granite. Just west of Bara Khera, the 1 m to 2 m thick vitreous quartzite band has tongues, veins and veinlets of granite clearly indicating the intrusive nature of the latter. The contact with the slates is generally covered but in the few exposures available, the shales and slates show puckering, hardening, silicification and felspathisation near the contact. Very good gradational contacts between granite and felspathised slates are seen in the bed of the Berach river north of Bilor, in the bed of the Banas north of Magrop and in the Bagan river where the Udaipur-Chittorgarh road crosses it. At the latter place, the granite is enriched in chlorite and calcite and much metasomatic replacement is indicated. Thin aplitic bands are also seen in the slates at the contact there.

On a regional scale the boundary of granite is very irregular and it comes into contact with the different members at different places. Tongue-like extensions of granite near Amli, Kalias, Bhawanipura and Det can be better explained if the granite is intrusive. Much recrystallisation of quartzites near Mataji-ka-Khera and occurrence of granite in the core of the structure there, also suggests the intrusive nature.

Absence of contact metamorphism has been quoted by Heron, as an evidence for considering the Bundelkhand gneiss as the basement. Similar is the case with the sediments around the post-Aravalli granite near Udaipur, which is undoubtedly intrusive. Probably, this is due to lack of volatiles as evidenced by dearth of pegmatites in the area. Silicification and felspathisation seen in the quartzite and shales at places around the Bundelkhand gneiss are definitely the effects of intrusion.

Thin pebble bands extending over short distances in the different orthoquartzites have been considered to indicate unconformity. About 1·5 km west of Barlias, there is a 2 m thick vitreous, buff quartzite which was considered by Gupta to be the basal conglomeratic bed of the Aravallis. The quartzite is generally free from felspar, and at only one place a 2 m long and 0·5 m deep channel, with small well-rounded pebbles, is seen. The quartzite is recrystallised and at the contact with the granite small felspathised patches are also seen. Similarly most of the conglomerates, referred to by Heron, are interbedded and a few are channel fillings. As already mentioned, the granite is in contact with the different quartzite and slates and it is rather difficult to interpret all of them as basal.

Heron himself emphasised the absence of any special marginal deposit characteristic of an erosional unconformity in this area. Further, he cites evidences of intrusive contacts but considers them to be due to close wedge-faulting or deposition of sediments on a highly irregular surface of the granite.

Recent mapping of the area has convinced the authors that the Bundelkhand Gneiss of Rajasthan is intrusive into the shales, slates and quartzites which are nothing but the westward extension of rocks referred to as Gwaliors by Heron. As evidenced by the equigranular texture, some shearing and development of foliation, the granite appears to be late to post-tectonic. North-east of this area, near Jahazpur, the Gwalior rocks have been metamorphosed and granitised yielding the Banded Gneissic Complex. Further west of the Gangrar-Hamirgarh quartzite ridge also, extensive granitisation is observed. It is therefore likely that the Bundelkhand Gneiss is an intrusive phase of the major granitic activity in the area. The relationship of the Bundelkhand Gneiss of Rajasthan with that of the granodiorites of U.P., which are also intrusive into the sediments there (A. G. Jhingran, 1958), cannot be established until absolute age determinations are made.

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A NOTE ON SUCCINIC DEHYDROGENASE ACTIVITY OF TISSUES OF THE COMMON FRESHWATER MUSSEL, *LAMELLIDENS MARGINALIS*

THE respiratory enzymes of freshwater pelycypod, *Lamellidens marginalis* have not been studied so far.[1] While investigating the effects of temperature acclimation on the respiration and ciliary activity in this animal, it was felt that a study of a seemingly ubiquitous enzyme like succinic dehydrogenase would be of interest. The present note deals with the activity of this

enzyme in different tissues. This was studied by the reduction of triphenyltetrazolium chloride to a red water-insoluble formozan using sodium succinate as substrate.[2] All the experiments were performed at a temperature of 25° C. The resulting formozan at the end of one hour was extracted with acetone and read at 420 mμ in a Lumetron colorimeter. The optical density is directly proportional to the enzyme activity. The results are given in Table I.

TABLE I

Tissue	μg. of dye reduced / mg. of tissue / 60 min.				
	Mussel 1	Mussel 2	Mussel 3	Mussel 4	Mean
Heart	1·15	0·915	1·412	0·905	1·09
Gill	0·404	0·380	0·452	0·615	0·46
Foot	0·325	0·235	0·742	0·478	0·45
Adductor Muscle	0·381	0·331			0·36
Viscrae	0·298	0·205	0·272	0·187	0·23
Mantle	0·160	0·126	0·332	0·213	0·21

A perusal of Table I would clearly show that the heart tissue (including pericardium) shows maximum activity. The activity of the other tissues in decreasing order is as follows:

Heart > Gill > Foot > Adductor muscle > Viscera > Mantle. The results obtained in the present study when compared with values reported for heart of rat[2] using this method shows that the activity is very low in *Lamellidens*. In rats, the dehydrogenase activity of the heart tissue is nearly 3·6 times that of *Lamellidens*. This may be correlated perhaps with low metabolic rate in a more or less sedentary mussel compared to an active homeotherm like the rat. Further, the temperature may accelerate the activity in rat.[3] Among the various tissues, the kidney shows the maximum activity in the rat whereas it is the heart in *Lamellidens*. *Lamellidens* shows very little muscular activity except in the heart, gills and foot. Perhaps this is reflected in the succinic dehydrogenase activity also.

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MULTICELLED TRABECULAE IN SOME SPECIES OF *SELAGINELLA*

A TRABECULA in case of *Selaginella* stem has usually been described as unicellular structure (*see* Barclay,[1] Eames,[2] Smith[3]). Further, it is usually believed to represent the endodermal layer of *Selaginella* stem. Figures in literature show casparian strips in them. Webester's[4] dictionary has defined a trabecula, on the other hand, as 'a row of cells bridging an intercellular space'.

During the study of apical organization and differentiation[5] of tissue in some species of *Selaginella*, i.e., *S. tamariscina* (Beauv.) Spring; *S. remotifolia* Spring; *S. adunca* A. Br.; *S. monospora* Spring; *S. chrysorrhizos* Spring and *S. sp.*, trabeculæ were found consisting of more than one cell in young stem as well as in mature except in *S. chrysorrhizos* where they are unicellular from the very beginning. This necessitated a detailed study of the structure and developmental aspects of trabeculæ in all these species.

In *S. chrysorrhizos* during differentiation some cells of the inner tissue, surrounding the stele in the central apical region just below the apical meristem, begin to elongate in both fertile and sterile apices (Fig. 1). At a slightly lower level, these elongated cells of the procambial strand are further differentiated from the surrounding tissue of the cortex. It is due to the development of the several intercellular spaces surrounding the central core as observed in cross-sections (Fig. 1). The spaces are formed schizogenously. Each elongated intervening cell which is present in between the two spaces is one cell in width, height and length. It undergoes radial extension and forms a trabecula. Each trabecula later on develops a casparian strip in its central region.

In all other species, however, they are two to several cells in length though one cell in width and height from the very beginning (Figs. 3, 4 and 5). It is significant to note that such a situation has not been reported in any earlier work on this genus.

In mature stems the trabeculæ are not visible usually either due to their delicate nature or due to their complete rupture. Occasionally they have, however, been observed showing variation in structure in different species and even in the same from their initial condition during differentiation. It appears, therefore, worthwhile to study their structure in young as well as in old stems in some detail. In *S. tamariscina*, in the beginning they are four