calcification of various organs. This is substantiated by the observation that doses which do not inhibit implantation also do not cause metastatic calcification. Such metastatic calcification of various organs after administration of high doses of vitamin D has, however, been reported[4] but, thus far, this phenomenon has not been recorded to be associated with implantation failure. It is interesting that the staining reaction for calcium has been found to be negative in the uterus. Further, the constancy of the uterine mast cells, which are known to play an important role in tissue calcification, suggests that in the absence of a local challenge calcium is not deposited in the uterus. It thus appears that hypercalceima prevents implantation by provoking a generalized physiological disturbance in the body.

This investigation was supported by grants from the Ministry of Health and Family Planning, Government of India. The authors are grateful to Dr. M. L. Dhar for his interest in this study.

Central Drug Research Institute, Lucknow (Communication No. 1679), November 8, 1971.

S. N. Sharma.
V. P. Kamboj.
Amiya B. Kar.

1. Latorre, G., *Fertil. Steril.*, 1961, **12**, 343.
2. Neuweiler, W., *Int. Ztscher. Vitaminforsch.*, 1954, **25**, 203.
3. Kossa, J. V., Quoted by Pearse, A. G. E., *Histochemistry: Theoretical and Applied*, London, Churchill Ltd., 1961.
4. Sely, H., *Calciphylaxis*, Chicago, University of Chicago Press, 1962.

PYROXENE SYENITE FROM KOPPAL, RAICHUR DISTRICT, MYSORE STATE

Pyroxene syenite occurs forming small and big hill-like masses at and around Koppal (15° 20′; 76° 8′) town covering an area of about 40 sq. km and is surrounded by the peninsular gneisses. Though sharp contacts have not been noticed between the pyroxene syenite and the granitic rocks, at some places the occurrence of the two rock types is noticed within a few metres between them. Pyroxene syneite is pink and greyish pink in colour, medium to coarse grained with or without gneissic foliation though the foliated type is more common.

Pyroxene syenite of Koppal area is a new find and so far no such occurrences have been reported from Mysore State except from Malavalli area where a small hill composed of a similar rock type has been described by Mahabaleshwar (1970).

In thin section pyroxene syenite exhibits porphyritic to holocrystalline granulitic texture containing tablets and anhedral plates of microcline perthite and oligoclase, and prisms, tabular plates and anhedral grains of sodian-augite and hornblende together with accessory and secondary minerals like quartz, apatite, sphene, iron ore, rutile, zircon, biotite, epidote and chlorite.

Microcline perthite is the most abundant felspar forming 55% of the rock. Perthite orientation is parallel to 001, 010 and 100. It has $2V_\alpha = 81$ to 84°. The X-ray reflection on 131 Λ $1\bar{3}1$ gave the obliquity of 0·965 and 90·0% Or molecules and on the basis of which it has been identified as microcline microperthite (Smith and Mckenzie, 1959). Temperature of the formation of the microcline is about 400° C based on the value of $2V_\alpha$ and triclinicity (Barth, 1956). Oligoclase is fairly abundant constituting 25·0% of the rock with $2V_\alpha = 88°$ and anorthite content ranging from 20 to 28% and twinned after albite, albite-ala and pericline laws. The frequency of the twin laws and comparison of $\alpha\alpha_1$ and $\gamma\gamma_1$ values for the corresponding anorthtie contents with those of Tertsch indicate the low temperature optics of the oligoclase. Pale green sodian-augite is the characteristic mafic mineral of the pyroxene syenite, feebly pleochroic from pale green to pale yellowish green, having $N_\beta = 1·699$, $2V_\gamma = 59$ to 62°, Z Λ c = 41 to 47° $(\gamma - \alpha) = 0·021$ to 0·025. In chemical composition and optical properties it is related to diopside with an affinity to aegirine. X-ray diffraction of the mineral gave (d)Å values closer to augite and diopside than aegirine. The cell parameters are $a = 9·75$, $b = 8·93$, $c = 5·25$ Å and $\beta = 74°\ 10'$ which show that they are almost identical to those reported for augite and diopside. But the structure and cell parameters of augite and diopside are almost similar. Based on the chemical composition, optical properties and cell parameters the pyroxene is identified as sodian-augite. Hornblende is always secondary after sodian-augite, seen bordering the pyroxene or as discrete grains having $N_\beta = 1·678$, $2V_\alpha = 76°$, Z Λ c = 14 to 21°, $(\gamma - \alpha) = 0·018$ and pleochroic with X = yellowish green, Y = bluish green and Z = green. Granular and subhedral, pleochroic yellow epidote, prismatic and

tattered plates of brown biotite, granular and lozenge-shaped, sand brown sphene, colourless granular zircon, anhedral quartz, granular brick red rutile, prismatic and granular apatite and granular iron ore are the secondary and accessory minerals.

A typical pyroxene syenite has been chemically analysed using spectrophotometer, flame-photometer and E.D.T.A. methods and it is given in Table I together with C.I.P.W. norm.

TABLE I

Chemical analysis			C.I.P.W. norm.	
SiO_2	..	57·99	or	40·59
Al_2O_3	..	16·33	ab	30·26
TiO_2	..	0·24	an	3·06
Fe_2O_3	..	4·76	ne	5·18
FeO	..	2·48	di	13·26
MnO	..	0·01	hy	1·03
CaO	..	4·49	ma	6·96
MgO	..	2·00	il	0·46
Na_2O	..	4·73		
K_2O	..	6·86		
P_2O_5	..	0·04		
H_2O	..	0·65		
		100·58	Analyst: S. M. Appanagoudar	

The chemical analysis shows that the pyroxene syenite is rich in alumina, iron, lime and alkalies. This is reflected in the calculated norm. The alkaline character of the rock is indicated by the abundance of orthoclase and albite and the presence of nepheline in the norm.

The petrographic, mineralogical and X-ray studies like replacement texture, corroded margins, inclusion of one mineral in the other, presence of two generations of alkali and plagioclase felspars and low temperature optics of the plagioclase and microcline suggest the low temperature conditions for the genesis of the pyroxene syenite of Koppal area.

ACKNOWLEDGEMENT

Authors are thankful to Dr. T. C. Devaraju for providing the X-ray data of the minerals of pyroxene syenite.

Department of Geology, M. S. SADASHIVAIAH.
Karnatak University, S. M. APPANAGOUDAR.
Dharwar-3, *November* 26, 1971.

1. Barth, F. T. W., *Studies in Gneisses and Granite*, 1 and 2. Skr. Vindensk. Akd. Oslo I, 1965, **1**, 1.
2. Mahabaleshwar, B., "Geology of the Sivasamudram area," *Ph.D. Thesis*, submitted to the Karnatak University, Dharwar 1970 (Unpublished).
3. Smith, J. V. and Mckenzie, W. S., "The alkali felspar. V. The nature of orthoclase and microcline perthite," *Am. Mineral.*, 6 111959, **44**, 1169.

DIFFERENTIATION OF LYSOZYME ACTIVITY IN THE FAST, SLOW AND CARDIAC MUSCLES OF CHICK

LYSOSOMAL localization of lysozyme is restricted to certain cell types like leucocytes and kidney but not liver[1]. Its occurrence has been demonstrated in the frog muscles[2]. However its intracellular localization in the muscles is not known. Lysosomal enzymes are associated with degradative processes and higher rates of them are often correlated with greater turnover of molecules[1]. Besides these, the lysozyme has pathophysiological significance in acting as anti-bacterial agent.[8] The present study reports the occurrence of the enzyme in the fast, slow and cardiac muscles of chick during development.

The anterior (ALD) and posterior (PLD) latissimus dorsi muscles of wing musculature and the cardiac muscle from embryos of 20 days incubation as well as from 6 months old white leghorn chick were used for the study.

The enzyme is extracted from the muscles according to Jolles[3] and purified by cation-exchange chromatography according to Tallan and Stein[4] using Amberlite XE 64 Columns. The enzyme activity was assayed by the measurement of rate of lysis of dried cell suspension of *Micrococcus lysodiekticus* (purchased from Sigma Chemical Co., St. Louis, Missouri, USA) colorimetrically according to Shugar[5] using Beckman DU_2 spectrophotometer. The protein of the extracts was determined spectrophotometrically according to Layne[6].

TABLE I

Lysozyme activity in chicken muscles

(Kilo-units of specific activity)

	20 days embryo	Adult
ALD ..	0·63±0·12*	12·50±0·52
PLD ..	0·65±0·13	46·20±0·86
Heart ..	0·58±0·12	0·59±0·11

* Mean ± S.D. of 7 observations.
Specific activity unit = 10^{-3} O.D. min^{-1} mg^{-1} protein.

The lysozymal activity units did not vary in the embryonic muscles whereas the adult PLD showed greater activity than the ALD and cardiac muscle recorded very low activity. The cardiac muscle of embryo as well as of the adult showed the same specific activity. These results suggest that to begin with in all the three embryonic muscles the lysozymal activity