

# FISH OF DEOLALI.

BY

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## PART I.

(*With two plates.*)

### INTRODUCTION AND LIST OF MATERIAL.

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In 1935, the Zoological Survey of India received a small collection of fish from Deolali made by Dr. A. G. L. Fraser at the request of Mr. S. H. Prater. This material comprised seven species, of which two proved to be new to science.<sup>1</sup> As the headwaters of the Godaveri were so far a *terra incognita* for ichthyologists, a request was made to Dr. Fraser through Mr. Prater to make a comprehensive collection of fish at Deolali and its environs. The result has been most satisfactory. Dr. Fraser collected fishes for one year—June 1935 to May 1936—and obtained 4,463 specimens from several localities. The material is in an excellent state of preservation while the ecological factors governing fish life in various types of habitats are vividly described by Dr. Fraser in the descriptions of the localities where the collections were made.

To suit the convenience of the editors of the *Journal*, it is proposed to publish the account of the fish of Deolali in four parts. The first part, as is indicated in the title above, deals with the descriptions of the localities and the material obtained from each locality is listed separately. The second part will contain descriptions of two new species belonging to the genera *Parapsilorhynchus* and *Barbus* and notes on other species. In the third part Dr. A. G. L. Fraser will, in a series of notes, record his observations, both under natural and artificial conditions, on the biology and ecology of the fishes collected by him. In the final part one of us will discuss the geographical relationships of the fish fauna of Deolali, with special reference to its affinities with that of the Deccan.

A complete set of the material, containing type-specimens, is deposited in the collection of the Zoological Survey of India, while a representative series of examples is also preserved in the collections of the Bombay Natural History Society and of the British Museum of Natural History in London.

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<sup>1</sup> Hora, S. L. and Mukerji, D. D.—*Notes on Fishes in the Indian Museum*, xxv. On two new species of Cyprinid Fishes from Deolali, Nasik District, Bombay Presidency. *Rec. Ind. Mus.*, xxxvii, pp. 375-80 (1935).



We take this opportunity to offer our sincerest thanks to Dr. Fraser for the great trouble he must have taken in the collection and preservation of this enormous material, and for his lucid notes regarding the habitats of the various species. We have also to record our indebtedness to Mr. S. H. Prater for his kind interest in the matter and for affording us an opportunity to investigate this interesting material. The Bombay Natural History Society very kindly agreed to our retaining a complete set of the material for the collection of the Zoological Survey of India and further made a grant towards illustrations and other incidental expenses; for all this we are very thankful to the authorities of the Society.

#### GEOGRAPHICAL LOCATION AND PHYSICAL FEATURES OF DEOLALI.

Dr. Fraser<sup>1</sup> in his account of the snakes of Deolali gives a description of the geographical location, meteorology and physical features of the station but to facilitate reference some of the salient features are reiterated here. Devlali or Deolali is a small military cantonment in the Nasik District of the Bombay Presidency. Deolali is about 4 miles south-east of Nasik and the military cantonment 'is situated about three and a half miles to the south-west, on land formerly included in the villages of Bhagur and Sewnsuri and unconnected with Devlali.'<sup>2</sup>

#### LIST MATERIAL WITH DESCRIPTIONS OF LOCALITIES.

1. North Nallah pool, 3 miles west of its junction with the Darna river (Dairy Pool). Deolali, 27-6-1935.

The pool is an artificially created one, being formed by a masonry dam and built up stone embankments. It is 40 feet wide and 50 feet long with a depth of from 2 to 5 feet. Its bed is well sanded and its sides in the shallow parts are flagged with stone. It is used for washing cattle belonging to the Military Dairy farm and buffaloes are left to wallow in it for long hours, especially during the hot months of April and May. The pool itself is free from vegetation and its banks are sparsely grown with grass. At this time of the year, owing to the rains, the water in it is muddy and

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<sup>1</sup> Fraser, A. G. L. 'The Snakes of Deolali'. *Journ. Bom. Nat. Hist. Soc.*, xxxix, pp. 59, 60 (1936).

<sup>2</sup> Cambell, J. M.—*Gazetteer of the Bombay Presidency*, xvi, Nasik, p. 431 (Bombay: 1883).

The height above the mean sea level is from 1,800 to 2,300 ft. The average rainfall is 30 in. The monsoon months are June, July, August and part of September. The hottest months of the year are March, April and May, with the maximum shade temperature between 100 and 110° F. Dry and Wet bulb registrations show a marked humidity during October.

The topography of the country in the environs is undulating in character. On the south side lie the Thal Ghat extensions running east and west. The land is for most part under cultivation, and is intersected by deep tributary 'Nallahs' draining into the river 'Darna', which meanders through east of the Cantonment in a north-easterly direction to a point some 10 miles east of Nasik City, where at 'Darna Sangava' it joins the sacred river Godaveri. (Fraser, *loc. cit.*).



the volume and flow of water over the dam is greater than during the dry weather when it dwindles to a trickle.

- |      |  |     |     |     |     |               |
|------|--|-----|-----|-----|-----|---------------|
| i.   | <i>Barilius bendelisis</i> Ham.        | ... | ... | ... | ... | 3 specimens.  |
| ii.  | <i>Rasbora labiosa</i> Mukerji.        | ... | ... | ... | ... | 25 specimens. |
| iii. | <i>Parapsilorhynchus</i> (New species) | ... | ... | ... | ... | 1 specimen.   |
| iv.  | <i>Nemachilus denisonii</i> Day.       | ... | ... | ... | ... | 2 specimens.  |
| v.   | <i>Ophicephalus gachua</i> Ham.        | ... | ... | ... | ... | 1 specimen.   |

2. Section of North Nallah, 1,800 yards from its junction with the Darna river. Deolali, 30-6-1935.

The bed of the Nallah is shelving; and centrally there is a channel about 25 feet wide and from 2 to 3 feet in depth. The sloping banks are covered with varied flora, growing both in the water and on the banks. There is a fair volume of water flowing through this section of the nallah at all times of the year because of the proximity of the Deolali Bazaar, which lies a little to the west on its north bank and the waste water from the Bazaar runs into the nallah.

- |    |                                |     |     |     |     |               |
|----|--------------------------------|-----|-----|-----|-----|---------------|
| i. | <i>Rasbora labiosa</i> Mukerji | ... | ... | ... | ... | 14 specimens. |
|----|--------------------------------|-----|-----|-----|-----|---------------|

3. North Nallah, at a point 800 yards west of its junction with the Darna river. Deolali, 4-7-1935.

This part of the nallah is a narrow rocky defile. The banks are high and the sides precipitous, and the channel itself is difficult of access. There is no vegetation in it, but its high banks are grass grown. The depth of the water in this channel was barely 2 feet at the time the fish were taken, but this was just after abatement of the storm water, when the depth must have been at the least 3 feet. The current of the water flowing through it is strong. The sides of the defile, particularly the bases of the banks, are undermined. The rocky bed of the channel itself is eroded and shelved. It is 15 to 20 feet in width. There is also some silt in the bed.

- |      |                                       |     |     |     |     |              |
|------|---------------------------------------|-----|-----|-----|-----|--------------|
| i.   | <i>Chela clupeioides</i> (Bloch)      | ... | ... | ... | ... | 1 specimen.  |
| ii.  | <i>Danio aequipinnatus</i> (McClell.) | ... | ... | ... | ... | 3 specimens. |
| iii. | <i>Barbus ticto</i> (Ham.)            | ... | ... | ... | ... | 3 specimens. |
| iv.  | <i>Garra mullya</i> (Sykes)           | ... | ... | ... | ... | 5 specimens. |
| v.   | <i>Labeo boggut</i> (Sykes)           | ... | ... | ... | ... | 2 specimens. |

4. North Nallah, 50 yards west of its junction with the Darna river. Deolali, 14-7-1935.

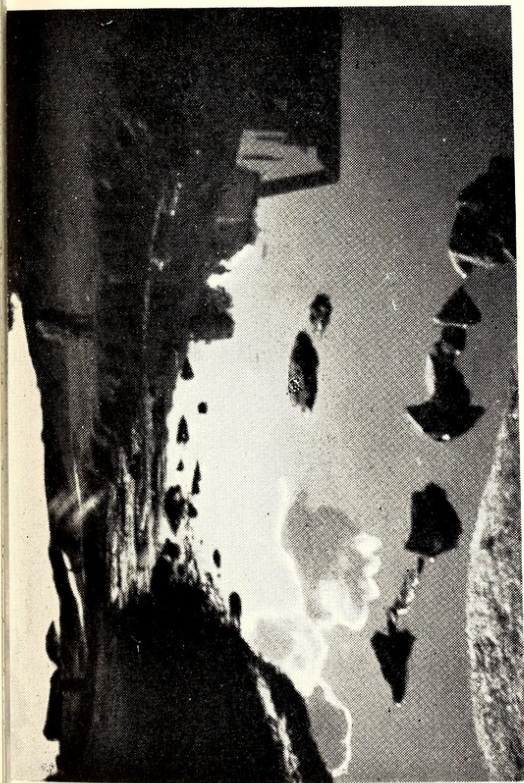
Here the nallah broadens out and the banks are shelving and slope down to the river. The width of the stream is from 40 to 50 feet. Its depth is about 2 feet at the sides to over 6 feet in the centre. The bed is silted and the flow of water is fairly strong at all times of the year. There is an exuberant growth of vegetation both on the banks and in mid-stream which is full of weeds. Bhil fishermen tell me there are no big fish in this section as it is too open. The few fishes secured by me here are all significantly enough small fry.

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|------|--|-----|-----|-----|-----|--------------|
| i.   | <i>Chela clupeioides</i> (Bloch)       | ... | ... | ... | ... | 6 specimens. |
| ii.  | <i>Rasbora labiosa</i> Mukerji         | ... | ... | ... | ... | 1 specimen.  |
| iii. | <i>Barbus ticto</i> (Ham.)             | ... | ... | ... | ... | 1 specimen.  |
| iv.  | <i>Parapsilorhynchus</i> (New species) | ... | ... | ... | ... | 1 specimen.  |
| v.   | <i>Ambassis nama</i> (Ham.)            | ... | ... | ... | ... | 3 specimens. |
| vi.  | <i>Ambassis ranga</i> (Ham.)           | ... | ... | ... | ... | 1 specimen.  |

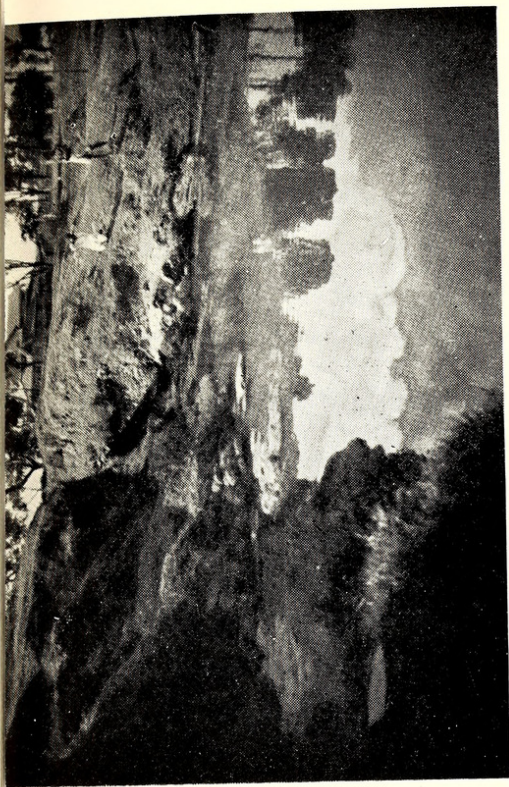
5. The Waldi river, at a point 2 miles east of its junction with the Darna river up to the village of Chedi; 7-11-1935.

The Waldi river is a tributary of the Darna. The fishes were caught at a point near to the bridge on the Deolali-Nasik road. The village of Deolali is on the north bank, and a few hamlets on the south bank constitute

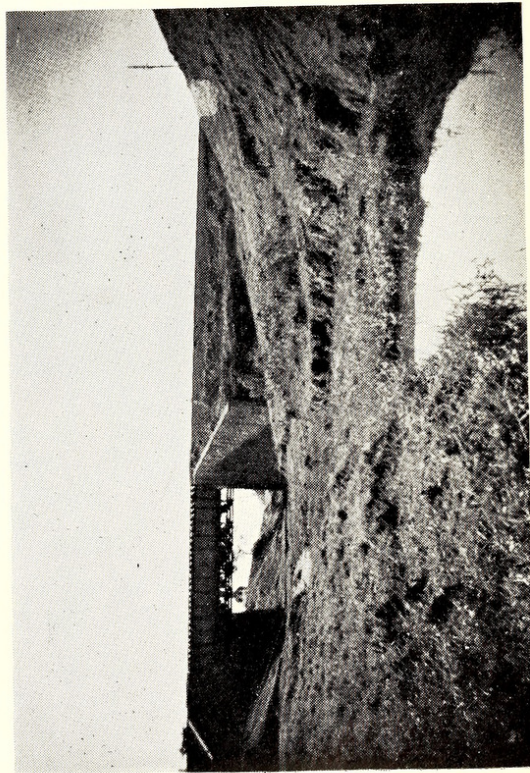




1. View of section of North Nallah in which *Barilius bendelensis* was found. Bhil name *Jhor*.



2. View of pool in course of North Nallah.



3. Pool between railway bridge in a section of the North Nallah stream.



4. Junction of the North Nallah with Darna River.







a village called Edhgaon. At the time the spot was visited the river was swollen with muddy flood water, turbulently rushing through. It was impracticable to effectively use a net. A spot was selected where it was possible to cast a net from the bank and the fish were really taken from the surface currents. The river here is 50 yards wide and was easily 20 feet deep as a result of the storm waters. The bed in this section is rocky. Owing to the villages in the close proximity the vegetation is scanty and the higher earthy banks are grass-grown. In the dry weather there is less water, but the flow is strong at all times. The river has its origin in the hills at Anjem and Dhammia at an altitude of 4,295 feet above sea level. It is fed from springs at various points along its course and there is a fair volume of water running through at all times of the year. It is roughly 22 miles in extent not taking into account the meanderings. It joins the river Darna one mile west of the village Cheri and about 2 miles east of the village of Deolali.

i. <i>Barilius bendelisis</i> Ham.	...	...	...	46 specimens.
ii. <i>Danio fraseri</i> Hora	...	...	...	11 specimens.
iii. <i>Barbus khudree</i> Sykes	...	...	...	2 specimens.
iv. <i>Barbus ticto</i> (Ham.)	...	...	...	91 specimens.
v. <i>Nemachilus botius</i> (Ham.)	...	...	...	3 specimens.
vi. <i>Nemachilus denisonii</i> Day	...	...	...	1 specimen.
vii. <i>Ophicephalus gachua</i> Ham.	...	...	...	1 specimen.

#### 6. The Darna river, at the ferry point near Bagoor village. Deolali; 25-7-1935.

The fish were caught at a time when the river was swollen with flood water. The banks are grass grown and there are a fair number of gum acacia (*babul*) trees in the near precincts. The width of the river here is 80 to 100 yards (approximate). The depth near the banks is from 2 to 3 feet. Midstream it must be 30 feet. The Darna river is a tributary of the Godavari and joins it some 10 miles east of Nasik City at a village called Darna Sangava. It has its source in the hills around Igatpuri (Thall Ghats). It is fed from springs and the waters from Lake Beale, which is 3 miles from Aswali Railway Station (G.I.P.R.). This river flows in a north-easterly direction and is one and a half miles east of Deolali Cantonment.

i. <i>Notopterus notopterus</i> (Pallas)	...	...	...	7 specimens.
ii. <i>Chela clupeoides</i> (Bloch)	...	...	...	74 specimens.
iii. <i>Chela phulo</i> (Ham.)	...	...	...	13 specimens.
iv. <i>Barilius bendelisis</i> (Ham.)	...	...	...	21 specimens.
v. <i>Danio aequipinnatus</i> (McClelland)	...	...	...	1 specimen.
vi. <i>Rasbora labiosa</i> Mukerji	...	...	...	2 specimens.
vii. <i>Aspidoparia morar</i> (Ham.)	...	...	...	14 specimens.
viii. <i>Barbus khudree</i> Sykes	...	...	...	3 specimens.
ix. <i>Barbus kolus</i> Sykes	...	...	...	14 specimens.
x. <i>Barbus ticto</i> (Ham.)	...	...	...	28 specimens.
xi. <i>Barbus</i> (new species)	...	...	...	1 specimen.
xii. <i>Labeo boggut</i> (Sykes)	...	...	...	2 specimens.
xiii. <i>Rohtee cotio</i> (Ham.)	...	...	...	6 specimens.
xiv. <i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	1 specimen.
xv. <i>Nemachilus botius</i> (Ham.)	...	...	...	2 specimens.
xvi. <i>Nemachilus denisonii</i> Day	...	...	...	1 specimen.
xvii. <i>Proeutropiichthys taakree</i> (Sykes)	...	...	...	18 specimens.
xviii. <i>Ambassis baculis</i> (Ham.)	...	...	...	2 specimens.
xix. <i>Ambassis nama</i> (Ham.)	...	...	...	1 specimen.
xx. <i>Ambassis ranga</i> (Ham.)	...	...	...	36 specimens.

#### 7. Swimming pool of Barnes High School, Deolali in the course of Narsullah Wadi, a tributary of the Darna river. Deolali, 28-7-1935.

This channel has the features of the 'North Nallah'. It is fed by springs and during the rains rushes with storm water. In the dry weather the



volume and flow are poor. The flora on its banks and in the stream itself is identical with that found in the North Nallah. The channel runs on the southern boundary of Deolali Cantonment and is roughly 2 miles south of it.'

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	...	41 specimens.
ii.	<i>Danio fraseri</i> Hora	...	...	...	...	11 specimens.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	...	27 specimens.
iv.	<i>Barbus ticto</i> (Ham.)	...	...	...	...	19 specimens.

#### 8. The Darna river, at a point midway between the villages of Sewnsuri and Beladgaon; 8-8-1935.

The river flows nearly due north from Sewnsuri onward past Beladgaon. At the halfway point there is a stretch of about two furlongs extent where the bed widens out and here the river is approximately 80 yards broad. About 35 yards of this width at the side of the west bank is a pebbled beach. The river itself in this section flows in three separate streams of some 10, 15 and 20 yards width respectively. In between are some islands which are grown with sedge and tall rushes. These islands appear to be shingle in the form of dried silt and are alluvial in character. The main volume and force of the water are exerted directly on the east bank, where the depth at this season is easily 12 feet or more and in the dry season would be from 8 to 10 feet. The two lesser streams are ankle deep at the sides and knee deep in the middle. The beds of the stream are pebbled and sanded, and in parts rocky. The force and volume of water are good at all times of the year; but the river is more swollen and muddy now due to the rains. The relative height of the banks to the bed is 25 feet. Cultivated fields adjoin the banks. The height above sea level is 1,800 feet.

i.	<i>Chela clupeoides</i> (Bloch)	...	...	...	...	41 specimens.
ii.	<i>Barilius bendelisis</i> Ham.	...	...	...	...	40 specimens.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	...	1 specimen.
iv.	<i>Aspidoparia morar</i> (Ham.)	...	...	...	...	3 specimens.
v.	<i>Barbus chola</i> (Ham.)	...	...	...	...	3 specimens.
vi.	<i>Barbus khudree</i> Sykes	...	...	...	...	2 specimens.
vii.	<i>Barbus kolus</i> Sykes	...	...	...	...	3 specimens.
viii.	<i>Barbus ticto</i> (Ham.)	...	...	...	...	9 specimens.
ix.	<i>Barbus</i> (new species)	...	...	...	...	2 specimens.
x.	<i>Rohtee cotio</i> (Ham.)	...	...	...	...	1 specimen.
xi.	<i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	...	1 specimen.
xii.	<i>Nemachilus botius</i> (Ham.)	...	...	...	...	2 specimens.
xiii.	<i>Callichrous bimaculatus</i> (Bloch)	...	...	...	...	1 specimen.
xiv.	<i>Proeutropiichthys taakree</i> (Sykes)	...	...	...	...	2 specimens.
xv.	<i>Ophicephalus marulius</i> Ham.	...	...	...	...	1 specimen.

#### 9. The Waldi river, near the village of Pimpalgaon Khamb; 17-8-1935.

The Waldi river flows from west to east. The heights of the banks in relation to the bed of the river are approximately fifty feet. The depth in the section explored is roughly from one foot on the south bank to 8 feet midstream and 12 feet at the river's edge directly against the north bank, where the main volume and force of the water are exerted. The width here is 50 to 60 feet. The volume and flow of water are full and strong at all times of the year, but at the time of the visit the river was moderately swollen with muddy storm waters. The bed is also rocky and sanded and silted in parts. In this particular section it is free from vegetation. The opposite bank is precipitous and for a little more than half its height consists of basalt rock. The rounded and irregular earthy strata on the top fifty feet above are covered with grass and heavily wooded with 'babul' and 'mango' trees. The height above sea level is 1,900 feet.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	...	2 specimens.
ii.	<i>Danio aequipinnatus</i> (McClell.)	...	...	...	...	1 specimen.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	...	1 specimen.
iv.	<i>Barbus khudree</i> Sykes	...	...	...	...	45 specimens.









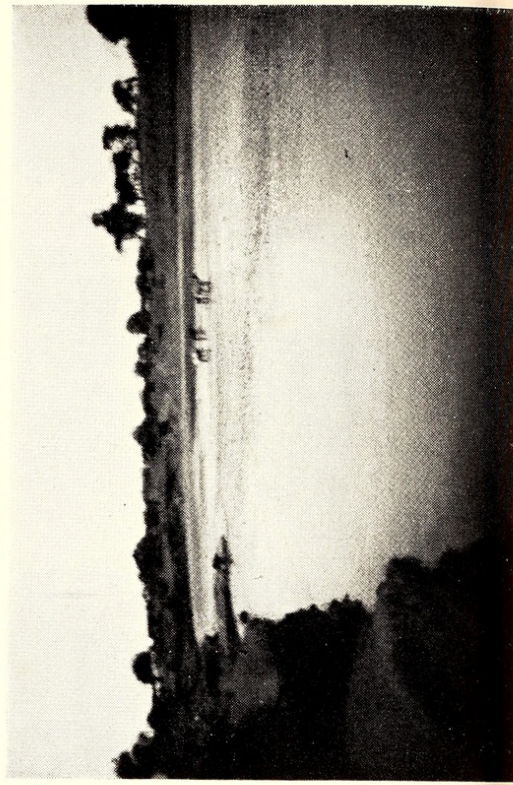
1. View of section of the Narsullah wadi running through Barnes High School.



3. Darna River near Goti Railway Station (G. I. P.).



2. Rocky section of lower stretch of Narsullah wadi near village of Bagoor.



4. Stretch of Darna River halfway between villages of Swensuri and Beladgaon.



v.	<i>Barbus kolus</i> Sykes	...	...	...	...	1 specimen.
vi.	<i>Barbus ticto</i> (Ham.)	...	...	...	...	67 specimens.
vii.	<i>Garra mullya</i> (Sykes)	...	...	...	...	1 specimen.
viii.	<i>Nemachilus botius</i> (Ham.)	...	...	...	...	3 specimens.
ix.	<i>Ophicephalus gachua</i> Ham.	...	...	...	...	2 specimens.

**10.** Lower section of Narsullah Wadi, near the village of Bagoor; 25-8-1935.

Here the stream broadens out and flows over a rocky bed before reaching a broad cutting between earthy banks. The width of the channel in this section is some 30 yards. The north bank maintains a relative height of 30 feet above the water line of the stream, even at its junction with the Darna and continues in an easterly direction as the north bank of the Darna, which in this locality flows due east. The south bank of the Narsullah Wadi slopes down from a height of 20 feet and ends flush with the north-west bank of the Darna as the latter at the point of junction has a bend in the course, deflecting it to the east. The depth of the section explored is from 2 feet at the sides to 8 feet midstream. The bed of the stream here is silted up. The upper and higher reach is rocky. The banks are grass-grown and the edges of the stream are fringed with rushes and some weeds. The volume of water is full and strong at all times of the year. At this season the stream is moderately swollen with muddy flood water.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	...	17 specimens.
ii.	<i>Danio aequipinnatus</i> (McClell.)	...	...	...	...	11 specimens.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	...	1 specimen.
iv.	<i>Rasbora labiosa</i> Mukerji	...	...	...	...	31 specimens.
v.	<i>Barbus ticto</i> (Ham.)	...	...	...	...	222 specimens.
vi.	<i>Garra mullya</i> (Sykes)	...	...	...	...	12 specimens.
vii.	<i>Parapsilorhynchus</i> (New species)	...	...	...	...	7 specimens.
viii.	<i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	...	1 specimen.
ix.	<i>Nemachilus denisonii</i> Day	...	...	...	...	1 specimen.
x.	<i>Ophicephalus gachua</i> Ham.	...	...	...	...	5 specimens.

**11.** Pool of a tributary 'Nallah' of the Darna river, near the 110th mile of the railway track on the Deolali to Igatpuri line; 29-8-1935.

The actual site of the pool in this 'Nallah' is some 200 yards from the railway bridge. This pool has been naturally formed by the stream running into a natural depression in the ground. Practically the whole of this is rock and the outfall has been bunded up by a natural dam of rock over which the water falls and continues its course in an easterly direction to join the Darna. The relative height of the banks which are rock overlaid by an earthy stratum is about 25 feet. The bed of the pool is silted up over its rocky base. The width of the pool is 20 feet and its length is roughly 70 feet. The depth of water is from 2 to  $3\frac{1}{2}$  feet. The earthy stratum is grown with grasses and the highland in the vicinity is given over to cultivation. The height above the sea level near this point is 1,852 feet. The total extent of this tributary nallah is roughly  $2\frac{1}{2}$  miles. It takes its origin from springs which are located about half a mile or more due west of the railway bridge and flows all the year though the volume is very poor during the dry months. At this season it is flowing strongly with muddy storm water drainage.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	...	3 specimens.
ii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	...	1 specimen.

**12.** The Darna river, near to the village of Sewnsuri; 8-9-1935.

The part explored was from the west bank against the village of 'Sewnsuri'. The greater part of this bank is rocky and shelving. The village is superimposed and built upon the part rocky base and part earthy layer which uprises from the shelving riverside, and is roughly 40 feet above the river.



A road from the village leads down to the river and opens directly on to the very wide and shelving rocky plinth. The village population is about 1,000. The inhabitants use the river for all purposes. Their cattle are also bathed in the river. A local industry of preparing raw hides is carried on in this village. The fresh skins are scraped and cleaned at the river side and then dried. The scrapings from the hides pollute the river and the portion of the bank where the work is done is therefore very insanitary. The shelving plinth is free from vegetation and is roughly 80 yards long and 30 yards or more broad. In the south corner of the plinth is a small temple with a shrine, the base of which is just over the water line. The villagers throw food stuff into the river and feed the fish. They do not object to fishes being caught; they invite you even on the temple site and in a friendly spirit show you the likely spots where big fish are to be had. The width of the river is about 40 feet and the depth is from 3 to 4 feet on the west bank, from 4 to 5 feet midstream and one foot on the east bank where there is a sanded beach. The opposite bank is from 10 to 15 feet high and is grown with grasses and bordered with fields under cultivation. The bed of the river on the side of the west bank is practically all rock. Midstream it is sanded and silted. The volume of water is good at all times of the year. Now the river is moderately swollen and muddy with storm water. The height above the sea level is approximately 1,820 feet.

i.	<i>Chela clupeoides</i> (Bloch)	...	...	...	1 specimen.
ii.	<i>Barilius bendelisis</i> Ham.	...	...	...	6 specimens.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	1 specimen.
iv.	<i>Barbus chola</i> (Ham.)	...	...	...	1 specimen.
v.	<i>Barbus kolus</i> Skyes	...	...	...	1 specimen.
vi.	<i>Barbus ticto</i> (Ham.)	...	...	...	123 specimens.
vii.	<i>Barbus</i> (new species)	...	...	...	4 specimens.
viii.	<i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	10 specimens.
ix.	<i>Nemachilus botius</i> (Ham.)	...	...	...	11 specimens.
x.	<i>Nemachilus denisonii</i> Day	...	...	...	13 specimens.
xi.	<i>Heteropneustes fossilis</i> (Bloch)	...	...	...	2 specimens.
xii.	<i>Mystus cavasius</i> (Ham.)	...	...	...	1 specimen.
xiii.	<i>Ophicephalus gachua</i> Ham.	...	...	...	6 specimens.
xiv.	<i>Ophicephalus marulius</i> Ham.	...	...	...	2 specimens.
xv.	<i>Ambassis ranga</i> (Ham.)	...	...	...	1 specimen.
xvi.	<i>Glossogobius giuris</i> (Ham.)	...	...	...	1 specimen.

### 13. Middle section of the Narsullah Wadi meandering through the Barnes High School Estate; 12-9-1935.

For the description of the locality see No. 10.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	9 specimens.
ii.	<i>Danio aequipinnatus</i> (McClell.)	...	...	...	23 specimens.
iii.	<i>Rasbora labiosa</i> Mukerji	...	...	...	112 specimens.
iv.	<i>Garra mullya</i> (Sykes)	...	...	...	13 specimens.
v.	<i>Parapsilorhynchus</i> (new species)	...	...	...	18 specimens.
vi.	<i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	32 specimens.
vii.	<i>Nemachilus denisonii</i> Day	...	...	...	60 specimens.
viii.	<i>Nemachilus evezardi</i> Day	...	...	...	4 specimens.

### 14. Pool at the source of the Narsullah Wadi; 12-9-1935.

The upper section of the 'Narsullah Wadi' courses down through narrow shallow channels from 4 to 5 feet wide and is barely ankle deep except in the two or three pools in its whole extent where the water is knee deep. It is fed from a series of three springs which issue and originate at the bases of two tors, the chief one of which is named 'Siva Donghai', 2,527 feet above the sea level. This region is a stony waste except in certain parts which are sparsely grown with grass. For roughly a mile in this section the bed of the stream is rocky and sanded. Thereafter the terrain becomes earthy black soil and the banks are bordered with fields under cultivation. At this season 'bajri' and 'groundnut' are in evidence. The fishes in this batch were taken from a rocky pool fed from the three springs



in its close vicinity at the foot of the tors. The banks are in part earthy and are grown with grasses and the flora usually found on the banks of rivers and streams in this area. The pool is 12 by 10 feet wide and knee deep. The bed is rocky. The altitude of the pool would be roughly 2,100 feet above sea level.

i. <i>Rasbora daniconius</i> (Ham.)	...	...	...	...	7 specimens.
ii. <i>Parapsilorhynchus</i> (new species)	...	...	...	...	37 specimens.
iii. <i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	...	1 specimen.
iv. <i>Nemachilus evezardi</i> Day	...	...	...	...	22 specimens.

**15. Quarry Tank, at the end of Dhondy Road, Deolali Cantonment; 19-9-1935.**

These fishes were taken from a quarry accumulation of water brought about by blasting operations carried out sometime in the past. As a result of these operations either a spring or some sub-soil source of water supply has been tapped and the ooze from below has made the area into a permanently filled tank. Obviously because of its potentialities for breeding mosquitoes this tank has been stocked with fish. No information is available as to when the tank became thus artificially formed; nor is the year known when the fishes were put into it. At present the water in it is not used for any purpose and is left neglected except for the regular visits paid to it by the Anti-Malarial Squad who examine it for the presence of mosquito larvae. These however appear not to be able to thrive in it owing to the presence of the fishes. The water accumulation as it now exists presents the form of nearly a square about 40 by 50 feet. Its depth would be about 25 feet from the surface of the banks. The depth of the water is well over 12 feet. It consists of practically solid basalt rock save for the earthy strata upon the banks. At the south end a section of the bank slopes down to the water edge and has a base of rock overlaid by a surface layer of earth. The rest of the bank is steeply upright from the surface of the water and is grass-grown. The water in it is dirty looking with a scum and algae floating on its surface. It is now teeming with a new species of *Rasbora* which do not appear to have suffered by the change in environment from that of a running stream to a still water tank. The nearest stream is the 'North Nallah' which is three furlongs distant from this tank. I mention this fact in order to support the statement that the tank must have been stocked with this species, as there is no connection between it and the North Nalla unless it be a subterranean one. I have failed to discover any other species in it.

i. <i>Rasbora labiosa</i> Mukerji	...	...	...	...	74 specimens.
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**16. The Aounda river, west of the road bridge between Aswali Railway Station and Lake Beale; 29-9-1935.**

The road bridge mentioned is one mile and a furlong from Lake Beale and the 'Aounda' river courses under it and meanders on due east until it joins the river 'Darna' below the dam. The 'Aounda' river has its origin in the heights south of 'Anjem'. These heights are the southerly ranges extending in an easterly direction towards 'Ambli' at an average height of 4,000 feet above the sea level. The springs and the drainage from the northern face of these heights help to swell the 'Waldi' river, while those on the southern aspects feed the river 'Aounda', flowing from it in a southerly direction until it meets the 'Kharki' nallah some ten miles south of its origin. About four miles north above the point of junction with the 'Kharki' nallah, near to a village called 'Raju' the 'Aounda' is joined by two other tributary nallahs, namely, the 'Choni' and 'Kohki' nallahs, all of which flow south and are perennial streams adding to its volume. The river 'Aounda', in its extent, is roughly 25 miles in all up to its junction with the river 'Darna'. From the junction with the 'Kharki' nallah the course is irregular. It flows south-east for a mile or so and then turns north for 3 to 4 miles, after which it meanders in a south-easterly direction and finally due east up to the junction with the 'Darna'. In the stretch explored, west of the road bridge referred to, the river flows from west to east. Here are the remains of a former road bridge which at some remote period must have been washed away



by a flood, as there are breaches in its length and the masonry bases of the piles supporting the former structure are now submerged. The existing masonry remains uprise from the river banks on either side to a height of ten feet. These show evidence of considerable erosion. West of this ruined bridge is a large expanse of water about one hundred yards long and 60 feet broad with a varying depth of 2 feet at the sides to 4 feet midstream. The fishes in this batch were taken from this section. The north bank is earthy and grown with vegetation and heavily wooded with 'babul' (gum acacia). The relative height of this bank to the bed of the river is about 25 feet. The south bank in its total extent is shelved with basalt rock sloping to the river's edge. Above this rocky plinth there is an earthy stratum rising to a height varying from 15 to 20 feet. This bank is bordered by fields under cultivation. The bed of the river is rocky and sanded for the greater portion of its width except for the shallows of the north bank which is silted up. The river was moderately swollen with muddy storm water at the time of the visit. The volume and flow were full and strong in midstream. The altitude is roughly 1,800 feet above sea level.

i.	<i>Chela clupeoides</i> (Bloch)	...	...	...	...	2 specimens.
ii.	<i>Barilius bendelisis</i> Ham.	...	...	...	...	1 specimen.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	...	2 specimens.
iv.	<i>Barbus amphibius</i> (C. & V.)	...	...	...	...	1 specimen.
v.	<i>Barbus chrysopoma</i> C. & V.	...	...	...	...	1 specimen.
vi.	<i>Barbus kolus</i> Sykes	...	...	...	...	1 specimen.
vii.	<i>Barbus ticto</i> (Ham.)	...	...	...	...	1 specimen.
viii.	<i>Garra mullya</i> (Sykes)	...	...	...	...	6 specimens.
ix.	<i>Labeo calbasu</i> (Ham.)	...	...	...	...	1 specimen.
x.	<i>Labeo porcellus</i> (Heckel)	...	...	...	...	5 specimens.
xi.	<i>Mystus cavasius</i> (Ham.)	...	...	...	...	1 specimen.
xii.	<i>Ambassia ranga</i> (Ham.)	...	...	...	...	1 specimen.
xiii.	<i>Glossogobius giuris</i> (Ham.)	...	...	...	...	3 specimens.

17. The Aounda river,  $\frac{1}{4}$  mile west of Lake Beale Dam; 6-10-1935.

The stretch of water is some 120 yards long and of a uniform width of nearly 60 feet. The river in this section flows in a slightly north-easterly direction. The depth is from 2 feet at the sides to roughly 6 feet midstream. There is a good volume of water flowing through with a strong centrally running current. The water was slightly turbid with mud. The south-east bank is in part an earth embankment 12 to 18 feet high and is grown with long grass and a few 'babul' trees. It is bordered with cultivated fields. The continuity of this bank then gives place to rocky plinths which slope to the water edge and in parts are precipitous up to a height of 5 to 10 feet. The opposite bank is for the whole length of this section a sanded beach 40 feet wide; and more inland to this it is earthy and grown with grasses and heavily wooded with acacia (*babul*). The bed of the river on the side of the north-west bank is sanded and the south-east bank is silted up in parts and where the rocky plinth begins it is composed of rock and sand. Midstream it is silted. There are no villages in this locality. The altitude above the sea level is 1,800 feet.

i.	<i>Labeo porcellus</i> (Heckel)	...	...	...	...	1 specimen.
ii.	<i>Mystus cavasius</i> (Ham.)	...	...	...	...	4 specimens.

18. Pool at the head of a nallah draining into the Aounda river; 6-10-1935.

The length of this 'Nallah' stream is not more than two furlongs and the spring and the pool formed by it are just below the road running from Lake Beale Dam to 'Aswali' railway station (G.I.P.R.). The stream begins here and in its course is of a varying width but never more than 8 feet in its broadest section. It is ankle deep in some parts and in other sections barely a few inches. The bed of the 'Nallah' has a steep gradient and is practically rock throughout its whole length except near



to its junction with the 'Aounda' river. It runs through cultivated fields of 'bajri'. The height of the pool above the river Aounda is at least 50 feet. The volume and flow are poor. The bed of the pool is rock and its depth is 2 feet. The width and breadth is 10 by 12 feet.

i. <i>Danio aequipinnatus</i> (McClell.)	...	...	...	1 specimen.
ii. <i>Rasbora daniconius</i> (Ham.)	...	...	...	27 specimens.
iii. <i>Barbus amphibius</i> (C. & V.)	...	...	...	18 specimens.

**19. Section of the Aounda river, 5 miles west of Lake Beale Dam; 15-10-1935.**

The river here bends from under the railway track, which is bridged over, and curving northward reaches after a 5 furlongs run the site from which the fish were collected. The direction of the river at this point is due north. The volume of the water was great and at the time of the visit the river was swollen with muddy storm waters, with the force of the current directed against the west bank. The east bank is a pebbled stretch of a length of 40 and a breadth of 20 feet. From this beach to a height of 10 feet is an earth embankment overgrown with grass and bordered by fields under cultivation (*bajri* crop). The opposite bank is all shelving rock. In the high sections of this rocky base are some sparsely grown patches of grass. The bed of the river is pebbled throughout. The depth of the water is from 2 feet at the sides to 4 feet midstream. The largest fish in this batch weighing when caught 1 lb. and 2 oz. was taken near the edge of the west bank. Here the bed is rocky and sanded, but at the water's edge there was a growth of rushes, which was localised to a small patch where there is a gathering of silt.

i. <i>Barilius bendelisis</i> Ham.	...	...	...	2 specimens.
ii. <i>Rasbora daniconius</i> (Ham.)	...	...	...	2 specimens.
iii. <i>Barbus khudree</i> Sykes	...	...	...	1 specimen.
iv. <i>Barbus kolus</i> Sykes	...	...	...	1 specimen.
v. <i>Barbus melanostigma</i> Day	...	...	...	3 specimens.
vi. <i>Barbus pinnauratus</i> Day	...	...	...	4 specimens.
vii. <i>Barbus ticto</i> (Ham.)	...	...	...	1 specimen.
viii. <i>Garra mullya</i> (Sykes)	...	...	...	3 specimens.
ix. <i>Labeo boggut</i> (Sykes)	...	...	...	2 specimens.
x. <i>Nangra viridescens</i> (Ham.)	...	...	...	2 specimens.
xi. <i>Glossogobius giuris</i> (Ham.)	...	...	...	1 specimen.

**20. & 21. West side sloping rocky channel which conducts the released waters from Lake Beale via the Dam directly into the river Darna at the point of its junction with the Aounda river; 15-10-1935.**

Lake Beale, (named after the Engineer who built the dam) is 17 miles long and 2 miles broad in its widest section. The dam was built across the course of the river 'Darna' in 1912 and converted a large area of the depression through which the 'Darna' river originally coursed into a lake. The dam is about one mile in extent and on an average 40 feet in height. The depth of water in the lake against the dam is from 8 to 10 feet. From the dam the waters rush over a wide and steep rocky bed interspersed with large boulders of basalt rock and become divided into two streams; one on the west side and the other on the east side of the wide rocky bed. The fishes were caught in the west channel which is 30 feet wide and about 2 furlongs in extent. Owing to the steep gradient of the rocky bed the waters swirl down in a roaring torrent. When there is an increased volume of water flowing through this channel from the lake it is dangerous for a man to negotiate a passage through it. Bhil fishermen however manage to do so only at a certain point, where a section of this channel, about midway in its length, levels out for 10 feet or more and here in this patch the fishermen cast their nets regularly every evening with the certainty of securing fishes of large size weighing up to 3 lb. The gates of the dam are opened regularly during the monsoon months and occasionally during the dry months and at



the time of the visit the water flowing through the channel was in great volume owing to some of the gates on the west side of the dam having been opened. In the level patch referred to above, the depth of the water depends upon the volume rushing through it. It may be knee deep or at its greatest height about 3 feet or more. At the end of the 2 furlongs run the channels below the dam, which constitute the river 'Darna', are joined by the river 'Aounda' and this junction creates a wide expanse of water seething and foaming with swirling currents rushing over beds of pure rock without evidence of any vegetation on its banks. The altitude of the dam is 1,875 feet and the levels of the junction of the two rivers would be 1,800 feet.

i.	<i>Chela clupeoides</i> (Bloch)	...	...	...	...	10 specimens.
ii.	<i>Barbus khudree</i> Sykes	...	...	...	...	1 specimen.
iii.	<i>Barbus kolus</i> Sykes	...	...	...	...	3 specimens.
iv.	<i>Barbus sarana</i> (Ham.)	...	...	...	...	2 specimens.
v.	<i>Wallago attu</i> (Bloch)	...	...	...	...	1 specimen.
vi.	<i>Ambassis ranga</i> (Ham.)	...	...	...	...	5 specimens.
vii.	<i>Glossogobius giuris</i> (Ham.)	...	...	...	...	3 specimens.

22. The Darna river at its junction with the Aounda river at the point where the rocky channel conducting waters from Lake Beale levels out with the Darna river; 20-10-1935.

The wide expanse of waters at the junction of the two rivers mentioned is roughly 120 yards broad and about 2 furlongs in extent. It is an area composed mostly of rock. The north bank is in part a sanded beach giving place to sloping rocks and interspersed with large boulders. The river 'Aounda' section is less agitated by the currents and becomes turbulent when joined by the furious waters from the 'Darna' river channels which conduct the released waters from Lake Beale. The average depth is 3 feet but midstream in the wide expanse it is from 6 to 8 feet in certain parts. There is no vegetation on the banks.

i.	<i>Chela clupeoides</i> (Bloch)	...	...	...	...	6 specimens.
ii.	<i>Chela phulo</i> (Ham.)	...	...	...	...	3 specimens.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	...	1 specimen.
iv.	<i>Barbus amphibius</i> (C. & V.)	...	...	...	...	7 specimens.
v.	<i>Barbus pinnauratus</i> Day	...	...	...	...	1 specimen.
vi.	<i>Barbus sarana</i> (Ham.)	...	...	...	...	2 specimens.
vii.	<i>Crossochilus latius</i> (Ham.)	...	...	...	...	1 specimen.
viii.	<i>Garra mullya</i> (Sykes)	...	...	...	...	2 specimens.
ix.	<i>Labeo porcellus</i> (Heckel)	...	...	...	...	2 specimens.
x.	<i>Rohtee duvaucelii</i> (C. & V.)	...	...	...	...	1 specimen.
xi.	<i>Mystus cavasius</i> (Ham.)	...	...	...	...	2 specimens.
xii.	<i>Ambassis nama</i> (Ham.)	...	...	...	...	4 specimens.
xiii.	<i>Ambassis ranga</i> (Ham.)	...	...	...	...	104 specimens.
xiv.	<i>Glossogobius giuris</i> (Ham.)	...	...	...	...	5 specimens.

23. The Godaveri river, 1 mile east of the Indore road bridge east of Nasik city; 29-10-1935.

The river in this section flows due east, and it is moderately swollen with storm waters and the force of the current is directed against the north bank owing to a slight bend in the run. The north bank rises 25 feet above the water level and it is composed of a rocky base of about 10 feet with an earthy layer of 15 feet above. The south bank is on an average 20 feet above a sanded beach which is 30 yards broad. The width of the river is roughly 110 feet. I am told that when the river is in flood the expanse of the river is then 200 feet and nearly reaches the top of both the north and south banks. At the time of the visit the waters had receded and the sanded beach referred to above had become exposed. The land in the precincts of both the banks is grown with fruit orchards—grape vineyards, guava, plantains, and citrons. On the banks there are many tamarind and *babul* trees. The



bed of the river is pebbled and silted up. The depth is on an average 2 feet on the south bank edges, midstream it must be 3 to 4 feet and 6 feet towards the north bank edge. The height above sea level is 1,300 feet.

i.	<i>Chela clupeioides</i> (Bloch)	...	...	...	13 specimens.
ii.	<i>Chela phulo</i> (Ham.)	...	...	...	8 specimens.
iii.	<i>Barilius bendelisis</i> Ham.	...	...	...	7 specimens.
iv.	<i>Danio aequipinnatus</i> (McClell.)	...	...	...	4 specimens.
v.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	3 specimens.
vi.	<i>Barbus khudree</i> Sykes	...	...	...	7 specimens.
vii.	<i>Barbus kolus</i> Sykes	...	...	...	2 specimens.
viii.	<i>Barbus ticto</i> (Ham.)	...	...	...	5 specimens.
ix.	<i>Crossochilus latius</i> (Ham.)	...	...	...	2 specimens.
x.	<i>Garra mullya</i> (Sykes)	...	...	...	16 specimens.
xi.	<i>Labeo boggut</i> (Sykes)	...	...	...	1 specimen.
xii.	<i>Rohtee cotio</i> (Ham.)	...	...	...	1 specimen.
xiii.	<i>Nemachilus botius</i> (Ham.)	...	...	...	1 specimen.
xiv.	<i>Nemachilus evezardi</i> Day.	...	...	...	15 specimens.
xv.	<i>Glyptothorax lunah</i> (Sykes)	...	...	...	1 specimen.
xvi.	<i>Ophicephalus gachua</i> Ham.	...	...	...	1 specimen.
xvii.	<i>Ambassis ranga</i> (Ham.)	...	...	...	1 specimen.
xviii.	<i>Glossogobius giuris</i> (Ham.)	...	...	...	9 specimens.

#### 24. North Nallah stream, from pools below the Deolali Cantonment Bazaar; 31-10-1935.

For description, see the account of locality No. 1.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	105 specimens.
ii.	<i>Rasbora labiosa</i> Mukerji	...	...	...	27 specimens.
iii.	<i>Barbus ticto</i> (Ham.)	...	...	...	2 specimens.
iv.	<i>Garra mullya</i> (Sykes)	...	...	...	2 specimens.
v.	<i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	19 specimens.
vi.	<i>Nemachilus denisonii</i> Day	...	...	...	1 specimen.
vii.	<i>Nemachilus evezardi</i> Day	...	...	...	2 specimens.

#### 25. Middle section of the Narsullah Wadi running through Barnes High School estate; 1-11-1935.

For description, see the account of locality No. 10.

i.	<i>Rasbora labiosa</i> Mukerji	...	...	...	118 specimens.
ii.	<i>Barbus ticto</i> (Ham.)	...	...	...	3 specimens.
iii.	<i>Garra mullya</i> (Sykes)	...	...	...	1 specimen.
iv.	<i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	17 specimens.

#### 26. Section of the Darna river at its junction with the Waldi river up to the village of Chedi; 7-11-1935.

The river has subsided but still flows with very strong currents which are particularly forceful near the bridge. The depth of the run is on an average, midstream, about 3 feet with shallows of one foot at the sides. The force of the current is against the south bank. Both the banks are earthy and shelving down to sandy beaches about 30 feet wide on either side. The north bank leading down from the village of Chedi has a more extensive pebbled beach (approximately 30 yards), which during the rains is submerged but is now dry. The bed of the river is pebbled throughout and in parts is silted up.

i.	<i>Chela clupeioides</i> (Bloch)	...	...	...	1 specimen.
ii.	<i>Barilius bendelisis</i> Ham.	...	...	...	6 specimens.
iii.	<i>Rasbora labiosa</i> Mukerji	...	...	...	1 specimen.
iv.	<i>Barbus khudree</i> Sykes	...	...	...	1 specimen.
v.	<i>Barbus sarana</i> (Ham.)	...	...	...	1 specimen.
vi.	<i>Barbus ticto</i> (Ham.)	...	...	...	16 specimens.
vii.	<i>Garra mullya</i> (Sykes)	...	...	...	2 specimens.



viii.	<i>Nemachilus botius</i> (Ham.)	...	...	...	...	4 specimens.
ix.	<i>Ambassis ranga</i> (Ham.)	...	...	...	...	6 specimens.
x.	<i>Glossogobius giuris</i> (Ham.)	...	...	...	...	3 specimens.

**27. The Waldi river near the villages of Deolali and Edhgaon; 14-11-1935.**

The Waldi river here flows from west to east and the villages of Edhgaon and Deolali lie on the south and north bank respectively. The banks and the bed of the river are composed of basalt rock throughout. The flow and volume of water in the river are strong and good. The depth is from 2 feet at the sides to 3 feet midstream. The width is from 40 to 50 feet. The height above sea level is about 1,850 feet. The height of the banks from the bed of the river is about 30 feet.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	...	25 specimens.
ii.	<i>Danio aequipinnatus</i> (McClell.)	...	...	...	...	2 specimens.
iii.	<i>Barbus khudree</i> Sykes	...	...	...	...	3 specimens.
iv.	<i>Barbus ticto</i> (Ham.)	...	...	...	...	11 specimens.
v.	<i>Garra mullya</i> (Sykes)	...	...	...	...	41 specimens.
vi.	<i>Nemachilus botius</i> (Ham.)	...	...	...	...	2 specimens.

**28. The Godaveri river, one mile east of the Indore Road Bridge east of Nasik city; 8-12-1935.**

Since the last visit (*vide* locality No. 22) the river has considerably subsided and the pebbled beach is exposed and is covered with a layer of silt. This beach inclines down from the south bank to the water's edge and in extent would be 150 feet broad and 100 yards or more in length. The force of the very sluggish flow is against the north bank and there is a large amount of green algae in evidence, fragments are seen floating in the surface scum and the water generally is very filthy looking and ashen in colour. The depth of the water in its deepest part against the north bank is  $3\frac{1}{2}$  feet and in the shallows of the edge against the south beach it is barely a foot in depth. The beach referred to above is being ploughed up and in parts of it cucumber and water melons seeds are being sown. All the specimens of the species *Barbus ticto*—Bhil name 'Tiptoo'—taken on this day in this section of the river showed a scarlet pigmentation of the body scales and the caudal and dorsal fins were similarly stained. They have lost this colouration in spirits.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	...	3 specimens.
ii.	<i>Garra mullya</i> (Sykes)	...	...	...	...	1 specimen.
iii.	<i>Barbus khudree</i> Sykes	...	...	...	...	7 specimens.
iv.	<i>Barbus kolus</i> Sykes	...	...	...	...	5 specimens.
v.	<i>Barbus ticto</i> (Ham.)	...	...	...	...	27 specimens.

**29. Pool in the course of the North Nallah; 14-12-1935.**

This pool is a small one about 30 by 40 feet and from 2 to 3 feet in depth. The bed is all rocky and so are the banks on either side. There is no vegetation in the locality. It is roughly one mile and a half from the junction of the 'North Nallah' with the Darna river. It is 1,830 feet above sea level.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	...	9 specimens.
ii.	<i>Danio aequipinnatus</i> (McClell.)	...	...	...	...	26 specimens.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	...	5 specimens.
iv.	<i>Barbus ticto</i> (Ham.)	...	...	...	...	141 specimens.
v.	<i>Garra mullya</i> (Sykes)	...	...	...	...	1 specimen.
vi.	<i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	...	2 specimens.

**30. The Darna river, 1 mile from Ghote Railway Station, 26-12-1935.**

Here the river Darna is about 50 yards wide. The current is strong midstream and the relative heights of the banks above the water's level are 10 to 15 feet. The banks are grown with the usual and varied flora. The



bed of the river is silted up and appears to be earthy. The depth midstream is about 6 feet and 2 feet at the sides. The height above sea level is roughly 1,950 feet.

i.	<i>Chela clupeoides</i> (Bloch)	...	...	...	1 specimen.
ii.	<i>Barbus amphibius</i> (C. & V.)	...	...	...	13 specimens.
iii.	<i>Barbus sarana</i> (Ham.)	...	...	...	2 specimens.
iv.	<i>Barbus ticto</i> (Ham.)	...	...	...	3 specimens.
v.	<i>Lepidocephalichthys guntea</i> (Ham.)	...	...	...	3 specimens.
vi.	<i>Ambassis ranga</i> (Ham.)	...	...	...	7 specimens.

**31.** The Darna river, one furlong from Ghote Railway Station ;  
28-12-1935.

Here the river is about 60 yards wide and curves northwards parallel with the railway track. It is about a furlong from the Railway Station. The banks are rocky in the greater part of this section and the bed at the river edge is composed of rocky plinths, parts of which are silted. The current is strong midstream and the depth must be at least eight feet. At the edge of the river on the west bank the depth is from 2 to 3 feet and it suddenly deepens towards the middle. The height above sea level would be about 1,900 feet.

i.	<i>Chela clupeoides</i> (Bloch)	...	...	...	3 specimens.
ii.	<i>Danio aequipinnatus</i> (McClell.)	...	...	...	6 specimens.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	8 specimens.
iv.	<i>Barbus amphibius</i> (C. & V.)	...	...	...	8 specimens.
v.	<i>Barbus pinnauratus</i> Day	...	...	...	1 specimen.
vi.	<i>Barbus ticto</i> (Ham.)	...	...	...	18 specimens.
vii.	<i>Garra mullya</i> (Sykes)	...	...	...	122 specimens.
viii.	<i>Rohtee duvaucelii</i> (C. & V.)	...	...	...	1 specimen.
ix.	<i>Nemachilus botius</i> (Ham.)	...	...	...	3 specimens.
x.	<i>Mystus cavasius</i> (Ham.)	...	...	...	22 specimens.
xi.	<i>Ophicephalus gachua</i> Ham.	...	...	...	2 specimens.
xii.	<i>Ambassis ranga</i> (Ham.)	...	...	...	9 specimens.

**32.** Section of the North Nallah which runs by Deolali Cantonment Bazaar ; 2-1-1936.

All these fishes were caught in a section of the 'North Nallah' which runs by the Deolali Cantonment Bazaar. Here the water is strongly alkaline to litmus paper. The depth of water in the stream is from  $\frac{1}{2}$  to 2 feet and the bed is silted over a rocky base. There is much washing of clothes done at this point and the water is soapy and foul smelling as it tends to stagnate owing to a sluggish surface flow. In the silt, particularly at the edges of the stream, worms can be found at all times of the year. It was observed that *Barilius bendelisis* partly buried themselves in the silt in order to hide and escape our efforts to catch them and it was found easier to simply lift the silt and then pick out the fishes buried in it. It was then also discovered that worms were present in the silt.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	64 specimens.
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**33.** Lower section of Narsullah Wadi, near to Bagoor village ;  
8-1-1936.

For description, see account of locality No. 10.

i.	<i>Barilius bendelisis</i> Ham.	...	...	...	6 specimens.
ii.	<i>Danio aequipinnatus</i> (McClell.)	...	...	...	5 specimens.
iii.	<i>Rasbora daniconius</i> (Ham.)	...	...	...	7 specimens.
iv.	<i>Aspidoparia morar</i> (Ham.)	...	...	...	1 specimen.
v.	<i>Barbus khudree</i> Sykes	...	...	...	2 specimens.
vi.	<i>Barbus ticto</i> (Ham.)	...	...	...	33 specimens.
vii.	<i>Garra mullya</i> (Sykes)	...	...	...	4 specimens.
viii.	<i>Nemachilus botius</i> (Ham.)	...	...	...	1 specimen.
ix.	<i>Ophicephalus gachua</i> Ham.	...	...	...	6 specimens.





Hora, S L. 1937. "Fish of Deolali." *The journal of the Bombay Natural History Society* 39, 502–519.

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