INTRODUCTION TO THE STUDY AREA, SESHANCHAVADI
CHAPTER - I

INTRODUCTION TO SESCHANCHAVIDI AREA

1.1 INTRODUCTION:

Seshanchavadi (Latitude 11°36'5", longitude 78°21'5") is situated in Attur Valley. Attur Valley has long been known as a zone of intense shearing and dislocations. Widespread shearing and mylonitisation with attendant dislocations are noticed. The prominent shear zones are in NNW-SSE directions, among which, the E-W, and N-E are of intense nature, regional in scale and possibly related to shear zones whereas the NNE-SSE set, though widely distributed, are of small scale with minor fractures.

The major shear zone / faults encountered in the area of Seshanchavadi, are

1. Mudiyanur shear zone
2. Singipuram shear zone
3. Vellalakundam shear zone

The rock types of Tamil Nadu comprise a wide spectrum of lithologies ranging from the oldest known supracrustals to the youngest cenozoic sediments, which include ancient supracrustals, polyphase Peninsular gneisses, charnockite-khondalites, migmatites, ultramafic mafic complexes, alkaline-carbonatite/complexes.
Fig. 1
Location map of Seshanehavadi

Bangalore
Madras
Salem
Tamil Nadu

Tyivandum

0 50 100km
Fig. 1
A panoramic view of Vellalakundam Reserve Forest.

Fig. 2
Southern part of Seshanchavadi hill (1.438) as viewed from Seshanchavadi railway station.
The study area, Seshanchavadi (latitudes $11^\circ 35'$ to $11^\circ 40'$ North and longitudes $78^\circ 20'$ to $78^\circ 25'$ East) is situated between Salem and Valappadi (Fig.1). Seshanchavadi is bounded by Veppilaipatti in the south and Godumalai banded magnetite quartzite ridge in the east-northwest. Charnockite forms by far the most widespread rock type and contains a large number of older enclaves. A variety of gneiss occur as irregular patches, lenses or enclaves. The author makes an attempt to give a detailed account on the geology of the area in and around Seshanchavadi.

1.2 LOCATION OF THE STUDY AREA:

The study area in and around Seshanchavadi, includes part of Salem and Attur taluks of Salem District. It lies between the coordinates of latitudes $11^\circ 35'$ to $11^\circ 40'$ North and longitudes $78^\circ 20'$ to $78^\circ 25'$ East, comprising part of the toposheet 58 1/6, published by the Survey of India, 1972. The major hills present in the study area (601, 621, 593 and 654 mts) together comprise Vellalakundam Reserve Forest (Plate I Fig.1) and is located in the western corner of the study area. Adjacent to the area under study also consists Vellalakundam Reserve Forest, a
group of hills (Δ 600, .474, and .582), part of Godumalai (.438 mts.) (Plate I Fig.2) are present, which is present in the north western portion of the study area. Besides these, there are few small isolated hillocks. They are (.457, .474, .476, .402 mts. etc.) They are located in the eastern division of the study area. Some of the important villages present in the study area are follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Village</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Seshanchavadi</td>
<td>11°36'5&quot;</td>
<td>78°21'5&quot;</td>
</tr>
<tr>
<td>2.</td>
<td>Singipuram</td>
<td>11°37'30&quot;</td>
<td>78°24'35&quot;</td>
</tr>
<tr>
<td>3.</td>
<td>Palaniapuram</td>
<td>11°37'55&quot;</td>
<td>78°23'40&quot;</td>
</tr>
<tr>
<td>4.</td>
<td>Muttampatti</td>
<td>11°35'30&quot;</td>
<td>78°23'0&quot;</td>
</tr>
<tr>
<td>5.</td>
<td>Chenrayanpalayam</td>
<td>11°36'50&quot;</td>
<td>78°20'30&quot;</td>
</tr>
<tr>
<td>6.</td>
<td>Sarkar Valappadi</td>
<td>11°35'35&quot;</td>
<td>78°24'10&quot;</td>
</tr>
<tr>
<td>7.</td>
<td>Ponnarampatti</td>
<td>11°38'20&quot;</td>
<td>78°23'40&quot;</td>
</tr>
<tr>
<td>8.</td>
<td>Mannarpalayam</td>
<td>11°38'30&quot;</td>
<td>78°24'10&quot;</td>
</tr>
<tr>
<td>9.</td>
<td>Pudupalayam</td>
<td>11°36'15&quot;</td>
<td>78°24'0&quot;</td>
</tr>
<tr>
<td>10.</td>
<td>Mudiyanur</td>
<td>11°39'35&quot;</td>
<td>78°20'35&quot;</td>
</tr>
</tbody>
</table>
1.3 **OBJECTIVE OF THE STUDY:**

The main aims of the present study area as follows:

1. The main thrust of work is on field observation and preparing a geological map.

2. To study in detail the structural features like fold, fault and lineament in the study area.

3. To undertake laboratory study of petrographic examination of over 30 micro sections to classify the different rock types present in the study area.

1.4 **METHOD OF STUDY:**

An area of about 86 sq.km. in the north western part of Attur Valley lying between latitude, 11°35' and 11°40' North, longitude 78°20' and 78°25' East, forming part of toposheet 58 I/6 in Salem District has been selected as the study area. Systematic geological and structural mapping on 1:50,000 scale, using Survey of India toposheet as base map was carried out independently by the author. The study area has been
Figure 2: Photo-geotectonic map of Attur valley and the adjoining areas.

(After V. Srinivasan, 1974)
revisited several times for the examination of critical locations, collection of samples and photography during which quite a few newer bodies were located and recorded. The aerial photographs of this area were of great help in deciphering certain broad structural features. Several field photographs are given to show the exact field relationship, outcrop pattern, type of weathering, style of folding etc. More than 40 rock samples / specimens were collected.

The laboratory studies include microscopic examination of 25 thin sections for the study of mineral paragenesis, textural peculiarities, effect of shearing, alteration, metasomatism, retrogression and carbonitisation as well as subtle mineralogical variations.

1.5 PREVIOUS WORK:

Among the earlier works pertaining to the study area, the works done by Holland (1897), Aiyengar (1948) and V.Srinivasan (1974), draw special attention. During a reconnaissance traverse, Holland (1897), identified the principal group of rocks in the neighbourhood of Salem (Seshanahadavi area) as pyroxene granulites of
charnockite series and younger dykes. Geological mapping of the study area and adjacent terrain was carried out on 1:63,360 scale by Aiyenger (1948). He described the presence of a variety of gneisses and schists in addition to charnockite ranging from acid to ultramafic compositions and intrusives like granophyres, quartz, pegmatite veins and dolerite dykes. He has discussed at length about Singipuram hill concluding that it may be a compressed anticlinal or synclinal structure, but however no such evidence could be found during this work. The striking synform and complimentary antiform east of Vellalakundam were partially identified by him.

He had recorded the broad zone of shearing and mylonitisation bordering Seshanchavadi area as "Godumalai" shear zone.

Aeromagnetic Survey and Aerial photograph of a large area in northern Tamil Nadu was carried out by the State Department of Mines and Geology, Madras in 1969, under UNDP Project. The present area forms a small part of this programme, Grady (1971) brought out the major lineaments in northern Tamil Nadu based on the results of the above investigation...
Fig. 3 Accessibility map of the study area

LEGEND

- Road, Metalled
- Road, Unmetalled
- Settlement

Scale 1 cm = 10 km
A few of the major structural features like folds, and faults in Attur Valley were broadly identified from the aerial photographs of the project by Srinivasan (1974). (Fig. 2).

1.6 ACCESSIBILITY:

Salem District is in general, best connected by bus routes and railways. The study area is well connected by National Highways connecting Salem and Madras, Via Valappadi. The National Highway Salem to Attur runs east to west along the northern side of the study area. A road connecting Seshanchavadi, Muttampatti, Palanipuram and Singipuram gives a accessibility to the north eastern portion of the study area. Besides these, a road connecting Seshanchavadi and Sarkar Valappadi gives accessibility to the northern part of the study area. The villages in and around Seshanchavadi area also well connected by metalled roads, un-metalled roads, cart tracts, rail tracts and footpaths. The Salem-Virudhachalam metre gauge, which run in the east west direction gives accessibility in the northern portion of the study area (Fig. 3).