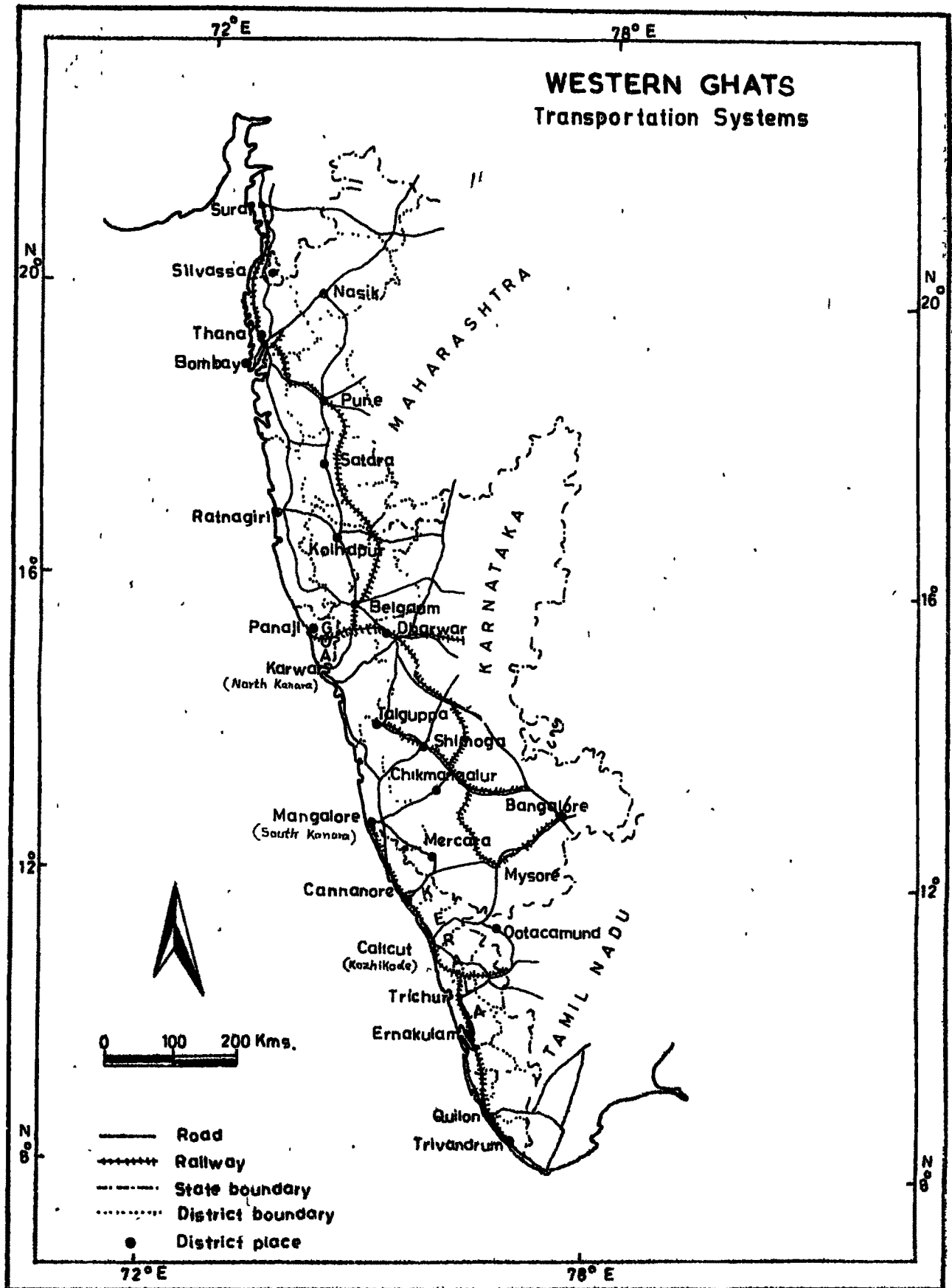
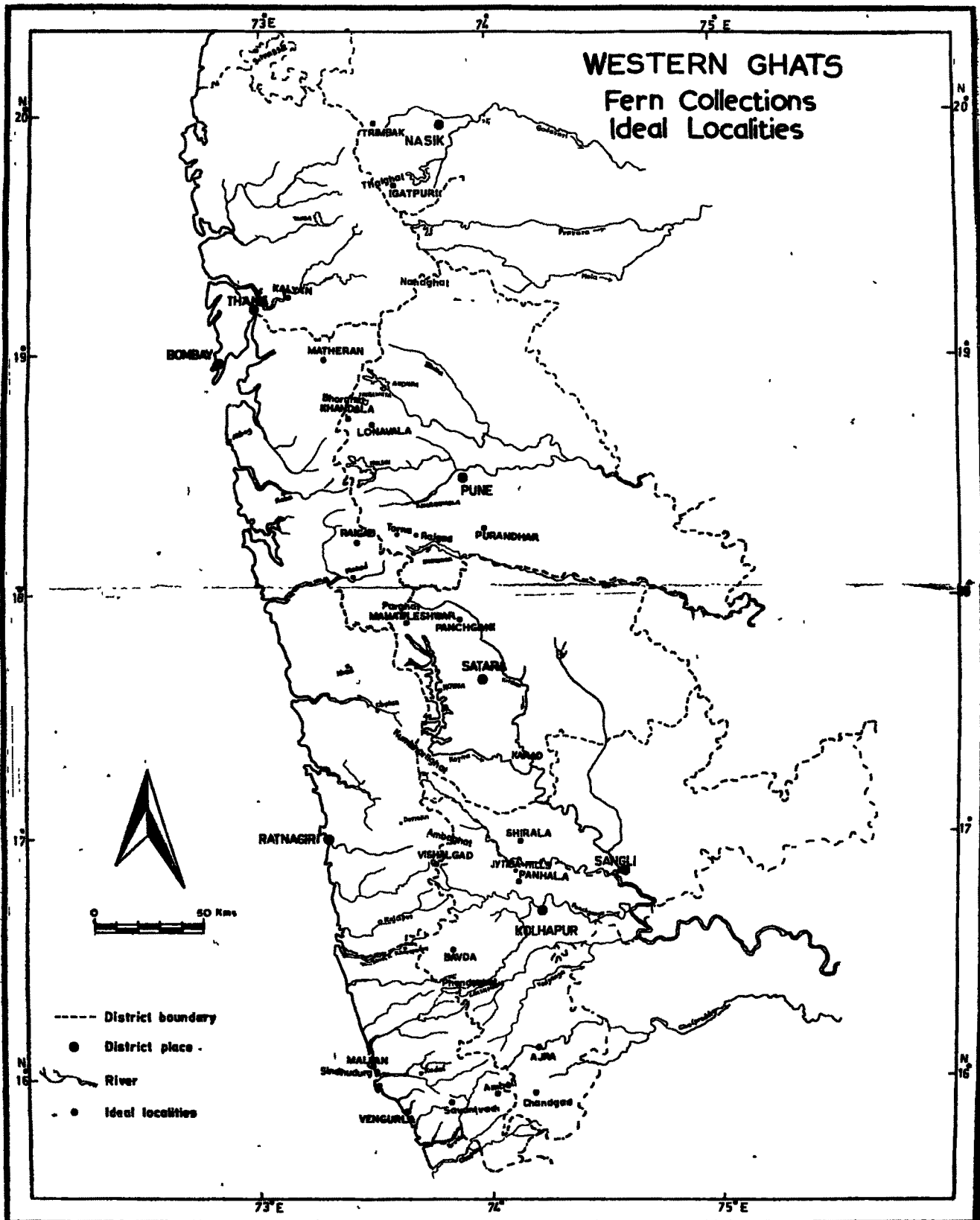


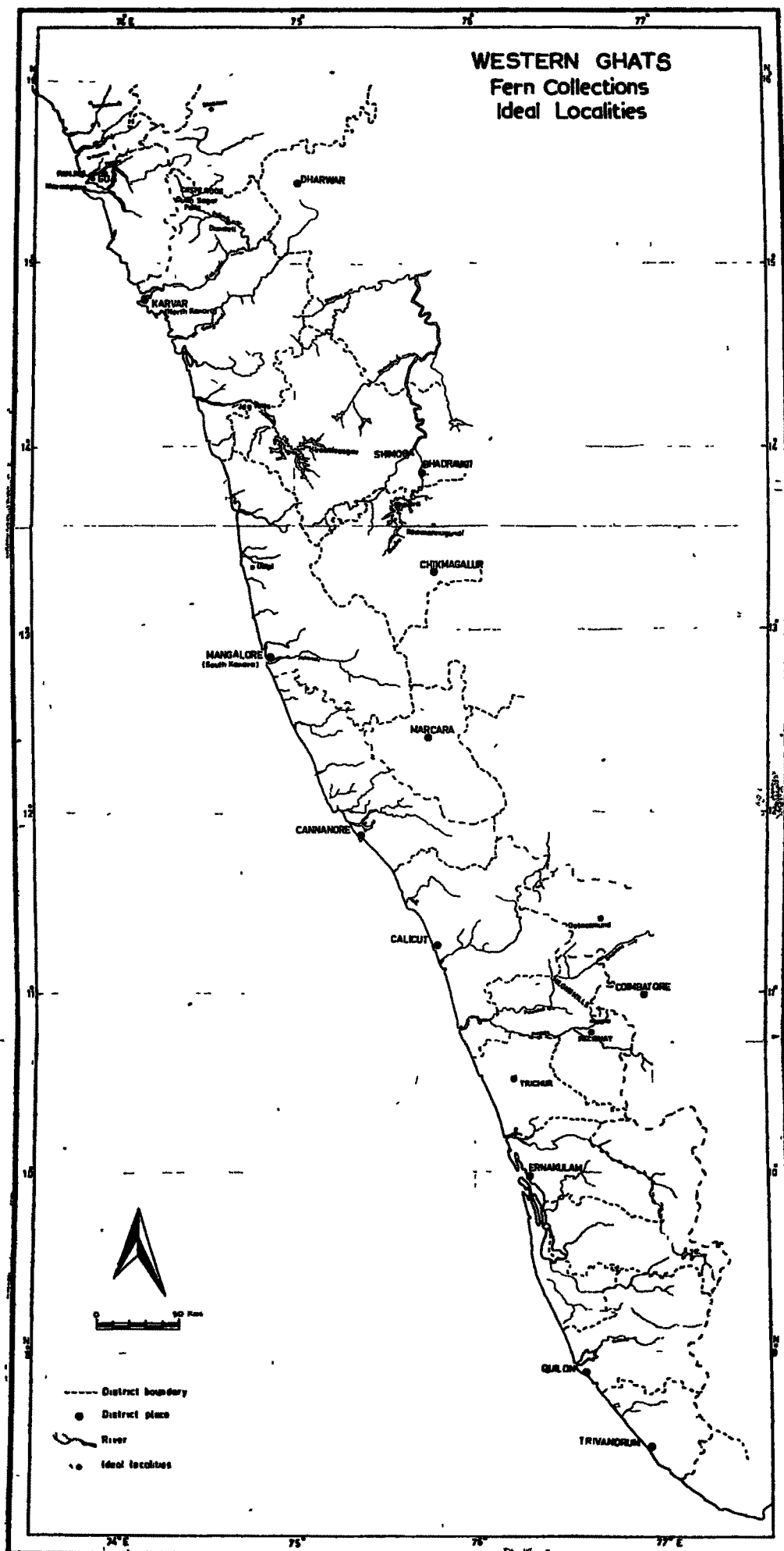
III COLLECTION OF MATERIAL AND
PRESERVATION



TEXT FIG. NO. 3.



TEXT FIG. NO. 4.



TEXT FIG. NO. 5.

During the successive botanical visits to the following areas fiftyone genera and one hundred and nineteen species of ferns and fern allies were collected. The plants are collected and processed according to the instructions given in the Botanical Collector's Manual (1955) by H.Santapau. Every effort has been made to collect the material afresh from fields. The field notes regarding their occurrence, relative abundance, habit and habitat and other particulars contain first hand information. The plants are identified and their identification confirmed by reference to the St.Xavier College, Herbarium, Bombay, which includes the Blatter's and other's original specimens.

The specimens are classified and arranged as per Pichi-Sermolli's classification system. The herbaria are kept at present in the Herbarium of Department of Botany, Shivaji University, Kolhapur.

The localities in the following districts are visited successively in different seasons from November 1980 to March 1983. (Text Fig.Nos.3,4 and 5).

- 1) Nasik 2) Ratnagiri 3) Sindhudurg 4) Satara,
- 5) Poona 6) Sangli 7) Kolhapur 8) N.Kanara,
- 9) S.Kanara. (Karnataka State).

- 10) Important districts in Goa territory.

In addition to the ferns collected from above area, some ferns donated by Dr.Patil,T.M. from Silent Valley, Kerala

State (South Sahyadri) were also identified and are included in the list of ferns from Western Ghats.

(1) Nasik District : Lying between $19^{\circ}35'$ and $20^{\circ}52'$ North latitude and $73^{\circ}16'$ and $74^{\circ}56'$ east longitude.

From Nasik district following are the places visited :

i) Nasik : The city of Nasik in North latitude 20° and East longitude $73^{\circ}5'$ has grown on the banks of the sacred Godavari.

ii) The Trimbak-Anjaneri range stretches nearly eastward from Bhaskargad (1086 M) on the Sahyadris.

iii) Igatpuri lying 48.28 km (30 miles) south-west Nasik. In general the forest type in Nasik district is of dry deciduous.

(2) Ratnagiri District : The district of (old) Ratnagiri lies $15^{\circ}36'$ N and $18^{\circ}5'N$, $73^{\circ}5'E$ and $74^{\circ}36'E$.

But recently it is divided into Southern Konkan - Sindhudurg district and Northern Konkan - Ratnagiri district.

Forests : Two types of forests are observed :

1. Bombay sub-tropical evergreen forests
2. South Indian tropical moist deciduous forests.

The later is composed of two edaphic variations

- i) Forests having laterite soil and
- ii) Forests with sandy loam.

Following are the places visited from Ratnagiri district (North Konkan).

i) Ratnagiri : North latitude 17° and east longitude $73^{\circ} 19'$, 136 miles south-east of Bombay.

ii) Amba Ghat : North-West of Kolhapur about 41 miles from Kolhapur. Altitude 3335 feet and Vishalgad is nearby has 3362 ft. height.

iii) Kumbharii Ghat.

(3) Sindhudurg District (South Konkan) lies between North of Deogad to the south of Phonda. The forests type found here are of i) Evergreen forest; ii) Dry mixed deciduous forest and iii) wet mixed deciduous forest.

The detailed survey of this region for the ferns has been done personally by visiting successively to the all small villages and hills in the district. Some of the important localities from the district are as follows :

i) Amboli (Savantwadi T., $15^{\circ} 55'N$, $73^{\circ} 55'E$) about thirteen miles north-west of Savantwadi, is a sanatorium for Belgaum and Savantwadi. The nearest railway station is Belgaum, 77 miles to the south-east. Amboli stands 2300 ft. above the coastal plain and enjoys good, cool and invigorating climate in summer. Laterite stone is found in the vicinity in abundance. The soil is rich in bauxite. Honey is obtained from the forest area. Hiranyakeshi Point from where the river Hiranyakeshi starts is a beautiful spot

for fern collection; where several ferns are luxuriantly growing thereby.

There are about 30 points and other places of interest near about this hill station, prominent among which are Mahadevgad, Narayangad, Nutt point, Khemraj Point, Savantwadi view, Nanapani Point; a good spot for ferns.

ii) Savantwadi : ($16^{\circ} 20' N$, $73^{\circ} 45' E$) 367 feet above the sea level. Some of the important points for fern collection are - The Hanuman Point - Narendra Hill, Upplarkar Point, Chiwar Tekadi, Mahadeobhat Point, Charata etc.

iii) Vengurla : ($15^{\circ} 50' N$, $73^{\circ} 40' E$) lies 200 feet above sea level. A chain of low hills runs north-east to within 500 yards of the town and outside of the camp stretches about nine miles south-west as far as Redi. It is a good locality for Ceratopteris thalictroides, Acrostichum aureum etc.

iv) Zolambe : It is 15 km from Savantwadi, a beautiful spot for Psilotum nudum, nicely growing on roots of Cocos nucifera and Arachea catachu plants.

v) Aronda : Situated 15 miles to the south-west of Savantwadi. A beautiful area for Acrostichum aureum, Ceratopteris thalictroides, Gleichenia dichotoma, and Psilotum nudum.

vi) Banda : (Savantwadi T. $150^{\circ} 45' N$ $73^{\circ} 50' E$) on the right bank of Terekhol creek near its mouth about 6 miles south of Savantwadi. There is gregarious growth of several ferns at the banks of streams.

vii) Malvan : ($16^{\circ} 00' N$, $73^{\circ} 25' E$) There is vigorous growth of Ceratopteris thalictroides.

(4) Satara District : It is at the Western limit of the Deccan table land and lies between $16^{\circ} 50'$ and $18^{\circ} 10'$ and $73^{\circ} 45'$ and $15^{\circ} 00'$ east.

On the west it has the Sahyadrian scarp with its major peaks, usually flat topped and intervening saddles.

Forest types : i) Evergreen forest
 ii) Dry mixed deciduous forest and
 iii) Wet mixed deciduous forests.

Some of the important places visited for ferns from the districts are as under :

i) Mahabaleshwar ($17^{\circ} 55' N$, $73^{\circ} 35' E$) About thirty-three miles north-west of Satara, situated on one of the Sahyadrian spur. The height averages 4500 ft above the sea level and at Sindola ridge the highest point reaches 4710 ft. The principal points are Arthur Seat (4421 ft), Elphinstone (4184 ft), Sidney or Lodwick (4067 ft), Bombay, Carnac, Falk-land, Sassoon and Babington (4245 ft) on the Konkan face and Kate's on the Deccan face. This is a very nice region for fern collection.

ii) Panchgani (Mahabaleshwar T., $17^{\circ} 55'N$, $73^{\circ} 45'E$) about eleven miles east of Mahabaleshwar, is a small health resort, 4378 feet above sea level. The village lies with five others on a Sahyadri spur which juts out at Mahabaleshwar and terminates about a mile from Wai.

iii) Kas : It is nearby Satara and also a good spot for fern collection.

A xeric fern Pteridium aquilinum is gregariously growing on open ground and hills.

(5) Poona District : lying between $17^{\circ} 54'$ and $19^{\circ} 24'$ north latitude and $73^{\circ} 19'$ and $75^{\circ} 10'$ east longitude.

Forests : The forest types are mainly three - e.g. Scrub, mixed and evergreen.

Some of the ideal places visited for ferns from the district are :

i) Lonavala : ($18^{\circ} 45'N$, $73^{\circ} 24'E$ - a 15 sq. miles elevation between 2000 and 2054 ft). A hill station situated on the top of the Bor pass (Bor Ghat) of the Sahyadris and at a distance of 80 miles from Bombay and 40 miles from Pune. An ideal place for fern collection.

ii) Parvati Hills (Poona) : In the SE corner of Pune is the temple topped rock of Parvati Hill with bare stony sides, rises 2111 ft. above mean sea level. A good locality for ferns.

iii) Purandar : $18^{\circ} 17'N$, $73^{\circ} 52'E$. Height 2545 ft, a famous fortified hill about 25 miles of Pune and about six miles SW of Sasavada from where a very fair road lead to the foot of the Purandar hill. Adjoining Purandara on the east and connected by the Bhairva Khind is Vajragada or Rudramala (4422 ft.) a minor fort. There is luxurient growth of ferns and fern-allies at this place.

(6) Sangli District : The district of Sangli is one of the Southern district of Maharashtra lying between $16^{\circ} 43'$ and $17^{\circ} 36'$ north latitude and $73^{\circ} 41'$ and $75^{\circ} 41'$ east longitude.

Forests : Sangli forests belong to four groups :

- a) Evergreen forest on the Sahyadri hills;
- b) Wet and dry deciduous forests on the slope of the hills that run east and form the catchment area of the Warna river;
- c) Forests with bushy and stunted tree growth on the hills to the east of the Krishna;
- d) Grassy area with sparse tree growth in Jath.

The Shirala taluka consists mostly of the southern slopes of the Bahiravgad-Kandur hills which branches off from the main Sahyadris in a south-easterly direction. A few species of ferns are occurring in this area.

(7) Kolhapur District : The district of Kolhapur lies between 15° and $17'$ north latitude and 73° and 14° east longitude.

Forests : Kolhapur forests belong to three groups :

- i) The sub-tropical evergreen
- ii) The moist deciduous and
- iii) Dry deciduous.

Some of the ideal places visited for ferns from Kolhapur district are :

i) Aira : ($16^{\circ} 05'N$, $74^{\circ} 10'E$) The town is prettily placed a little to the north-west of the meeting of the Citri and Hiranyakeshi on a spur of the Sahyadris, about 20 miles east of the main crest. Pyrrosia adnescens growing epiphytically during rainy season.

ii) Chandgad : ($15^{\circ} 55'N$, $74^{\circ} 10'E$) lies 26 miles west of Belgaum. A good place for epiphytic ferns like Pyrrosia and Microsorium membranacea.

iii) Kolhapur : ($16^{\circ} 42' N$, $74^{\circ} 14' E$) Height 1870 feet. Gaganbawada, Ramling, Katheyani are chief localities for fern collection.

iv) Vishalgad Fort (Sahuvadi T. $16^{\circ} 50'N$, $73^{\circ} 45' E$) An ideal place for the growth of Hymenophyllum sps. and Trichomane sps. and for other ferns also.

v) Panhala ($16^{\circ} 45'N$, $74^{\circ} 05' E$): It is a very good hilly location for the luxurient growth of ferns and fern allies.

vi) Radhanagari and Gholana : Radhanagari is 50-60 km to the south west of Kolhapur. It is 1100-1200 M high from the sea level.

Gholana : Gholana stream is 12 km to the south of Radhanagari. Both the places are rich in pteridophytes.

(8) Goa Territory : Gomantak or Goa is a small coastal district roughly in the middle of the western sea face of the Peninsular India. It is located between $14^{\circ} 10' - 15^{\circ} 52'N$ and $73^{\circ} 38' - 74^{\circ} 24' E$.

General features of the vegetation in Goa may be briefly characterised roughly correlated with altitudinal variation into three broad categories as :

i) 0 - 200 meters - Both natural as well as man-made vegetation in this belt closely resembles the general floristic composition expected along tropical or sub-tropical sea coasts.

ii) 200 - 600 meters - Natural and well preserved vegetation covering these low hills may show a climax association in which members of moist deciduous communities along with some tropical evergreen species may be represented.

iii) 600 meters and above - In this belt the general aspect of the vegetation gradually changes from moist deciduous to semi-evergreen formation. The important localities idea for fern growth that are visited from Goa are :

- | | |
|------------|----------------|
| i) Kankon | ii) Mudgao |
| iii) Ponda | iv) Doodhsagar |
| v) Londa | vi) Panjim. |

(9) Karnataka State :

Forest types : The forest types in Karnataka are

- i) Evergreen,
- ii) Semievergreen and
- iii) Mixed deciduous.

The ideal places for ferns visited from Karnataka State are :

i) Castle Rock : It is situated at 15°N and $74^{\circ} 20'\text{E}$ on the Southern Railway, 385 km from Poona and 418 km from Bangalore. Goa frontier is actually 5 km west of the Castle Rock Railway station. It is the best region for the luxuriant growth of pteridophytes.

ii) Anmode : It is five km from Castle-Rock. There is vigorous growth of Angiopteris evecta, Diplazium sp. and Pteris species.

iii) North Kanara (Karwar) : It is also the best locality for fern collection.