The Co(II) complexes possess magnetic moment values in the range 5.0–5.2 BM. The electronic spectra show a multiplet band structure in the region 16–19 kK corresponding to pseudooctahedral geometry.

The above evidence confirms the octahedral geometry for the complexes as a consequence of mismatch in the ring causing distortion from square planar structure. The large values of Dq suggest the ligand field around the metal is quite strong as expected.

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INTERTRAPPEAN DINOSAURIAN FOSSILS FROM ANJAR AREA, KACHCHH DISTRICT, GUJARAT

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DINOSAURIAN fossils have been recorded for the first time from intertrappean cherty, splintery limestone and grey shale forming bed No. 3 from a locality about 3.5 km south of Anjar town, near eastern margin of 0.90 in toposheet 41 I/4 (figure 1).

Mesozoic sediments comprising of sandstone and fossiliferous shale with plant fossils of Upper Gondwana affinity[1], belonging to Bhuj Formation, are exposed to the west of Anjar town. These sediments underlie Deccan lava flows having four intertrappean beds and resemble interstratified volcano sedimentary sequence[2], reported from western Kachchh. The basal two intertrappean beds are unfossiliferous. The third intertrappean bed is about 8.5 m thick and comprises dark grey, green and chocolate-coloured gypseous shale, lenses of fossiliferous banded chert and cherty and splintery limestone rich in dinosaurian bones, invertebrate assemblage including *Physa*, *Paludina*, *Lymnea* and plant fossils.

Occurrence of intertrappean and late Upper Cretaceous dinosaurs is known from many parts of the world including India[3]. Indian occurrences include Dayapar[4] in Kachchh, Rahioli[5] and adjacent areas[6,7] in Kheda district in western India and Dongargaon[8], Pisdura[9], Takli[10], Ada, Mudimial[11] areas, Jabalpur in central India[8] and southern India[12,13].

Dinosaurian fossils

The present find of dinosaurian fossils includes parts of limb bones viz. tibia, fibula, radius, ulna and femur (figure 2b), scapula (figure 2a), ribs (figure 2c), vertebrae (figure 2d), claws (figure 2e), coprolites and ossified skin (figure 2f). The dinosaurian remains are very fragile, but well-preserved. They were presumably buried in the ponds surrounded by thick bushes of creepers and ferns.

The femur bone (figure 2b) is 80 cm long and shows features for attachments of trochantericus muscle, and articular surface[14]. Ribs include cervical type (figure 2c), which are typically straight as compared to arched ribs. The associated vertebrae are opisthocoelous and are dorsal type (figure 2d). The claws[15] resemble those of allosaurid described from central India[8]. Some of the teeth resemble those of Megalosaurid[3]. The scapula has affinity towards sauropod[4].

The fauna indicates a possible habitation of sauropod and theropod (Megalosaurid) dinosaurs in the area. Evidences of a violent central type of eruption in the vicinity of their habitat have been recognized[16], which may have led to their extinction in this area.

The intertrappean beds at Dayapar have been assigned uppermost Cretaceous to Lower Palaeocene age[17,18]. The Anjar intertrappean bed

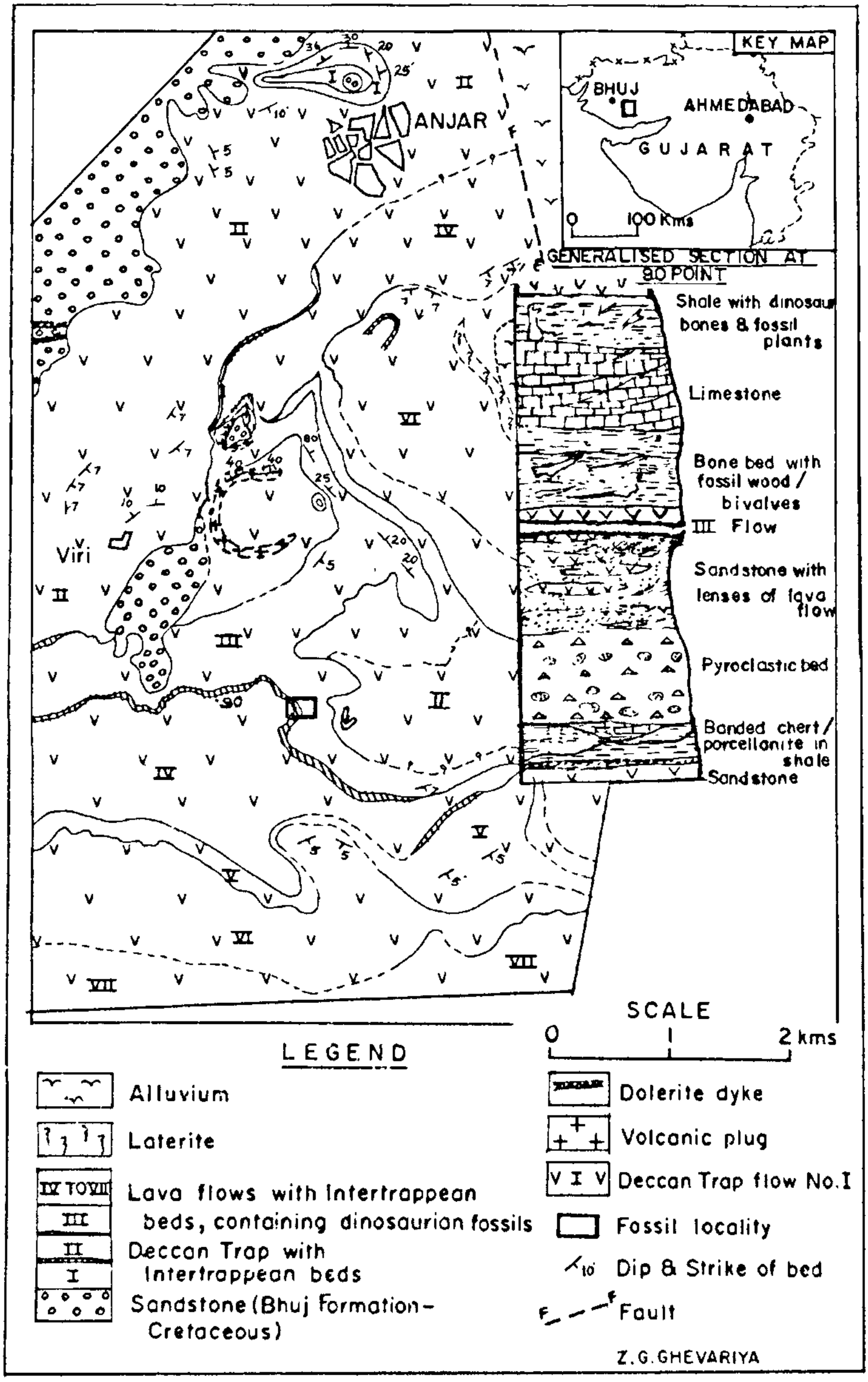

Figure 1. Geological map of the area around Anjar, Kachchh (Kutch) district, Gujarat with lithostratigraphic section.

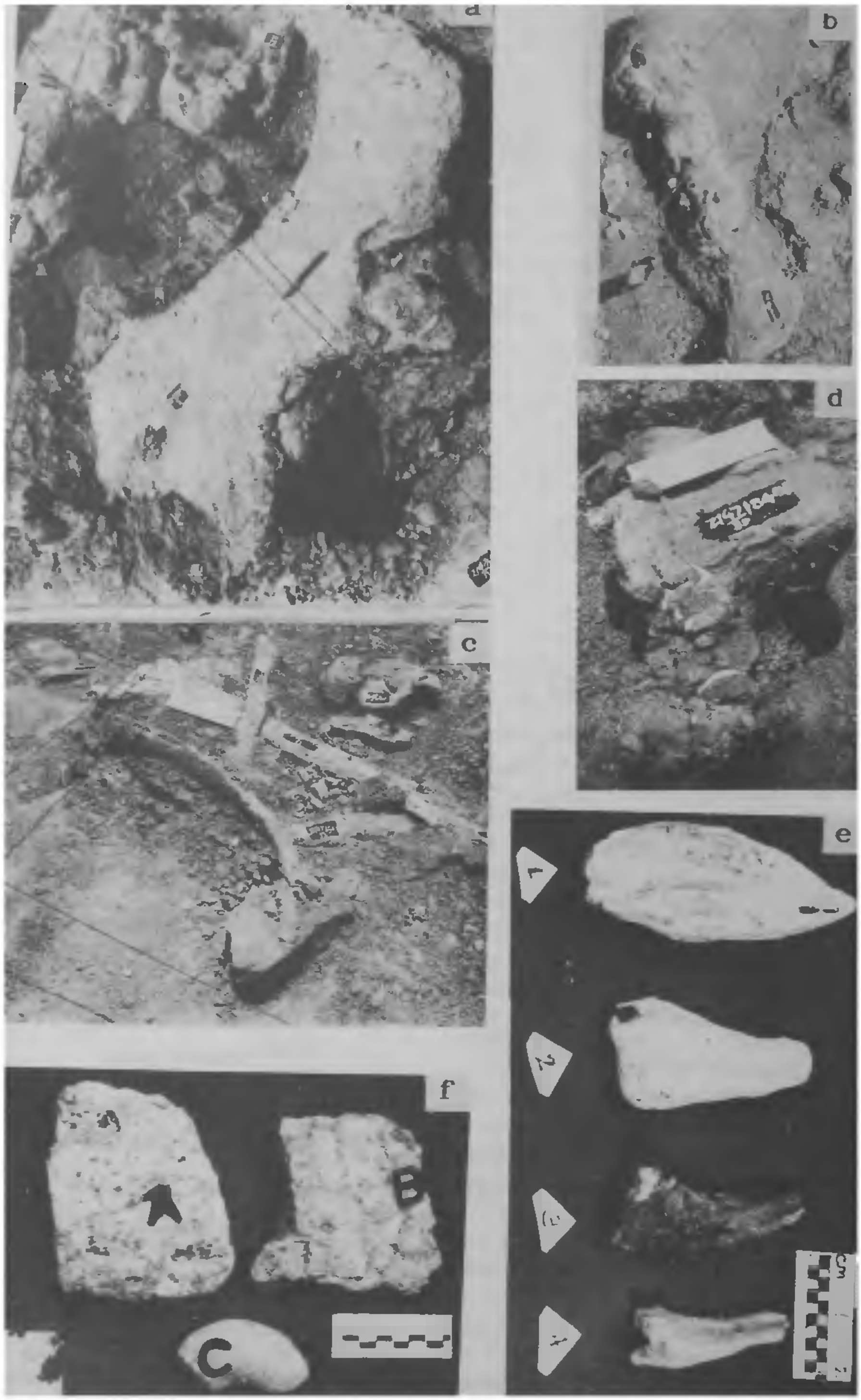
a
b
c
d
e
f
A
B
C

Figure 2a–f. a. *Scapula* (shoulder plate): (GC/S/2327), Concave at the inner margin. Length 1.25 m, width 0.35–0.40 m, wedge-shaped; coracoid foramen at the lower left corner; **b.** *Femur*: (GC/S/2328), Length 80 cm, width 11 cm in the middle part; **c.** *Rib bones*: (GC/S/2329), Cervical rib bone near the diagonal scale. The rib is broader at the base and tapering at the end; **d.** *Dorsal vertebra*: (GC/S/2829), Opisthocoelous type dorsal vertebra with a convex anterior end and concave posterior end. Length 25 cm, diameter 15 cm; **e.** (1) Claw with sharp pointed apical end. Wrinkled in the centre (GC/S/2331). (2–4) Digits of the manus (GC/S/2331); **f.** (A) Cross section of the sauropod tooth to the left side of A, (B) Ossified skin showing nodous appearence (GC/S/2332), (C) Coprolite: Intestinal groove near C. (GC/S/2333).

also contains similar invertebrate assemblage. Based on this, it is possiblé that the age of the dinosaurian fossils near Anjar may extend up to lowermost Palaeocene.

The discovery of possible saurischian remains from intertrappeans of Kachchh has opened a new potential horizon for further search of dinosaurs from late Upper Cretaceous and possible lowermost basal Tertiary beds in Gujarat and other parts.

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BIOACCUMULATION OF ZINC BY *PENICILLIUM* SP.

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MICROBES tolerating heavy metals and capable of sequestering them from environmental media have been reported in nature[1–3]. Thus *Micrococcus luteus* and *Azotobacter* sp. have been shown to remove lead from growth media[4]. This report deals with the isolation of a *Penicillium* sp. from soil with a significant bioabsorption capacity for zinc and potentially useful in removing zinc from waste water.

Five grams of sewage sludge-treated soil were added to a 250 ml capacity Erlenmeyer flask containing 50 ml of nutrient broth + 1000 ppm zinc as $ZnSo_4 \cdot 7H_2O$ (pH 5) to isolate the culture for zinc removal. The flask was incubated at room temperature for 7 days. The suspension was streaked on nutrient agar plates (nutrient medium, pH 5) and incubated at 30°C for 5 days.

The colonies appearing on the nutrient agar plates were mostly of fungus. A dominant type of colony of fungus (tentatively identified as *Penicillium* sp.) was inoculated into aliquots of 100 ml of nutrient broth (pH 5) supplemented with increasing concentration of zinc and incubated at room temperature for 7 days.