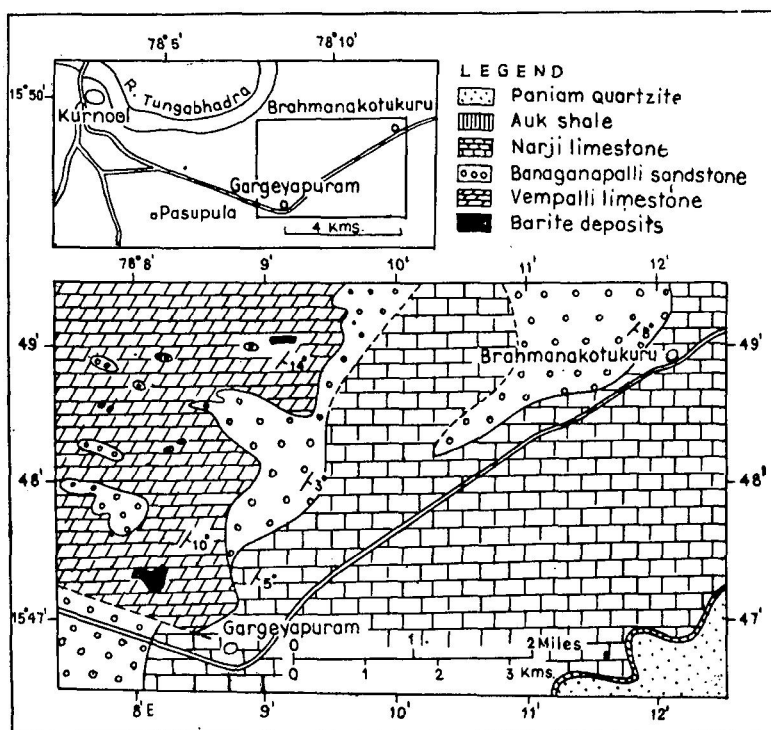


Figure 1. Geological map of the area.

Barite is seen associated with various sedimentary structures such as rosettes, lenses, stringers, nodules, concretions and septarian structures. These structures are specially more prominent in the barite associated with the chert breccia. The rosettes are made up of large laths of barite arranged as petals in a rose. The lenses, stringers, nodules etc., are made up of crystalline barite.

The total thickness of the barite bearing horizon is about 30 metres. The deposit has been proved to extend for 10 metres along the dip direction. Barite to a large extent is white in colour, but 'off-coloured' varieties also occur at places.

**Gargeyapuram:** About a kilometre northwest of the village Gargeyapuram, barite occurs in the upper portion of the Vempalle Formation. These are not only associated with chert, but are also associated with chertified stromatolites. Barite is sometimes seen along chertified algal structures. At places barite is seen as small

'blebs' in the stromatolites. Thin bands of barite are seen interbedded with chert bands. These bands are contorted and broken. They are also seen as segregated masses with well developed crystal faces. Small needles of barite are seen growing into the chert matrix. Well developed crystals of quartz and calcite are seen to grow with barite. The vertical thickness of this horizon is about 2 metres and the areal extent is about 0.25 hectares. The barite here is mostly of 'off-coloured' variety and is highly admixed with chert.

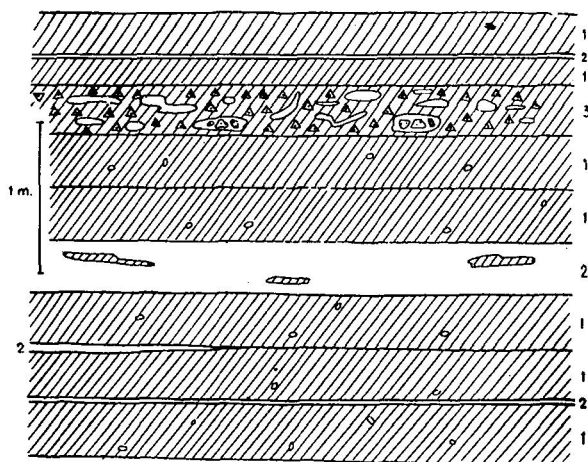


Figure 2. Idealized diagram of barite bearing horizon. Notations: 1. Chert beds, 2. barite bands, 3. chert breccia barite (unstippled patches) as nodules, concretions and stringers.

**Conclusion:** From the lithologic associations and the strata occurring below and above the barite bearing horizons at both the places it is surmised that the Gargeyapuram deposit may represent the base while the Brahmanakotukuru deposit represents the upper portion of barite mineralisation.

#### References

- BROBST, D. A., (1973) Barite in United States Mineral Resources, *U.S. Geol. Surv. Prof. Paper*, no. 820, pp. 75-84.
- COULSON, A. L., (1933) Barytes in the Ceded District, Madras, *Mem. Geol. Surv. India*, v. 64, pt. 1.
- KARUNAKARAN, C., (1970) Sedimentary barytes deposits of Mangampeta, Cuddapah District, Andhra Pradesh (1969-70): *Annual General Report, Geol. Surv. India*, v. 104, pt. 1, p. 291.
- RADHAKRISHNA, B. P. and SREENIVASAIYA, C., (1974) Bedded Barytes from the Precambrian of Karnataka, *Jour. Geol. Soc. India*, v. 15, pp. 314-315.

#### Address of the authors

B. E. VIJAYAM and T. STEPHEN GEORGE, Geology Department, Osmania University, Hyderabad.