TABLE II

Electronic spectral band maxima and ligand field parameters of oxovanadium(IV) complexes with salicylidene methyl anthranilates

Complex No.	$d_{xz} \rightarrow d_{yz}$ ν_1	$d_{xy} \rightarrow d_{xz}$ ν_2	$d_{xy} \rightarrow d_{x^2-y^2}$ ν_3	D cm^{-1}	Ds cm^{-1}	Dt cm^{-1}	DQ	DT	DT/DQ
V	12,821	18,519	25,641	1852	−2849	855	37,206	11,582	0·311
VI	13,000	18 250	25,500	1825	−2892	863	38,473	11,706	0·304
VII	13,333	18,180	25,641	1818	−2970	884	35,808	11,978	0·334
VIII	13,333	18,018	26,316	1802	−3099	818	36,426	11,083	0 304

obtained for our complexes are also in the vicinity of the above value.

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MIXED LIGAND COMPLEXES INVOLVING DIETHYLENE TRIAMINE AND LEUCIN

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MIXED ligand complexes involving aminoacids and ammonia[1] or different polyamines[2,3] have been widely studied. The possibilities of the formation of different isomers of the mixed ligand complexes involving diethylenetriamine and aminoacids are noted by Legg and coworkers[4]. Some of the mixed ligand complexes of cobalt(III) involving diethylenetriamine and aminoacids like glycine, valine, 1-threonine, etc., were also reported[5]. We have also reported a number of mixed ligand complexes of Co(III) with diethylenetriamine and different aminoacids[6]. The present study is in continuation of this work.

Preparation of [Co(dien)(Leu)Cl]NO_3

[Co(dien)Cl_3] was prepared by a method similar to that of Crayton[7]. [Co(dien)Cl_3] (∼ ·005 M) was added to 50 ml of water and to it 1·0 g of activated charcoal was added, the mixture was heated to about 60–70° C and stirred. Heating was continued for 15 minutes and then 2·4 g (∼ ·01 M) of silver salt of Leucin was added in small portions in an interval of 10 minutes. The mixture was stirred for 15 minutes and to it 1·7 g $AgNO_3$ in 10 ml of water was added dropwise for 5 minutes. The mixture was cooled, filtered and concentrated to about 20 ml. On cooling, dark brown crystals appeared. It was filtered, washed with 50% EtOH, acetone and dried (yield 0·3 g).

Found C 30·62, H 6·30, N 17·82, Co 14·89, Cl 9·01 [Co(dien)(Leu)Cl] NO_3 requires C 30·78, H 6·41, N 17·96, Co 15·09, Cl 9·10%.

Preparation of [Ni (*dien*) (*Leu*)] NO_3

[Ni(dien)Cl] Cl was prepared by the literature method[8]. The preparation of this complex was similar

TABLE I
Visible spectral data for [M(Aminoacids)(dien)] NO_3 complexes

	ν, a	(ϵ_1)	ν_2	(ϵ_2)
[Co(L-Aspartic acid)$(NH_3)_3$]*	495 mμ	(102)	356 mμ	(122)
[S-cis Co(L-Asp)(dien)]NO_3*	480 mμ	(100)	352 mμ	(81·8)
[Co(Leu)(dien)Cl]NO_3	465 mμ	(105)	332 mμ	(90)
[Ni(Leu)(dien) Cl)]NO_3	550 mμ	(90)	355 mμ	(100)

* Spectra reported in ref. 4.

to that of cobalt(III) complex. The product, a violet coloured oil, on scrubbing with acetone gave a violet solid which was dried under vacuum in a drying pistol at 56° C (yield 0·4 g).

Found C 33·70, H 6·85, N 19·48, Ni 16·48 [Ni(dien) (Leu)]NO_3 requires C 33·88, H 7·05, N 19·75, Ni 16·56%.

In the ir spectra of the parent aminoacids the –COO group absorbs at 1710 cm^{-1} whereas in the cobalt(III) complex C–O stretching band is at about 1630 cm^{-1} and at 1650 cm^{-1} in the nickel(II) complex, which indicates the presence of coordinated – COO group.

Molar conductance of aqueous solution indicates two ions for the nickel(II) complex (125 $ohms^{-1}$ cm^2 $mole^{-1}$) and three ions for the cobalt(III) complex (260 $ohms^{-1}$ cm^2 $mole^{-1}$). The complex [Co(dien)Cl_3] is known to readily aquate to form [Co(dien) $(OH_2)_3]^{+3}$, and therefore, taking into account the aquation process, the molar conductance value is reasonably consistent with the proposed structure. Magnetic susceptibility measurements show that the complexes are diamagnetic. This is consistent for d^6 Co(III) low spin complex and indicates a square planar structure for Ni(II) complex (Table I).

The visible spectra observed for the Co(III) complex above is similar to the reported mixed ligand complexes of Co(III) involving amino acid snd diethylenetriamine.

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MAGNETIC ORIENTATION IN TERMITE MOUNDS

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DESCRIPTION of the termite mounds as a hydrologic indicator in the ancient Sanskrit work, *Brihat Samhita*, reveals that the termite mounds exhibit preferred direction of physical orientation (Prasad[6]). The famous, gigantic termite (*Amitermes meridionalis* Froggatt) mounds, called 'magnetic mounds' or 'meridional mounds' in the Northern Territory of Australia exhibit an obvious lateral compression which invariably gives them north-south orientation; the mounds built by certain other termite species (*Amitermes laurensis* Mjoberg and *A. vitiosus* Hill) in tropical Australia also exhibit similar north-south orientation of their structure (Gay and Calaby[2]). The termite mounds in South Africa have also been reported to exhibit preferred orientation (Marais[5]). The termite 'queen' invariably lies parallel to magnetic north-south direction in its cell in the interior of a live mound (Deoras[3]). Preferred orientation of termite structure has been experimentally investigated and proved by Becker[1].

The objective of this note is to examine magnetic orientation in the termite mounds. For this purpose the termite mounds, occurring on the ground underlain by quartz-magnetite rocks around the Konijedu hills (Survey of India toposheet No. 66 A/3) near Ongole in the Prakasam District of Andhra Pradesh, were selected.