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G.S.Sc. COLLEGE, BELGAUM

REPORT

GEOLOGICAL STUDY TOUR AROUND ANKOLA

Date of visit **6 -7th January 2023**

B.Sc. THIRD SEMESTER (NEP)
GEOLOGY (OPTIONAL)

OM BEACH, Showing tombolo effect

Head
Geology Department
G. S. S. College, Belgaum.

IQAC Coordinator
GSS College, Belagavi

Principal
G.S.Sc. College, Belagavi

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G.S.Sc. COLLEGE, BELGAUM

Department of Geology

CERTIFICATE

This is to certify that Mr/Miss. Yukta Joshi of B.Sc. Third Semester (NEP) with Geology as optional subject has attended the Geological Study Tour to **"GEOLOGICAL STUDY TOUR AROUND ANKOLA"** on 6 -7th January 2023.

Exam Seat No. U15BL2130458

Date: 12/2/23

Head
Geology Department
G. S. S. College, Belgaum.

Head, Dept. of Geology

IQAC Co-ordinator
GSS College, Belagavi

Principal
G.S.Sc. College, Belagavi

GEOLOGICAL STUDY TOUR REPORT
Places of visit: Karwar and surrounding places.
Date of Journey: 6 -7th January 2023.

Geological study tour was conducted for B.Sc.III Sem students for two days. We visited to Ankola and surrounding places to study the geological features.

Geological Setting of the study area:

The coast of Uttara Kannada is bounded by Western Ghats on the east, which exhibit deep winding valleys, waving wooded hills, high peaks etc., and by Arabian sea in the west. The topography is in general hilly and wooded with broken and irregular hills averaging 600-700 m above sea level. Deep or wide mouthed bays & estuaries break the coast. It is varied and scenic with rocky Islands and capes, stretches of palm-fringed sandy beaches, which enclose between rocky headlands or knobs.

The coast presents a narrow strip of hinterland between the seashore and the Western Ghats, which varies between 5 to 20 km. It scarcely exists towards Karwar since the mountains dip in to the sea with scenic bays & Islands offshore. The hinterland area is normally plain & is covered with sandy soil and usually under cultivation.

Based on the distinct landscapes, the coastal stretch of Uttara Kannada district has been classified into two physiographic units, the high lands and the narrow lowlands (Gazetteer of India, 1985).

The coastal tract of Karnataka is characterized by Precambrian crystalline rocks (Granites, Granitic gneisses and Schists), laterites & basic dykes. The rocks of the Uttara Kannada district form part of the Chitradurga group of Dharwar supergroup comprising metasediments and metavolcanics together with manganese and limestone formations, all of which overlie the basement migmatites and associated granitoids.

Geology of the Uttara Kannada district comprises of gneisses and granites with Dharwarian rocks like schists and amphibolites as older metamorphics within them. Other rock types present are, orthoquartzites, manganiferous chert and argillites, banded magnetite/haematite quartzite, limestone & dolomites, greywackes, laterites and basic dykes.

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Granitic gneisses/granites cover major portion of the coastal tract, which is northwestern coastal continuation of peninsular gneisses or northern continuation of south canara gneisses/granites. The gneisses form prominent hills & headlands along the coast. The granites however are present as patches within gneisses. The granites/granitic gneisses of Karwar area are surrounded on the northeast by the rocks of Chitradurga group and on the south east by hornblende schist (Gupta et al, 1988). These granites/granitic gneisses at places near the coast have undergone chemical weathering giving rise to the conspicuous laterite deposits, well exposed in the southern part of the area.

Stratigraphic position	Rock formation	Age values determined for the corresponding rock formation in South Kanara Precambrian block (after Balasubramanian,1978).
Subrecent to recent	Sands/Soils	---
Tertiary (?)	Laterites	---
Middle Cddapahs	Dolerites	2.2 b.y.K-Ar age obtained for the younger ENE striking set of dolerites
Archaeans	Granites Gneiss	2.6 b.y.Rb-Sr age obtained for Kamara granites 3.2-3.6 b.y.K-Ar, Rb-Sr and Pb-Pb age obtained for Kanara Gneiss.
Older Metamorphics	1) Orthoamphibolites 2) Schists	Not dated but from field relation these are older. 3.2-3.6 b.y.

On first day 6th January, we visited Nadibag beach, Ankola, where we were shown the coastal landforms such as beach, estuary/river mouth, headland, island, tombolo, spit, bars, wave action, longshore currents etc. We were explained in brief the coastal processes operating along the beaches. At Nadibag beach headland, we were shown the Dolerite dyke the discordant intrusions as well as small scale intrusion with sill – the concordant intrusions. We were also shown and explained the occurrence of boudin structures which are eye-like features of quartz and feldspars occurring in a line along the granitic-gniess foliation. We were also shown 'A large isoclinal fold apart from many small scale folds. There are many ptygmatic fold structures too in migmatite rock. We were shown variety of fold structures. All these structures are almost text book examples. The area is a museum of Structures. We were also shown the effect of oxidation and enrichment giving rise to Bauxitisation at Nadibag.

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At Belekeri beach, we could see an igneous intrusion, pegmatite intrusion with a clear cut contact with Granitic-gniess. The granitic gneiss also shows spheroidal weathering.

On 7th January, we visited Om beach near Gokarn, where we were shown the tombolo process and the geological feature which has led to formation of Om Beach. At the headland, we were shown weathering of foliations, pegmatite intrusion where strike slip faults were observed.

Acknowledgements: We are grateful to Dr.P.T.Hanamgond and Mr Yogesh M Kutre, for conducting this study tour. We thank our Principal, for allowing us for this study tour.

Name: Yukta Joshi	Class: **B.Sc.III Sem** Examination No. U15BL215045-8
Signature and Name of the staff: **Dr.P.T.Hanamgond**	**Mr Yogesh M Kutre**

DESCRIPTIONS OF FIELD PHOTOGRAPHS:

KARWAR-ANKOLA: 1) Beach study at Nadibag 2) Dyke structure at Nadibag 3) Fold structure in granitic gneiss, at Nadibag. 4) Fault structure at Nadibag, 5) Disharmonic fold at Nadibag, 6) Residual weathering & bauxitisation at Nadibag 7) Tombolo junction at Om Beach.

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FIELD PHOTOGRAPHS

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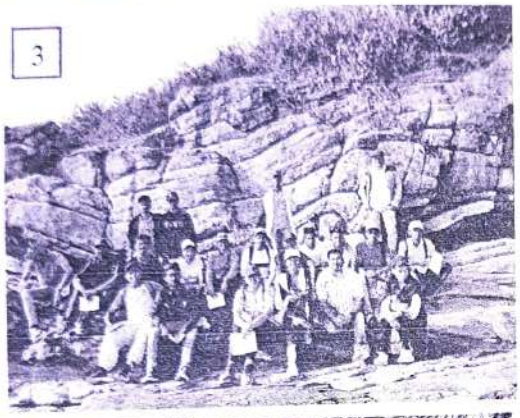

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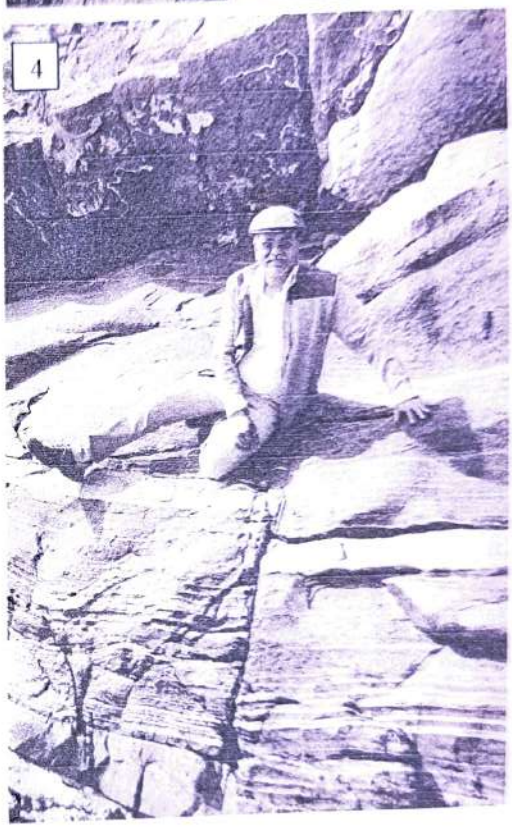

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7

Head
Geology Department
G. S. S. College, Belgaum

IQAC Co-ordinator
GSS College, Belagavi

Principal
G.S.Sc. College, Belagavi

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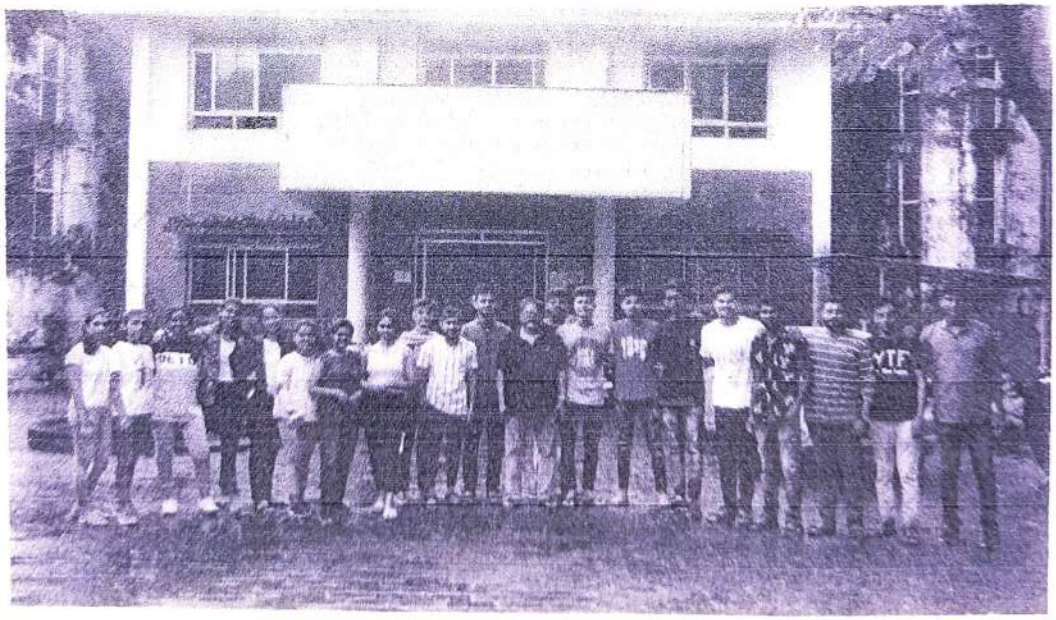
G.S.Sc. COLLEGE, BELAGAVI

REPORT OF

GEOLOGICAL STUDY TOUR TO ANKOLA & KARWAR

Date of visit **16-17 August 2022**

B.Sc. FOURTH SEMESTER
GEOLOGY (OPTIONAL)



Head
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G. S. S. College, Belgaum.

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GSS College, Belagavi

Principal
G.S.Sc. College, Belagavi

GEO TOUR 2022, SEMESTER 4

16th & 17th August, 2022

Karwar

SL. NO.	NAME	Roll No.	SIGN
01.	Richa Halgekar	808	
02.	Tejal Gawas	805	
03.	Divya Gawde	802	
04.	Dattaraj Ajrekar	706	
05.	Shubhangi Patil	701	
06.	Snehal Killekar	703	
07.	Bhushan Khanukar	406	
08.	Somesh Balekundri	407	
09.	Yogesh Kanbarkar	401	
10.	Juned Timmekar	411	
11.	Akash Badiger	403	
12.	Siddharth Satish Karjini	402	
13.	Rushabh Desai	410	
14.	Kiran Kumar	417	
15.	Prasad Ronad	418	
16.	Mahesh Patil	408	
17.	Harshad Mohite	709	
18.	Rani Angolkar	707	
19.	Srushti Killekar	812	
20.	Parth Manirker	713	
21.	Shruti Kudolkar	714	
22.	Dheeraj P. Gunaki	711	
23.	Shubham Shinde	416	

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G.S.Sc. College, Belagavi

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G.S.Sc. COLLEGE, BELGAUM

Department of Geology

CERTIFICATE

This is to certify that Mr/Miss._____ of B.Sc. FOURTH Semester with Geology as optional subject has attended the Geological Study Tour to **"GEOLOGICAL STUDY TOUR TO ANKOLA AND KARWAR"** on 16-17 August 2022.

Exam Seat No. _____

Date:

Head, Dept. of Geology

Head
Geology Department
G. S. S. College, Belgaum.

IQAC Co-ordinator
GSS College, Belagavi

Principal
G.S.Sc. College, Belagavi

GEOLOGICAL STUDY TOUR REPORT

Places of visit: Ankola & Karwar

Date of Journey: 16-17 August 2022

Geological study tour was conducted for B.Sc.IV students for Two days. We visited Ankola and Karwar and surrounding places to study the geological features.

We started our journey on 16th morning and visited the Nadibag beach near Ankola, wherein we were shown the beach morphological features such as beach profile terminology such as- beach face, beach scarp, foredunes, high water and low water lines, wave breakers etc. As the period of visit falls in Monsoon we could see the coastal erosion. We also observed huge dolerite intrusion, which is mafic with coarse grained texture and moderately high density. At the Nadibag headland in the north, We were also shown and explained the occurrence of boudinage structures which are eye-like features (Augen structure) of quartz and feldspars occurring in a line along the granitic-gniess foliation and ptygmatic fold structure (Photo). We could also see the discordant and concordant basic intrusions, Isoclinal/Recumbent fold' (Photos). This area is a museum of structures with variety of geological structures. (Latitude 14°38'57.64"N and Longitude 74°16'52.29"E). From the southern headland we could see Belambar beach with Belambar River mouth and Estuary (Photo). Later in the evening we visited Belekeri Beach, where in we could see the laterite cliff. the wave cut notches which are cut by the sea waves. We could see a basic dyke with pegmatite intrusion within granite/granitic gneiss. The granitic rock shows spheroidal weathering. The basic intrusive shows typical Tafoni/Alveolar/Honeycomb structure that is typical along the coast formed due to salt water.

Next day on 17th we visited Karwar beach (Rabindranth Tagore beach). We learnt about coastal landforms such as beach, estuary/river mouth, headland, island, spit, bars, wave action, longshore currents, ripple marks etc. We were explained in brief the coastal processes operating along the beaches. We collected some specimen of lamellibranch and gastropod shells.

In the afternoon we visited Marine Biology PG Centre of Karnatak University, where in we could visit their museum. The main attraction was the skeleton of huge whale. We could see variety of invertebrate organisms and shells. Dr Rathod, Chairman, explained us about the departments activities and ongoing project etc.

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Geological Setting of the study area:

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Acknowledgements: We are grateful to our teachers Dr.P.T.Hanamgond and Mr.Yogesh Kutre, for conducting this study tour.

Name:	Class: **B.Sc. IV Sem** Examination No.
Signature and Name of the staff: **Dr.P.T.Hanamgond**	**Mr. Yogesh M Kutre**

IQAC Co-ordinator
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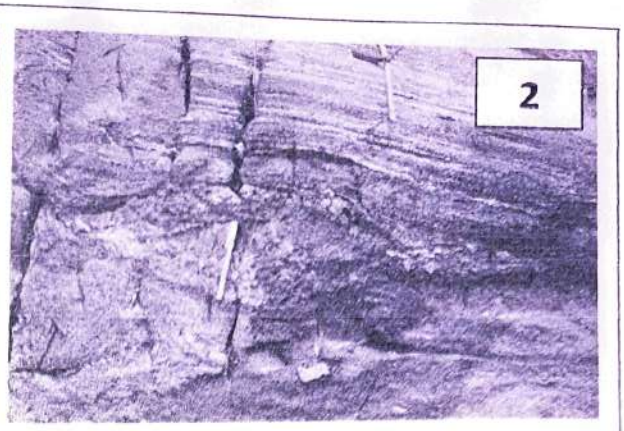
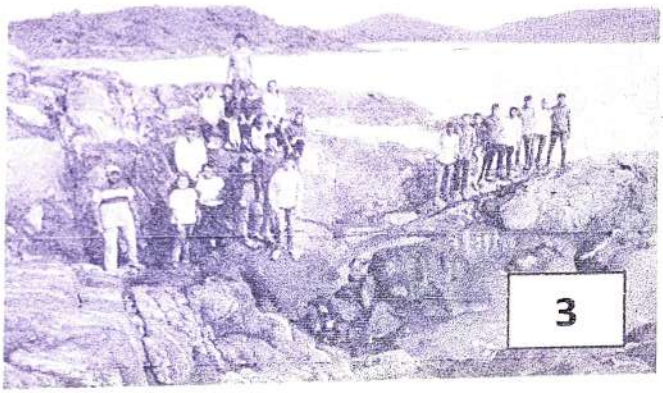
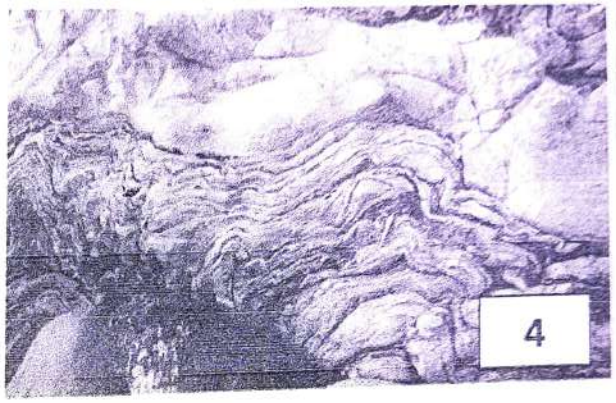
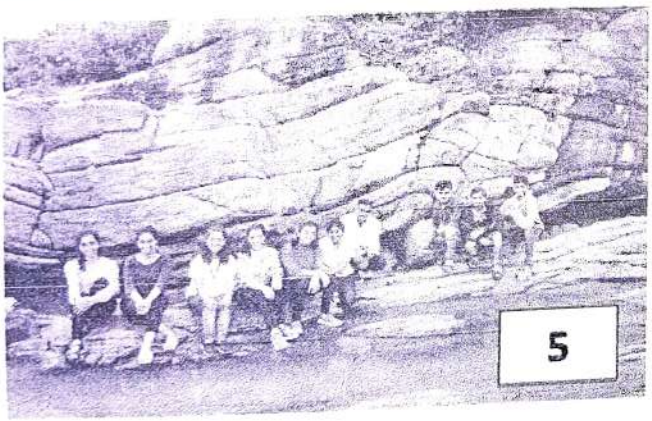
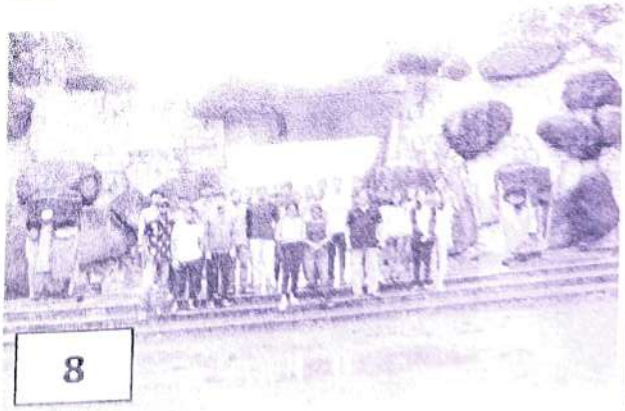
Principal
G.S.Sc. College, Belagavi











DESCRIPTIONS OF FIELD PHOTOGRAPHS:

1) Dolerite dyke intrusion at Nadibag, 2) Boudin structure at Nadibag. 3) Basic intrusion in migmatite at Nadibag. 4) Intense folding showing Ptygmatic folding and Isoclinal folding (5) at Nadibag, 6) Belambar beach with estuary, 7) Marine Biology Museum at Karwar, and 8) Rock Garden at Karwar.

Head
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IQAC Co-ordinator
GSS College, Belgavi

Principal
G.S.Sc. College, Belagavi

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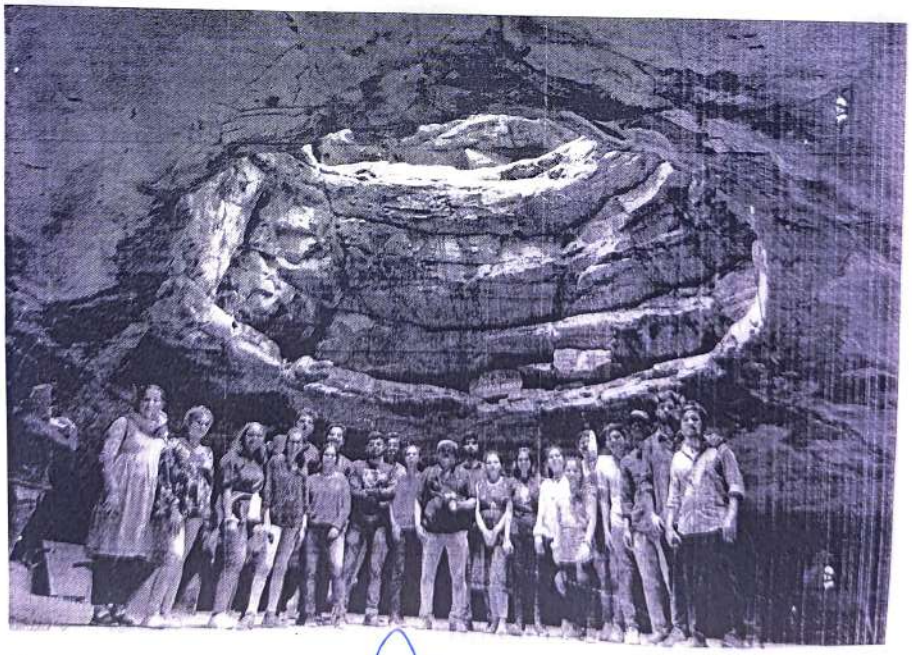
G.S.Sc. COLLEGE, BELAGAVI

REPORT OF

GEOLOGICAL STUDY TOUR TO BELUM CAVES, TADPATRI LIMESTONE MINES AT ANDHRA PRADESH; AND IRON – MANGANESE MINES AT SANDUR (SMIORE)

Date of visit **18-22** June 2022

B.Sc. SIXTH SEMESTER
GEOLOGY (OPTIONAL)



Head
Geology Department
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IQAC Co-ordinator
GSS College, Belagavi

Principal
G.S.Sc. College, Belagavi

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G.S.Sc. COLLEGE, BELAGAVI

Department of Geology

CERTIFICATE

This is to certify that Mr/Miss._____ of B.Sc. VI Semester with Geology as optional subject has attended the Geological Study Tour to **"Belum Caves, Tadpatri Limestone Mines at Andhra Pradesh; and Iron – Manganese Mines at Sandur (Smiore)"** from 18-22 June 2022.

Exam Seat No. _____

Head
Dept. of Geology
G. S. S. College, Belgaum.

IQAC Co-ordinator
GSS College, Belagavi

Principal
G.S.Sc. College, Belagavi

SKE Society's GSSc Degree College,
DEPARTMENT OF GEOLOGY

GEOLOGICAL STUDY TOUR TO GODCHINAMALKI AND GOKAK FALLS

REPORT
Date of visit 18-22 June 2022

We the B.Sc.VI students of Geology Department visited Belum Caves, Tadpatri Lmestone Mines, Iron and Manganese Mines at Sandur as a part of curriculum. We started our journey on 18th June night and returned on 22nd June night.

Geological Background of the Area:

The Sandur schist belt is one of the Precambrian supracrustal belts, collectively known as the Dharwar schist belts, in the Dharwar craton of South India (Fig. 1). The rocks of the Dharwar Supergroup constituting these schist belts were laid down on the basement of 3.4-3.0 Ga old Peninsular Gneiss Complex.

The Dharwar craton is primarily made up of gneisses and greenstone belts that formed from 3.5 to 2.5Ga (Naqvi & Rogers 1987). The greenstone belts are generally divided into the older Sargur group and younger Dharwar super group which were punctuated by a vast crust-forming event at 3.0 Ga ago. The Dharwar supergroup rests on the Peninsular gneisses with a profound unconformity represented by a quartz pebble conglomerate; this super group has been divided into the Bababudan and Chitradurga groups (Swami Nath & Ramakrishnan 1981).

Many workers believe that the Mn bearing horizon marks the boundary between the Bababudan and Chitradurga groups.

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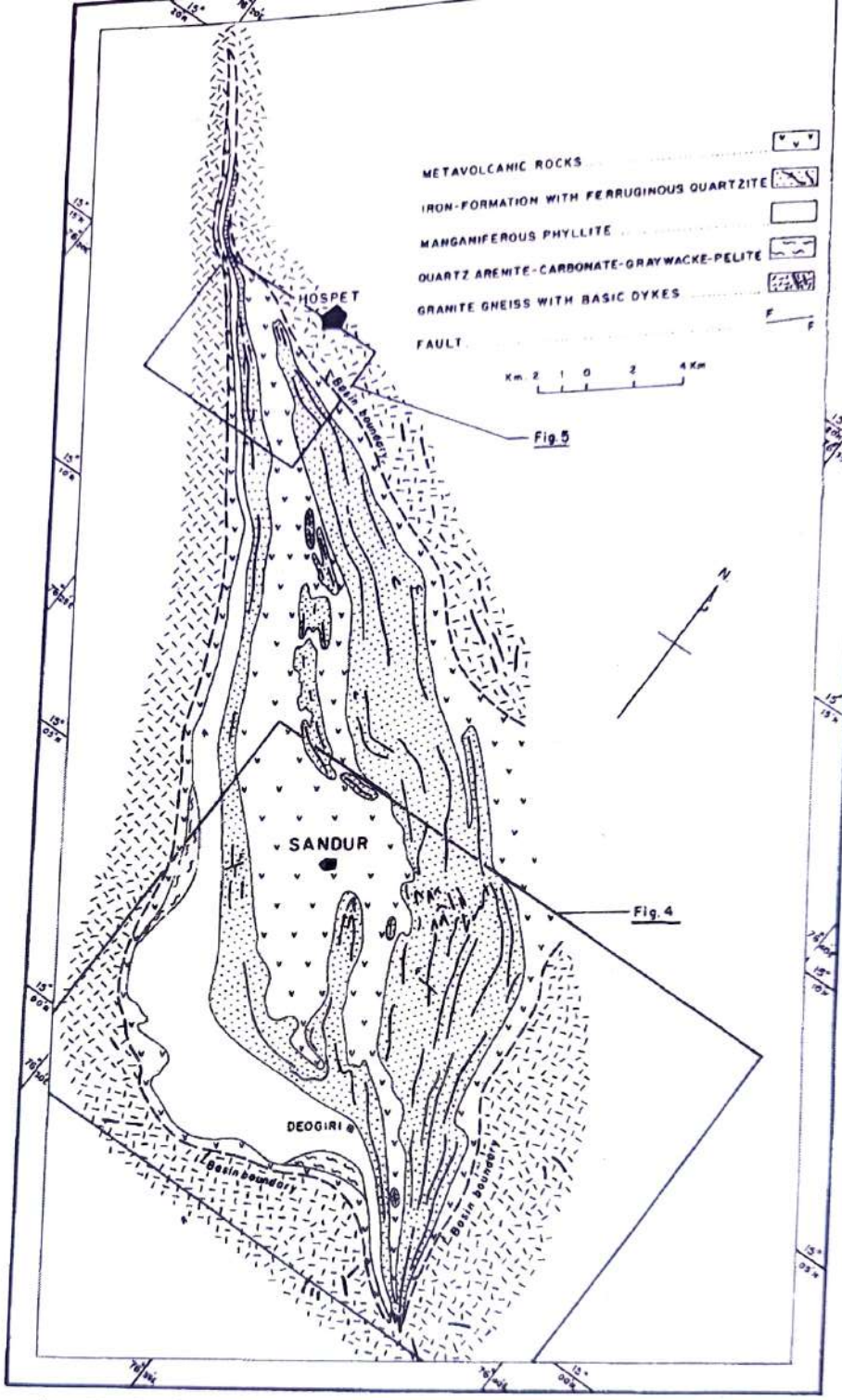

Figure showing Geological map of the Sandur Schist Belt, based on souther
geological study and detailed mapping in the northern and southern par

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On 19th morning we visited Kalimgundla Limestone Mines owned by Sai Minerals. Mr Mallikarjun mines manager explained the students about mine planning, ore estimation, benches, drilling and blasting etc. The application or use of the ore was also explained. We were taught the details of open cast mining (Photos).

On the same day we visited Belum Caves, which is a famous Sink hole in limestone terrain showing the characteristic feature of karst topography. We hired a guide to visit the underground cave and went through the cave for about 1.5 km in side. The cave exhibits wonderful stalactite and stalagmite deposits through out the cave (Photos). In the evening we visited cave temple of Sri Venkateshwara at Yaganti.

On 21st morning we visited SMIORE Iron and Manganese open cast mines at Sandur. Mr Neelanna Nooli Geologist showed us both the mines, explained the mine planning, ore estimation, exploration, etc. Also he took us to ore grading, sampling and estimation unit. He also taught us the use of Brunton and Clinometer compass to note the strike and dip direction of an outcrop. We visited one of the oldest Kumarswami temple which is built in 9th century and located in the vicinity. On 22nd morning we visited Hampi world heritage ruins. The granite exposures in and around.

Acknowledgements: We are grateful to Dr.P.T.Hanamgond & Miss Tejaswini Pawashe, of Geology department, for conducting this study tour. We thank our Principal, Prof.B L Majukar, for allowing us for this study tour. We are thankful to Kishor of Sai minerals, Tadpatri; Mr Sridhar Hegde and Neelanna Nooli of SMIORE, & our alumni Mr Satish Chowgule, at Sandur for their support.

Name:	Class: **B.Sc. VI** Examination No.
Signature and Name of the staff: **Dr.P.T.Hanamgond**	**Miss. Tejaswini Pawashe**

Description of Field Photographs:

(A & B) At Kalimgundla Sai Minerals Limestone Mines. (C); Belum Caves entrance (Sink hole), (D) Underground path of the cave; (E) Gabroid intrusion in Granite; (F) Fold structure in Iron Ore mines at SMIORE, (G) Mr Neelanna explaining the Iron ore distribution map; (H) Group Photo at Iron Ore mine; (I) Yaganti cave temple; (J-L) Hampi ruins; (M) Group photo with Mr Neelanna at SMIORE office; (N) Dyke exposure on highway & (O) Group photo at Sinkhole in Belum Caves.

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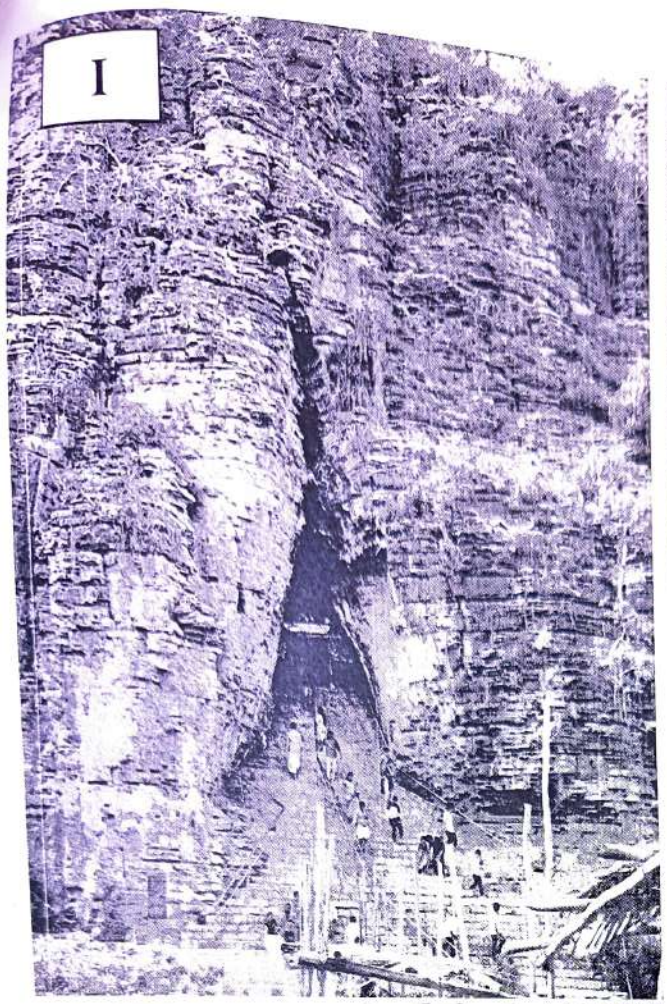

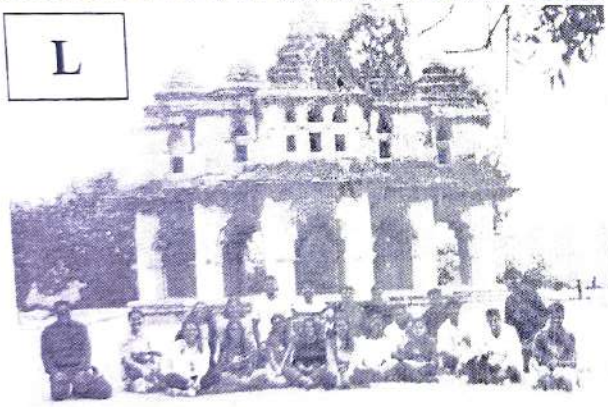

Head
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IQAC Co-ordinator
GSS College, Belagav

Principal
G.S.Sc

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G.S.Sc. COLLEGE, BELGAUM

SEPT2023
TV

REPORT OF

GEOLOGYCAL STUDY TOUR TO

DODDANNAVAR IRON ORE MINE

Date of visit 2 Aug 2023

B.Sc. FORTH SEMESTER

GEOLOGY (NEP)

Head
Geology Department
G. S. S. College, Belgaum.

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GSS College, Belagavi

Principal
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G.S.Sc. COLLEGE, BELGAUM

Department of Geology

CERTIFICATE

This is to certify that **Mr. Chandrahas Parashuram Patil** of B.Sc. IV Semester v
Geology as major subject has attended the geological Study Tour to
"DODDANNAVAR IRON ORE MINING COMPANY" on 2nd August 2023 .

Exam Seat No. **U15BL21S0460**

Head, Dept. of geol
G. S. S. College, Belgau

IQAC Co-ordinator
GSS College, Belagavi

Principal
G.S.Sc. College, Belagavi

SKE Society's GSSc Degree College,

Department of Geology

GEOLOGYCAL STUDY TOUR TO

DODDANNAVAR IRON ORE MINE

REPORT

Date of visit 2nd August 2023

We the B.Sc IV semester student of Geology Department visited Doddannavar Iron Ore Mining Company in Hiremagi Sulebhavi Aihole village, Hungund Taluka, Bagalkote District, Karnataka. We started our journey on 2nd AUGUST 2023 morning and returned on the same day evening.

Geological Background of the Area:

The geology of the area is quite well known world over for the Proterozoic sedementry basin popularly known as ' Kaladgi Formatin '. The area is present in the northern part of the Hungund-Kushtagi Schist Belt. This is comparatively a large schist belt which extends for nearly 100km having width of 20km. The northwestern extension of the belt is hidden under the Proterozoic Kaladgi sedements and Deccan traps. The belt is largely composed of basalt and landsite with minor ultramafic and subordinate metasedimentry bands. Banded iron formation made up of ferrugious chert and quartzite are present. The belt is completely engulfed by gneisses on all sides and is intruded by younger granites.

Stratigraphy : . The general geological succession along with Order of Superposition is given in Table.

META SEDIMENTS	
Formation	**Thickness**
Lateritic soil/clay/ shale – exposed on the surface	0-0.2m
Iron ore	0.5-31m
BHQ (Banded Hematite Quartzite) / Hematite siliceous	0.3-10m

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Geological features observe during study tour:

- A major part of the area is covered by iron ore and BHQ.
- It consist mainly of hematite and underlain by Banded Hematite Quartzite(BHQ).
- The iron ore bands occurrence has been found at two places in the northern and southern parts.
- The strike length of northern and southern ore bands are 264m and 388m respectively
- The northern ore body is running NE-SW (2100) to N-S direction with general dip o 600 to 700 towards west and having width varies from 20m to 80m.
- Both the iron ore bodies are enclosed by BHQ , Shale and Sandstone in all the majo formation of the area, structure like joints, minor fold have been noticed.
- Folds are well developed in the central part of the field are symmetrical o asymmetrical synclines and anticlines are more in N-W direction.

Geological structures seen during field studies:

- **FOLD -** It is a stack of originally planar surfaces, such as sedimentary stack that ar bend or curved during permanent deformations. At the field we observed various fold which are clearly visible and some chevron folds.

- **ANTICLINES-** It is a type of fold that is arch like shape and has its oldest bed at its core. At the field there is huge structure of anticline which is uplifted due to tectonic activity.

- **STRIKE-** It indicates the altitude or position of linear structural features.

- **DIP-** It is the angle of inclination major downwards from horizontal.

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ethod of Mining

It is proposed to operate mine the existing method of mining i.e. by fully mechanized opencast mining method adopting a system of benches. Slope of the benches will be maintained at 37° slope. Bench height 6m and width shall be maintained at 8m as per the statutory requirements. Where ever the bench height is more it will be reduced to 6m height.

Drilling: The primary drilling operation is conducted by wagon drill of 100mm dia bit, the drilling depth will 6.6m with sub grade drilling. The jackhammer will be used for secondary blasting. The diesel driven compressor will be used for the operation of drilling.

Blasting: The blasting operation will be performed by using millisecond delay detonator of multi - row blasting, the drilling and blasting will be required about 50%, the remaining will be excavated by self-excavation of the machinery. The lessee is having the own magazine which is shown on the surface plan. The Slurry type of explosive will be used. The charging will be 2/3 of the hole and 1/3 will be stemming practicing is adopting. The blasting vibration will be minimized by using millisecond delay detonators and reducing the charge per hole. The controlling measures of flying fragments will be undertaken.

Dozing: after blasting, the scattered ore will be dozed by Wheel Loader for convenient of loading and movement of the transport vehicle.

Excavation: The extraction of the blasted material and the self-excavated material will be loaded by 1,4m3 bucker capacity excavator. The material will be loaded in to 16tons capacity tippers.

Transportation: The material will be loaded by excavator will be transported by the 16tons capacity tippers. These tippers will be utilized only for internal transportation of ROM from face to crushing screening plant and to the waste dump/mineral stock/mineral reject stock.

Acknowledgements: We are grateful to our teachers Dr.P.T.Hanamgond and Mr Suraj Mense and Mr Yogesh Kutre, for conducting this study tour.

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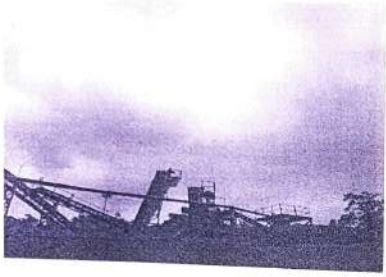
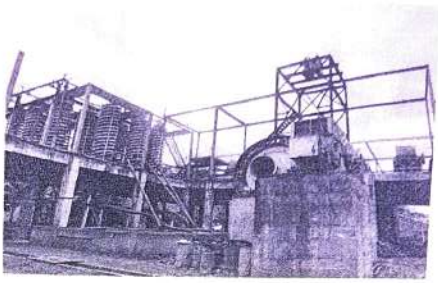
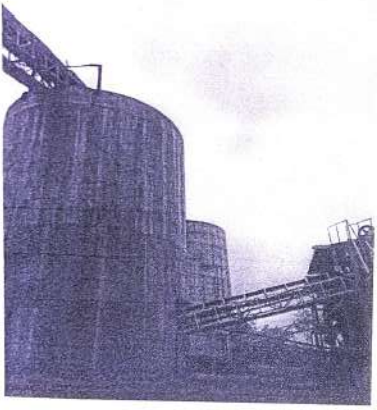
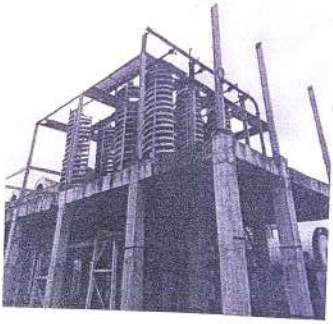
Description of Field Photographs

- Machines use for the extraction of the iron ore.









Area of the mine

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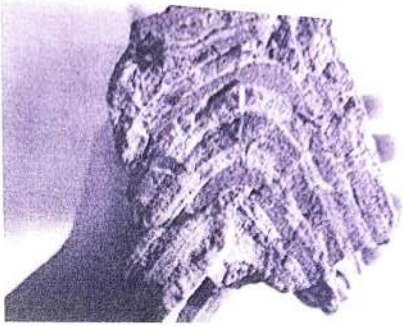
Folds



ame: Chandrahas P. Patil	Class B. Sc IV Examination no:U15BL21S0460
gnature And Name of The Staff Prof. Suraj S Mehse	Prof. Yogesh M Kutre

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List of students attending the Doddannavar Mines, Bagalkote

Date: 01/08/2023

Sl. No	Roll. No	Register Number	Student Name
B.Sc. II Sem			
1	203	U15BL22S0352	TANUJA VISHWAS DESAI
2	653	U15BL22S0334	POOJA
3	701	U15BL22S0114	TUKARAM SHIVAJI GAWADE
4	702	U15BL22S0060	AJAY SURESH JAMKHANDI
5	703	U15BL22S0308	PRACHI GAWADA
6	704	U15BL22S0294	RANJITA PRABHAKAR KOTEMANE
7	705	U15BL22S0306	TEJRAJ VIJAY PATIL
8	751	U15BL22S0189	PRATIKSHA PRAKASH PRABHAVALKAR
9	754	U15BL22S0244	RAJU DATTA MASHYAGOL
10	755	U15BL22S0245	AKASH KALING MADIWALAR
11	756	U15BL22S0263	NITISH TODAKAR
12	760	U15BL22S0326	SUMIT BHARAMA AIHOLE
13	761	U15BL22S0219	KIRAN RAVINDRA WAGH
14	764	U15BL22S0325	MALHAR RAJENDRA DALAVI
15	765	U15BL22S0331	PRANAV PRAKASH MALI
16	766	U15BL22S0343	RUTUJA AMIT JADHAV
17	770	U15BL22S0364	VINAYAK YALLAPPA GUNDI
18	763	U15BL22S0338	RITESH KAMBLE
19	619	U15BL22S0349	SUVARNA KAMBLE
20	552	U15BL22S0096	SANSKRITI P KANDEKAR
21	9	U15BL22S0075	SHRADHA PANARI
22	111	U15BL22S0350	SANIKA SAYNAK
23	452	U15BL22S0264	SWAPNALI NAIK
24	771	U15BL22S0365	SAIRAJ SHEVALE
B.Sc. IV			
1	201	U15BL21S0441	OMKAR PATIL
2	202	U15BL21S0031	MANIKANTH D HIREMATH
3	203	U15BL21S0458	YUKTA JOSHI
4	205	U15BL21S0460	PATIL CHANDRAHAS PARASHURAM
5	206	U15BL21S0020	PRAJWALA S GAVANAL
6	451	U15BL21S0010	SOURABH MANOHAR SAMBREKAR
7	652	U16BL21S0064	AKEEB MOMIN
8	653	U15BL21S0066	DHANSHREE KHANDEKAR
9	654	U15BL21S0065	PRIYANKA N KANCHANALLI
10	702	U15BL21S0053	ARUNA SHIVAJI DHARMOJI
11	703	U15BL21S0023	UDDHAV KRISHNA MOHITE
12	704	U15BL21S0045	AKASH KRISHNARADDI NAIK
13	712	U15BL21S0038	PRANALI PANDURANG JADHAV
14	753	U15BL21S0022	SRIRAJ RAMESH YADAV
15	755	U15BL21S0047	ANAND SATERI PATIL
16	756	U15BL21S0050	ARBAZ RIYASATALI JAMADAR
17	757	U15BL21S0069	BASAVARAJ SATTEPPA DANDAPUR
18	758	U15BL21S0145	SOMASHEKHAR MANJUNATH AJJAPPANAVAR
19	759	U15BL21S0144	PRAVEEN PRAKASH KANDRE
20	762	U15BL21S0012	EUGENIA PAUL VICTOR RODRIGUES
21	651	U15BL21S0454	POOJA S SUTAGATTI
22	715	U15BL21S0084	SAKSHI RAHUL PATIL

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Department of Geology

GEOLOGICAL FIELD REPORT

of

Holenarsinhpur & Chitradurga.

Name: SIDDHARTH SATISH KARJINI

Student of 3rd Year/ 6th Semester

Exam Seat number: S2016293

Roll No.: 403

Batch: 2022-23

Sept 2023

VI th Semester

Head
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G. S. S. College, Belgaum

IQAC Co-ordinator
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Department of Geology

CERTIFICATE

This is to certify that Mr.Siddharth Satish Karjini of B.Sc. VI Semester has attended Geological Study Tour and successfully submitted the Geological Report of the tou **"Holenarsinhpur and Chitradurga, Karnataka"** held from **10th to 13th August 2023**.

Exam Seat No.- S2016293

Date: ___ September, 2023

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Prof. Suraj Mense
Head of Department,
Department of Geology, GSS College, Belagavi

Geology Department
G. S. S. College, Belgaum.

Principal
G.S.Sc. College, Belagavi

Acknowledgement

We are grateful to Prof. Suraj Mense of Geology department, for conducting this study tour. We thank our Principal, Prof. B. L. Majukar, for allowing us for this study tour. We show our gratitude towards every faculty member to help us understand every bit of the tour in the best way and helping us to gain the field knowledge.

We are also thankful to every person associated with the field work to make this geological tour a greater success.

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TABLE OF CONTENTS

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ABSTRACT

For Geological Field Work, the Department of Geology, GSS College Belagavi undertook a Field visit to Holenarsinhpur and Chitradurga area for petrological, mineralogical and geological exploration of the area and study the economic activities going on in the area from 10th to 13th of August, 2023. A team of 25 students was headed by our faculty member **Prof Suraj S. Mense,** HoD, Dept. of Geology, Dept. of Geology, GSS College Belagavi. The team explored the formations across the area and various geochemical and structural aspects of the area.

The main aspects covered during the field work was the study of minerals and metamorphism evolution of Holenarsinhpur area with successive study of Rock Formations and structures in Chitradurga.

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CHAPTER

HOLENARSINHPUR

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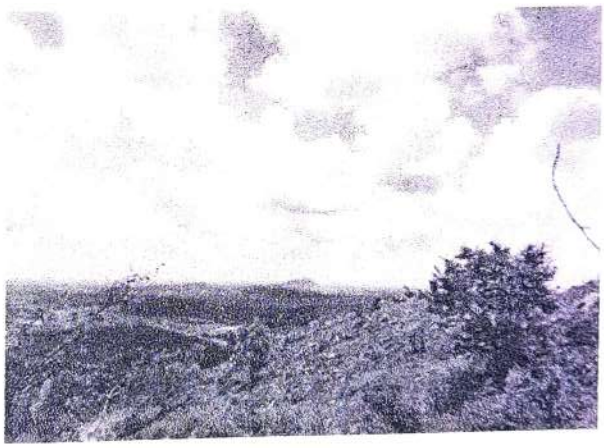
INTRODUCTION

Among the ancient supracrustal sequences within the Karnataka nucleus, the trident shaped Holenarasipura belt occupies an important position. The belts in unique in the sense that the north-south trending ancient supra-crustals are overlapped by the younger group of greenstones, the line of junction being marked by remenants of oligomictic conglamerate. The older association is represented by kyanite-staurolite, garnet-graphite schists with lenses of ultramafics and anthrasite, while the younger greenstone association is represented by strong development of amygdular basalts alternating with cross-bedded ripple-marked quartzite and iron formation. The southern arm of the Holenarasipura belt may therefore, be taken as representing are of the oldest supracrustal sequences in Karnataka.



ACCESSIBILITY

Yennaholerangana betta is located towards east of the Holenarasipura railway station: from the city, it is 3km away and MSL is 836.37m. Yennaholerangana betta is connected by mud road from Holenarasipura which is 90km from the royal city of Mysore. The Holenarasipura is well connected by the road from different parts of the state and also connected by railways.

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GEOLOGY OF THE AREA

It is located in Holenarasipura greenstone belt that is of the several greenstone belts of Karnataka craton (Dharwar craton) and this has been attracted the interest of geologiost, prospectors and research scholars. This belt geologically known as 'veritable geological museum', 'petrologist's paradise' and also as "Natural mineralogical museum' it is titled so because this region is known for Nine metamorphic minerals and Barrovian metamorphism'. Statigraphically this belt is significant because of both SARGUR GROUP AND BABABUDAN GROUP of DHARWAR SUPER GROUP are equally well developed and they are juxtraposed to each other. Consequently this belt has assumed great importance in models of early crust evolution. The two statigraphic sequences such as Sargur and Bababudan group are seperated by oligomict conglomerate. Holenarasipura schist belt is roughly trident shaped belt with longer eastern prolongation and it is named after the prominent town of Holenarasipura in the vicinity belt extends maximum length of 65km from Doddagudda to Yedegondahalli with a width range of 0.5km to 3km and the belt covers an area of 250sq. km. In which Yennaholerangana betta is a small hillock which is named after the God Rangaswamy. As shown in the Geological map of Holenarasipura schist belt as shown in the map.

The southward terrain is high grade metamorphic terrain, however northern part is metamorphosed.

CLASSIFICATION

Holenarasipura schist belt exposes two principal statigraphic sequences known as Sargur group and Bababudan group separated by Oligomict conglomerate. Sargurgroup is well exposed in southern portion it forms the oldest statigraphic sequence and has been highly metamorphosed. As shown in Stratigraphic column for Holenarasipura schist belt. The rock sequence of this group is different from Bababudan group, this group consists of Kyanite. Staurolite, Garnet, Mica, Graphite schist with intercalates of quartzites, amphibolites and ultramafic igneous rocks such as serpentine, peridotite, dunite, and mafic rocks suchas Gabbro and Anorthosite. Bababudan group is exposed in northern portion, it is less metamorphosed than Sargur group, and this group is mainly composed of large volume of amygdular metabasalts alternating with cross bedded ripple marked quartzite.

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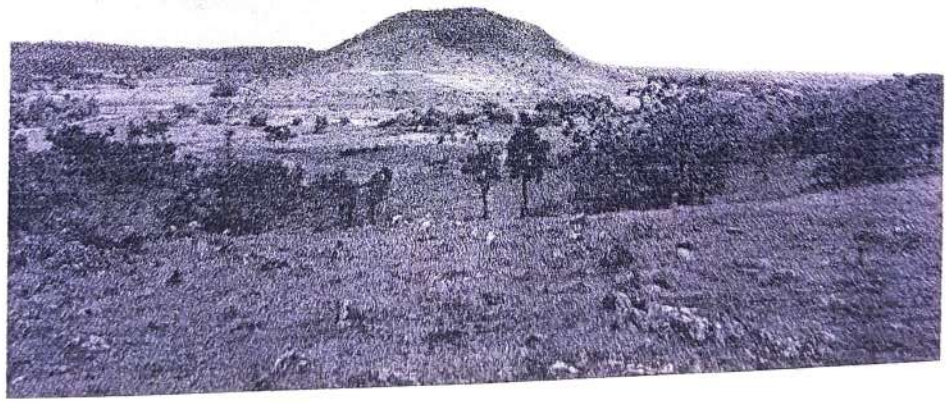
ENNAHOLERANGANABETTA:

Ve took a traverse from Holenarasipura town towards east on the Holenarasipura - hannarayanapatna main road, we notices the river Hemavathi and the region town to illock, the fertile soil is covered in which paddy and coconut plantations are grown in ne On journey to the hillock, we were encountered by the prominent hillock forming ocks. They were recognised as Amphibolites and Chlorites Schist and these samples ere collected Fe studies. The Amphibolites occurs as linear bands occupying the hill top nd most part of the hill.

lineralogically it is essentially made up of green hornblende and grey plagioclase inerals aligned parallel to the plane of schistosity. Plagioclase is distinct by its vitreous ster and hornblende is green in color in the form of prisms. These amphibolites belong Sargur group and these forms a part of intrusive ultramafic complexes of the belt and arlier workers notices these as the hornblende diorites



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FIELD OBSERVATIONS

AREA UNDER OBSERVATION:

Holenarsinhpur-

Ranganath Swamy Betta

Yennaholeranganabetta

DETAILS OF EXPLORATION INSTITUITION:

Govindram Sekasaria Science Degree College, Department of Geology, Belagavi.

DETAILS OF DURATION OF OBSERVATION:

10th of August, 2023

AVERAGE ELEVATION FROM THE MEAN SEA LEVEL: 849 metres

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ANNOTATIONS

- Holenarsipura schist belt is trending from North to South
- By traversing towards the dip direction we observe variation in rock or minerals
- Holenarsipura schist belt is Trident shaped("Trishula")
- Width of the schist belt may be of 0.5 kilometers to 3 kilometers extending Northwards
- Running about extension of 65 kilometers from Doddaguda to Yedagondanahalli
- Ranging about 2500 sq.Kilometers
- Throught the Holenarsipura Schist belt we witness "Barrovian Metamorphism"
- Series of minerals are indices of low grade to high grade metamorphism
- Chlorite schist is said to be dominating amongst others
- Holenarsipura schist belt belongs to Sargurs that is Juxtapositioned with Dharwars
- Sargurs lie over Dharwar
- Holenarsipura and nearby areas experiences scarcity of water as the entire terrain is highly metamorphosed suppressing water recharge
- "Aquifer" condition in the area is observed to be very poor
- Water level below the ground is about more than 300 feet making it expensive for drilling of borewell

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FIELD ENCOUNTERS

Chlorite Schist

It is a low grade metamorphic rock. It exhibits well developed histose texture, the grains are aligned parallel to the schistose. It is green in lour with distinct cleavage and low hardness.

It occurs in the form of linear bands and thin linear lenses ccupying the lower flanks of Yennaholeranganabetta. This linear and parallel ands show variable dips, their trend in NNE-SS6 and are soft meta-sedimentary ocks. They have been subjected to low grade green schist metamorphism. Along ith Chlorite, Garnetiferrous chlorite schist are seen and collected small grains of arnets are seen whose size is 0.2cm and less than that.

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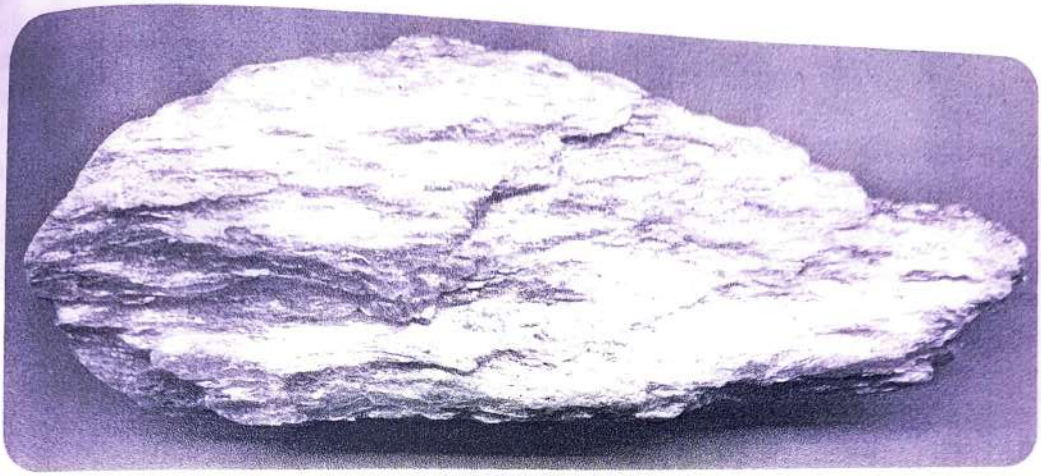
TALC



Some weathered serpentines were seen in the valley region towards the east of Yennaholeranganabetta. It occurs as broadly lenticular bodies standing out as bold mass in the hills and as a resistant out crops in plain regions. It is dark grey to green composed of mesh structure and some relict chlorite. It is mainly derived from the olivine mineral. Serpentine exhibits banding accumulated which suggest accumulative rather than extrusive.

Talc-calcite rock is formed from serpentine with sub-ordinatated Tremolite, Actinolite, Anthophyllite, Chlorite and Calcite.

Along with this is a specimen is collected near the dyke such formation is seen around the dyke for several meters. It might have formed due to the hydrothermal alteration of feldspars to mica. This process is termed as the Sericitization.

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STAUROLITE & KYANITE

Kyanite-Staurolite-Biotite-Muscovite schist are described as metaphillites by earlier workers (B R C Iyengar 1971), these are recognized as the oldest recognizable units of the area. These metaphillites are easily weathered and therefore they occupy low mound of undulated area and these are exposed to surface in Nala cutting areas of NNE at Yennaholeranganabetta in field it is se that extensive invention of quartz veins is an important feature of this schist wh hips to the concentration of bladed kyanites and prismatic staurolites in the sm pockets in soil covered areas these are formed due to weathering of underlying rocks.

Kyanite is blue, bluish green and white in colour, the crystals of kyanite occurs in th form of small granules and has large blades within the quartz veins upto 6cm. It exhibits varying hardness, cleavages. They are distinct and it exhibits vitreous to pearly luster. The samples were collected near Nala cutting

Staurolite occurs in the form of anhedral crystals ranging from small crystals to prism of 3-4cm long it exhibits dark brown to black colour well developed crystals of Staurolites were collected. These Staurolite and kyanite were mined for gem and refractory purpose both are associated with pelitic rocks of Sargur grouping this schist belt these were formed due to the regional metamorphism.

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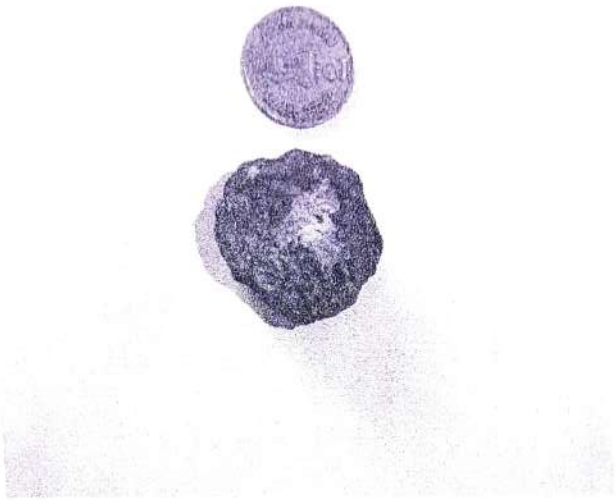
GARNET



The mineral crystallize in Isometric system, Granullar habit. Brown, Red in colour, Vitreous luster and indistinct cleavage. It shows high degree of hardness. The mineral is identified as Garnet.

CALCITE

The mineral shows rhombohedral crystals, colour colourless to grey. yellow etc. Vitreous luster, cleavage perfect, medium degree of hardness. The mineral is identified as Calcite

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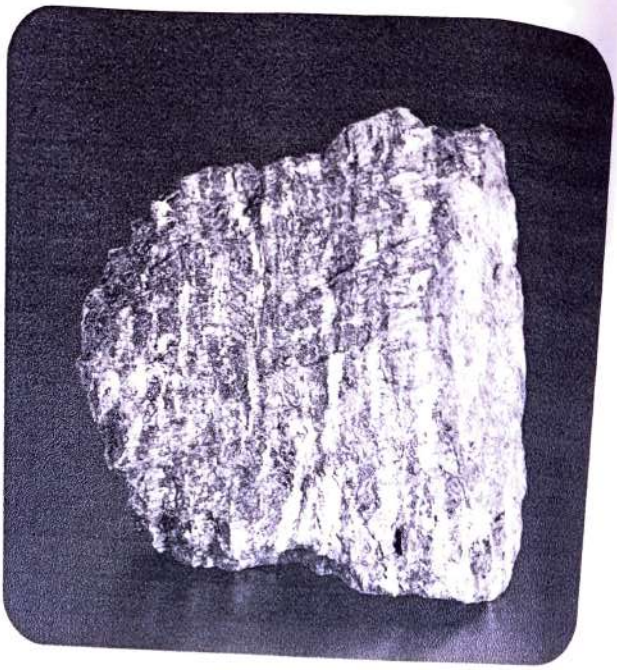
ASBESTOS



The asbestos are derived from the alteration of amphbolites of t
are of low grade products which exhibits fibrous habit these fibres are long fl
flexible and easily seperable colour variation from white to wooden brown the
fibrous asbestos are found in between serpentine and trimolite actinolite schis
these formed due to the metamorphism of ultramafic rocks.

Asbestos is one of the economical mineral along with carbonates which are
derived from the serpentine bodies in the form of calcite. It has rhombohedral
cleavage which are distinct in the crystals and it exhibits low hardness which ca
easily scratched by pen knife and it exhibits sub-vitreous luster.

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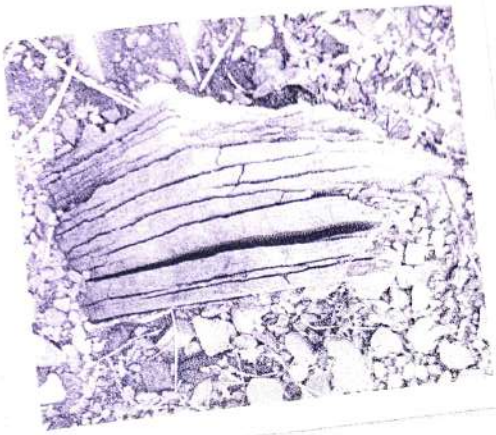
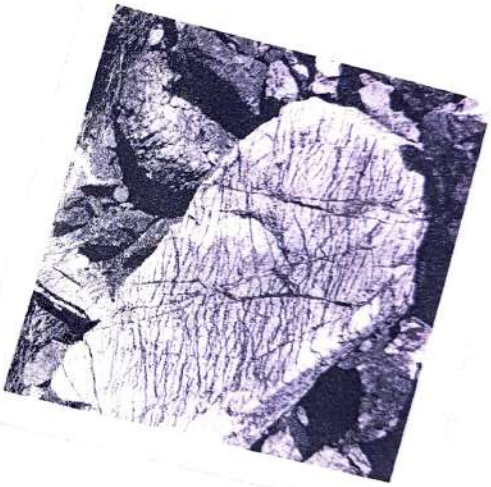
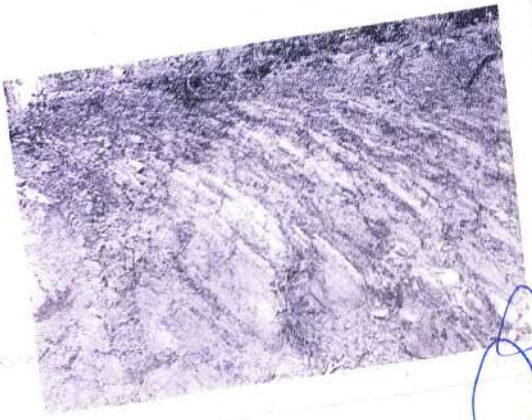
SUPPLEMENTAL FIELD OBSERVATIONS



Weathered rock Foliations

Stockwork mineral deposits





Macroscopic geological structure along exposure, Holenarsinpura

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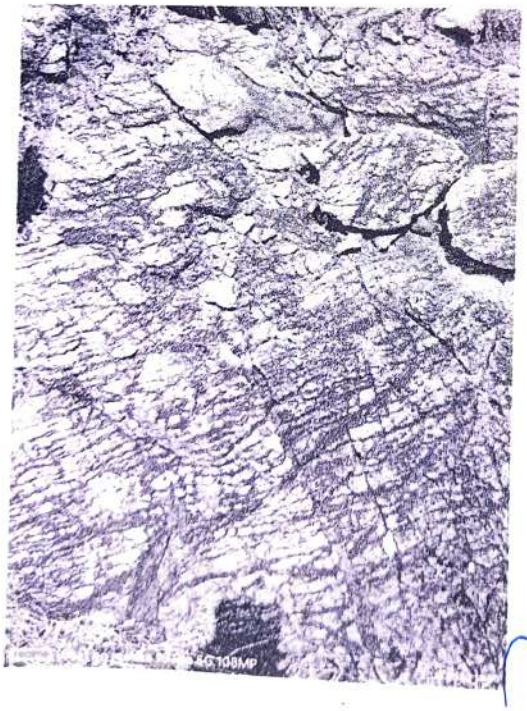
Minor mining excavation



Weathered Iron deposits in

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SKES's

G.S.S. COLLEGE, BELGAUM
DEPARTMENT OF GEOLOGY

To,
The Head, Dept. of Physics, Chemistry, Maths, Botany, Zoology, Computer Science
G.S.Sc. College,
Belagavi-590006

Date: 08/08/2023

Respected sir/madam,

Following students of B.Sc. VI Sem, are going for a Geological study tour to Holenarsipur, Belur-Halebeedu and Chitradurga area from 10th August 2023. to 13th August 2023. Please note their absence in the class and practical during the days.

Sl. No	Roll. No	Student Name
1	403	SIDDHARATH SATISH KARJINI
2	404	AKASH JAGADISH BADIGER
3	405	YOGESH M KANBARKAR
4	407	SIDHARTH KALLAPPA GHADI
5	408	MAHESH CHANDRAKANT PATIL
6	409	SOMESH BALKRISHNA BALEKUNDRI
7	410	BHUSHAN KHANNUKAR
8	411	RUSHABH LAV DESAI
9	412	JAGANNATH MARUTI KUNDEKAR
10	413	KIRANKUMAR BEERAPPA KATTIKAR
11	414	SANDEEP PRADEEP SHERI
12	416	PRASAD SHRISHAIL RONAD
13	704	SHUBHANGI SHRIPAT PATIL
14	708	HARSHAD MADHUKAR MOHITE
15	709	PRIYANKA TUKARAM JADHAV
16	802	SRUSHTI MALLAPPA KILLEKAR
17	803	DIVYA SUDHAKAR GAWADE
18	804	GAURAV NARAYAN PATIL
19	805	TEJAL SUNIL GAWAS
20	806	HARSHALA RAJU KALKUNDRIKAR
21	807	DHANASHREE KRISHNA HASABE
22	808	PRAJWAL PARASHARAM PATIL
23	810	RICHA RAJARAM HALAGEKAR
24	811	SACHIN SURESH GHATEGASTI
25	812	NEHAL SUBHASH DHAMANEKAR

Thanking you,

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