

# Fauna of Rajasthan, India. Part 7. Fishes

By

A. K. DATTA AND N. MAJUMDAR

Zoological Survey of India, Calcutta

(With 2 Text-figures and 7 Plates)

## CONTENTS

	PAGE
I—Introduction .. .. .	63
II—List of Collecting Stations in Rajasthan for fishes ..	65
III—List of fishes known from Rajasthan .. .. .	68
IV—Field key for identification of Rajasthan fishes	72
V—Systematic Account ..	75
VI—Summary .. .. .	99
VII—References .. .. .	100

## I—INTRODUCTION

The present account is based on the collections made by the field-parties of the Zoological Survey of India during the years 1941-63, as follows :—(i) In 1941, by Drs. B. N. Chopra and M. L. Roonwal. (ii) In 1948, by Shri K. S. Pradhan. (iii) In 1956, by Dr. B. Biswas. (iv) In 1957, by Shri A. K. Mukherjee. (v) In 1958, by Shri S. Biswas. (vi) In 1961-62, by Dr. A. K. Datta. (vii) In 1963, by Shri K. K. Mahajan, Shri N. Majumdar and Shri R. N. Bhargava.

A total of 75 species of fishes are known from Rajasthan and are listed in the next section. Three of these, namely *Carassius carassius* (Linn.), *Gambusia affinis* (Baird & Giard) and *Osphronemus goramy* Lacépède, are introduced species from foreign countries, but are now well established. We have been able to examine 63 species (marked with an asterisk \*) belonging to 36 genera and 16 families. Of these, the following 11 species are recorded for the first time from Rajasthan :—

1. *Gudusia chapra* (Hamilton)
2. *Barilius barila* Hamilton
3. *Danio* (*Brachydanio*) *rerio* Hamilton
4. *Amblypharyngodon mola* (Hamilton)

\**Rec. Zool. Surv. India*, 62 (122), 1970.

5. *Aspidoparia morar* (Hamilton)
6. *Cherynius chagunio* (Hamilton)
7. *Labeo dyocheilus* (McClelland)
8. *Botia lohachata* Chaudhuri
9. *Puntius vittatus* Day
10. *Mystus vittatus* (Bloch)
11. *Mastocembelus pancalus* (Hamilton)

A new species of fish, *Labeo rajasthanicus* (family Cyprinidae), from Jaisamand Lake, Udaipur District, is also described here.

The following 12 species of fish are included from the published literature :—

1. *Oxygaster phulo* (Hamilton)
2. *Barilius bendelisis* (Hamilton)
3. *Barilius vagra* (Hamilton)
4. *Labeo angra* (Hamilton)
5. *Labeo nigripinnis* Day
6. *Puntius conchoniis* (Hamilton)
7. *Puntius dorsalis* (Jerdon)
8. *Silonia silondia* (Hamilton)
9. *Bagarius bagarius* (Hamilton)
10. *Channa striatus* (Bloch.)
11. *Ambassis baculis* (Hamilton)
12. *Osphronemus goramy* Lacèpède

Our knowledge about the fish fauna of Rajasthan and its zoogeographical relationships is due mainly to Misra (1950), Mathur (1952), Hora & Mathur (1952), Krishna & Menon (1958), Dutta Gupta, Menon, Nair & Das (1961) and, Moona (1963). A comprehensive taxonomic key and illustrations are not, however, available ; these are provided in the present account. Regarding the zoogeography of the fishes of Rajasthan, Mathur (1952) traced the affinities of the fish fauna of Rajasthan, to that of Peninsular India on the one hand, and the Sind Hills on the other, and drew the following conclusions :—

“ The Aravallis during the more recent geological epochs tilted to the north and in this process carried the fauna of the Peninsula, more particularly of the Satpuras, northwards. Owing to the foredeep in front of the Himalayas and the possibility of a large river flowing through it, this Peninsular fauna could not extend to the Himalayas, and, for the same reason, the Himalayan fauna could not spread to the Aravallis. The absence of any characteristic Himalayan species in the Aravallis is very significant in this connection.”

“ There is a sunken ridge below the desert areas of Rajasthan and Sind which once connected the Aravalli Hills with the Sind Hills through the Sangla Hills in the Punjab (Auden), 1950, 18). The occurrence of *Labeo nigripinnis* in such widely separated areas as the Sind Hills and the Aravalli Hills to-day indicated that once its range would have been continuous over the sunken ridge.”

We are grateful to Dr. M. L. Roonwal, Director, Zoological Survey of India, for offering us the opportunity to work out the material and also for reading the manuscript and suggesting improvements.

## II—LIST OF COLLECTING STATIONS IN RAJASTHAN FOR FISHES

A total of 93 collecting stations in 14 district of Rajasthan from which the fishes were obtained are listed below. These serial numbers will also be found in the map (Text-fig. 1).

1. *Ajmer District*

1. Anasagar Lake, *ca.* 2 km. from Public Garden, Ajmer.
2. Chat, *ca.* 6 km. S. of Nasirabad, Ajmer District.

2. *Alwar District*

3. Jeysagar, Alwar.
4. Mangalsar, Alwar.
5. Mansarovar, Alwar.
6. Siliserh Bund, Alwar.

3. *Bharatpur District*

7. Pucca tank near Multipurpose School, Bharatpur.
8. Aghapur, *ca.* 22 km. from Bharatpur.
9. Kharna village, *ca.* 20 km. S. of Bharatpur.
10. Kila-ki-Khai, *ca.* 3 km. from Deeg town.
11. Ghana Bird Sanctuary, *ca.* 20 km. from Bharatpur town.
12. Roopsagar, *ca.* 35 km. from Bharatpur town.
13. Tank near Ajan village, *ca.* 20 km. N.E. of Bharatpur town.
14. Tank, *ca.* 5 km. N. E. of Bharatpur Fort.
15. Danaduch-ki-Diggi (tank) *ca.* 6 km. N. E. of Bharatpur Fort.
16. Tank inside Ghana Bird sanctuary.
17. Tank, *ca.* 15 km. N. W. of Kama Tehsil, near Akata village.
18. Tank at Kherli village, *ca.* 16 km. from Nagar.
19. Tank *ca.* 10 km. N. E. of Khumbher village.

4. *Bikaner District*

20. Kolayat.

5. *Dungarpur District*

21. Dungarpur town.
22. River Sone, near Piparidia village, *ca.* 14 km. N. of Dungarpur town.
23. Soorpur-ki-Nadi, *ca.* 6 km. from Dungarpur town.

6. *Jaipur District*

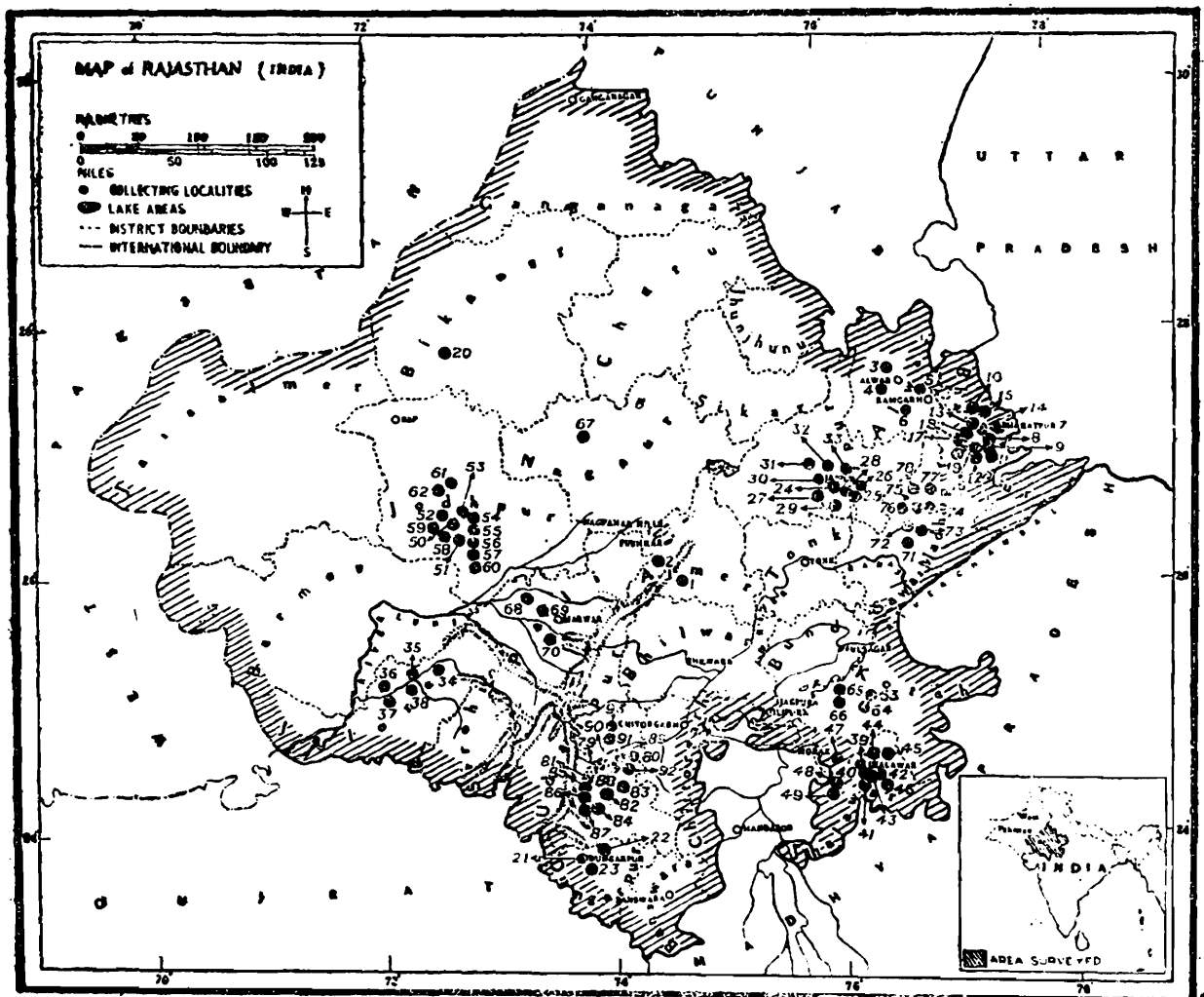
24. A nulla (stream) from Mapdori-ka-Bund, *ca.* 7 km. S. W. of Manoharpur Bus Stand, Manoharpur.
25. Pond, in bed of a tributary of Sabi river, *ca.* 5 km. W. of Manoharpur Bus Stand, Manoharpur.
26. Bandi Nadi (R. Bandi) at Sanodia.
27. Chaparwara.
28. Chhitoli Bund, *ca.* 10 km. W. of Bairat village.
29. Datri Nadi (R. Datri).
30. Jaipur.
31. Jugla village.
32. Kala tank of Naraina.
33. Ratan talab (tank).

## 7. Jalor District

34. Dedeli-ka-Talao (tank), *ca.* 3 km. W. of Bhinmal Railway Station.
35. Jawai river, *ca.* 2 km. S. of Erinpura Bus station, Erinpura.
36. Nadi, *ca.* 3 km. N. of Jawai Dam Railway Station, Erinpura.
37. Sagi river, *ca.* 17 km. W. of Jaswantpura.
38. Talbi (tank) *ca.* 2 km. N. of Bhinmal Railway Station.

## 8. Jhalawar District

39. Ahu river, *ca.* 2.5 km. N. E. of Sunel village.
40. Chandra Sarovar (tank), *ca.* 2 km. W. of Jhalawar town.
41. Dhanwara-ka-Talao (tank) *ca.* 3 km. W. of Jhalawar Collectorate.
42. Gaduli talai (tank) *ca.* 1 km. W. of Shergarh village.
43. Gomti Sagar (tank), *ca.* 3 km. N. of Jhalarpatan.
44. Khandia tank, *ca.* 3 km. S. of Jhalawar town.
45. Mudlia Kheri, *ca.* 2 km. W. of Jhalarpatan.
46. Parwan river, *ca.* 5 km. E. of Aklera village.
47. Parwan river, *ca.* 1 km. S. of Shergarh village.
48. Shukla talai, *ca.* 1 km. S. of Jhalawar town.
49. Tributary of Parwan river, *ca.* 2 km. N. W. of Aklera village.



TEXT-FIG. 1.—Map of Rajasthan, showing the collecting localities for fishes. The Arabic numerals against the localities correspond to the numbers given in the text under the collecting localities.

9. *Jodhpur District*

50. Bowri (tank), *ca.* 2 km. N. of Kailana bridge, near Jodhpur.
51. Luni river, *ca.* 39 km. S. W. Jodhpur town.
52. Kailana tank, *ca.* 12 km. W. of Jodhpur town.
53. Mandore Canal.
54. Namdari tank, *ca.* 14 km. from Jodhpur town.
55. Nagadari, Mandore Gardens, near Jodhpur.
56. Padam Sagar (tank), Jodhpur town.
57. Parlora talab (tank), at Darasane village, *ca.* 46 km. S. of Jodhpur.
58. Ranibagh garden, Mandore, near Jodhpur.
59. Ranisagar, Jodhpur town.
60. Sardarsamand tank, *ca.* 47 km. S. of Jodhpur.
61. Takhtsagar tank, Jodhpur.
62. Umedsagar tank, *ca.* 12 km. N. W. of Jodhpur town.

10. *Kotah District*

63. Bewara tank, *ca.* 2 km. N. of Dara Game Sanctuary.
64. Nanta tank, *ca.* 12 km. N. W. of Kotah town.
65. Alani river, *ca.* 20 km. E. of Kotah town.
66. Parwan river, *ca.* 3 km. E. of Palaita village.

11. *Nagaur District*

67. Nandana nadi (rivulet) at Nanta village.

12. *Pali District*

68. Chota Talao (tank), *ca.* 3 km. E. of Pali Railway Station.
69. Hemawas tank, *ca.* 8 km. S. of Pali town.
70. Bowri (tank) near Ghenari village, *ca.* 14 km. N. of Khimada village.

13. *Sawai Madhopur District*

71. Bhagwatigarh Bund, *ca.* 33 km. S. of Sawai Madhopur town.
72. Bhairu Dara, *ca.* 5 km. E. of Sawai Madhopur town.
73. Gambhir river, *ca.* 13 km. N. W. of Hindaun.
74. Gambhir river, *ca.* 5 km. N. of Karauli city.
75. Gambhir river, *ca.* 3 km. S. W. of Shri Mahabirji Railway Station.
76. Kiyard Bund, *ca.* 10 km. N. W. of Hindaun city.
77. Mui Bund, *ca.* 15 km. E. of Sawai Madhopur town.
78. Sarwal Bund, *ca.* 13 km. W. of Sawai Madhopur town.

## 14. Udaipur District

79. Ahar river, *ca.* 4 km. S. of Railway Bridge, Udaipur town.
80. Barapal village, *ca.* 22 km. N. of Udaipur town.
81. Dulev-ka-Nalla (R. Dulev) *ca.* 3 km. from Prasad village.
82. Fatehsagar, *ca.* 7 km. N. W. of Udaipur town.
83. Jaisamand tank, *ca.* 45 km. E. of Udaipur town.
84. Kharpena-ka-Nalla (river), *ca.* 3 km. N. of Barapal village.
85. Kherad village, Jaisamand, *ca.* 60 km. S. E. of Udaipur.
86. Kalaria tank, *ca.* 7 km. W. of Udaipur.
87. Parai-ki-Nadi (river), *ca.* 2 km. S. of Prasad village.
88. Pamri nadi (river), 1 km. E. of Kotra village.
89. Pichola Lake, *ca.* 7 km. W. of Udaipur town.
90. Rajsamand, *ca.* 40 km. from Mavli.
91. River Bearch (Bedach), near Chittorgarh.
92. River Phulad, *ca.* 2 km. S. E. of Phulad Railway Station.
93. Udaisagar Nalla, an out-flow from Udaisagar Lake, *ca.* 12 km. from Udaipur.

## III—LIST OF FISHES KNOWN FROM RAJASTHAN

*Note.*—Out of the 75 species known from Rajasthan, 63 were examined by us from specimens and are marked with an asterisk(\*). The remainder, Nos. 6, 9, 11, 20, 29, 39, 41, 58, 59, 67, 68 and 72, were taken from the published literature.

## Class TELEOSTOMI

## Order I. CLUPEIFORMES

## Family (i) CLUPEIDAE

Genus (1) *Gudusia* Fowler

- \*1. *Gudusia chapra* (Hamilton)

## Family (ii) NOTOPTERIDAE

Genus (2) *Notopterus* Lacépède

- \*2. *Notopterus notopterus* (Pallas)

## Order II. CYPRINIFORMES

## Family (iii) CYPRINIDAE

Genus (3) *Oxygaster* van Hasselt

- \*3. *Oxygaster bacaila* (Hamilton)  
 \*4. *Oxygaster clupeoides* (Bloch)  
 \*5. *Oxygaster gora* (Hamilton)  
 6. *Oxygaster phulo* (Hamilton)

Genus (4) **Barilius** Hamilton

- \*7. *Barilius barila* Hamilton
- \*8. *Barilius barna* (Hamilton)
- 9. *Barilius bendelisis* (Hamilton)
- \*10. *Barilius bola* (Hamilton)
- 11. *Barilius vagra* (Hamilton)

Genus (5) **Danio** Hamilton

- \*12. *Danio (Danio) aequipinnatus* (McClelland)
- \*13. *Danio (Danio) devario* (Hamilton)
- \*14. *Danio (Brachydanio) rerio* (Hamilton)

Genus (6) **Esomus** Swainson

- \*15. *Esomus danrica* (Hamilton)

Genus (7) **Rasbora** Bleeker

- 16. *Rasbora daniconius* (Hamilton)

Genus (8) **Carassius** Nilsson

- \*17. *Carassius carassius* (Linnaeus)

Genus (9) **Garra** Hamilton

- \*18. *Garra gotyla* (Gray)
- \*19. *Garra mullya* (Sykes)

Genus (10) **Labeo** Cuvier

- 20. *Labeo angra* (Hamilton)
- \*21. *Labeo bata* (Hamilton)
- \*22. *Labeo boga* (Hamilton)
- \*23. *Labeo boggut* (Sykes)
- \*24. *Labeo calbasu* (Hamilton)
- \*25. *Labeo dero* (Hamilton)
- \*26. *Labeo dyocheilus* (McClelland)
- \*27. *Labeo fimbriatus* (Bloch)
- \*28. *Labeo goniis* (Hamilton)
- 29. *Labeo nigripinnis* Day
- \*30. *Labeo rohita* (Hamilton).
- \*31. *Labeo rajasthanicus* sp. n.

Genus (11) **Aspidoparia** Heckel

- \*32. *Aspidoparia morar* (Hamilton)

Genus (12) **Amblypharyngodon** Bleeker

- \*33. *Amblypharyngodon mola* (Hamilton)

Genus (13) **Chagunius** Smith

- \*34. *Chagunius chagunio* (Hamilton)

Genus (14) **Catla** Cuvier and Valenciennes

- \*35. *Catla catla* (Hamilton)

Genus (15) **Cirrhinus** Cuvier\*36. *Cirrhinus mrigala* (Hamilton)\*37. *Cirrhinus reba* (Hamilton)Genus (16) **Puntius** Hamilton\*38. *Puntius amphibia* (Valenciennes)39. *Puntius conchonus* (Hamilton)\*40. *Puntius chola* (Hamilton)41. *Puntius dorsalis* (Jerdon)\*42. *Puntius sarana* (Hamilton)\*43. *Puntius sophore* (Hamilton)\*44. *Puntius ticto* (Hamilton)\*45. *Puntius vittatus* DayGenus (17) **Osteobrama** Cuvier\*46. *Osteobrama cotio* (Hamilton)Genus (18) **Tor** Gray\*47. *Tor khudree* (Sykes)

## Family (iv) COBITIDAE

Genus (19) **Botia** Gray\*48. *Botia lohachata* ChaudhuriGenus (20) **Lepidocephalichthys** Bleeker\*49. *Lepidocephalichthys guntea* (Hamilton)Genus (21) **Noemacheilus** van Hasselt\*50. *Noemacheilus botia* (Hamilton)\*51. *Noemacheilus denisonii* Day

## Family (v) BAGRIDAE

Genus (22) **Mystus** Scopoli\*52. *Mystus bleekeri* (Day)\*53. *Mystus cavasius* (Hamilton)\*54. *Mystus seenghala* (Sykes)\*55. *Mystus vittatus* (Bloch)

## Family (vi) SILURIDAE

Genus (23) **Ompok** Lacèpède\*56. *Ompok bimaculatus* (Bloch)Genus (24) **Wallago** Bleeker\*57. *Wallago attu* (Schneider)Genus (25) **Silonia** Swainson58. *Silonia silondia* (Hamilton)

## Family (vii) SISORIDAE

Genus (26) **Bagarius** Bleeker59. *Bagarius bagarius* (Hamilton)

Family (viii) SACCOBRANCHIDAE  
Genus (21) **Heteropneustes** Müller

\*60. *Heteropneustes fossilis* (Bloch)

Order III. BELONIFORMES

Family (ix) BELONIDAE

Genus (28) **Xenentodon** Regan

\*61. *Xenentodon cancila* (Hamilton)

Order IV. CYPRINODONTIFORMES

Family (x) POECILIDAE

Genus (29) **Gambusia** Poey

\*62. *Gambusia affinis* (Baird and Girard)

Genus (30) **Aplocheilus** McClelland

\*63. *Aplocheilus lineatum* (Valenciennes)

Order V OPHICEPHALIFORMES

Family (xi) OPHICEPHALIDAE

Genus (31) **Channa** Gronov

\*64. *Channa gachua* (Hamilton)

\*65. *Channa marulius* (Hamilton)

\*66. *Channa punctatus* (Bloch)

67. *Channa striatus* (Bloch)

Order (VI) PERCIFORMES

Family (xii) AMBASSIDAE

Genus (32) **Ambassis** Cuvier

\*68. *Ambassis baculis* (Hamilton)

\*69. *Ambassis nama* (Hamilton)

\*70. *Ambassis ranga* (Hamilton)

Family (xiii) ANABANTIDAE

Genus (33) **Colisa** Cuvier and Valenciennes

\*71. *Colisa fasciatus* (Bloch and Schneider)

Family (xiv) OSPHRONEMIDAE

Genus (34) **Osphronemus** Lacèpède

72. *Osphronemus goramy* Lacèpède

Family (xv) GOBIIDAE

Genus (35) **Glossogobius** Gill

\*73. *Glossogobius giuris* (Hamilton)

## Order VII. MASTOCEMBELIFORMES

## Family (xvi) MASTOCEMBELIDAE

Genus (36) *Mastocembelus* Scopoli\*74. *Mastocembelus armatus* (Lacèpède)\*75. *Mastocembelus pancalus* (Hamilton)

## IV—FIELD KEY FOR IDENTIFICATION OF RAJASTHAN FISHES

- |   |                                  |
|---|----------------------------------|
| 1. Body eel-like . . . . .  | 2                                |
| Body not eel-like . . . . .   | 3                                |
| 2. Vertical fin confluent with caudal . . . . .                             | <i>Mastocembelus armatus</i>     |
| Vertical fin not confluent with caudal . . . . .                            | <i>Mastocembelus pancalus</i>    |
| 3. Jaws produced into a beak-like structure . . . . .                       | <i>Xenentodon cancila</i>        |
| Jaws not produced into a beak-like structure . . . . .                      | 4                                |
| 4. Body naked . . . . .   | 12                               |
| Body scaly . . . . .  | 5                                |
| 5. Suprabranchial organ present ; head snake-like . . . . .                 | 58                               |
| Suprabranchial organ absent ; head not snake-like . . . . .                 | 6                                |
| 6. One dorsal fin . . . . .   | 7                                |
| Two dorsal fins . . . . .   | 17                               |
| 7. Vertical fin with a viliform ray . . . . .                               | <i>Colisa fasciatus</i>          |
| Vertical fin without a viliform ray . . . . .                               | <i>Osphronemus goramy</i>        |
| 8. Gill membrane broadly united with isthmus ; jaws without teeth . . . . . | 20                               |
| Gill membrane free from isthmus ; jaws with teeth . . . . .                 | 9                                |
| 9. Head scaly and depressed ; abdomen not serrated . . . . .                | 11                               |
| Head naked and compressed, abdomen serrated . . . . .                       | 10                               |
| 10. Anal with 21-24 rays . . . . .  | <i>Gudusia chapra</i>            |
| Anal with 100-110 rays . . . . .  | <i>Notopterus notopterus</i>     |
| 11. Vertical bands (8-10) on side of abdomen present . . . . .              | <i>Aplocheilichthys lineatum</i> |
| Vertical bands on side of abdomen absent . . . . .                          | <i>Gambusia affinis</i>          |
| 12. Four pairs of barbels present . . . . .                                 | <i>Heteropneustes fossilis</i>   |
| One pair of barbels present . . . . .                                       | <i>Silonia silonia</i>           |
| 13. Two pairs of barbels present . . . . .                                  | 14                               |
| Barbels absent . . . . .  | 16                               |
| 14. Dorsal with a spine . . . . .   | 15                               |
| Dorsal without a spine . . . . .  | 23                               |
| 15. Adipose dorsal 3 times the length of head . . . . .                     | <i>Mystus cavasius</i>           |
| Adipose dorsal not 3 times the length of head . . . . .                     | <i>Mystus vittatus</i>           |
| 16. Snout spatulate . . . . .   | <i>Mystus seenghala</i>          |
| Snout not spatulate . . . . .   | <i>Mystus bleekeri</i>           |
| 17. Anal with 15 rays . . . . .   | <i>Bagarius bagarius</i>         |
| Anal with more than 15 rays . . . . .                                       | 18                               |
| 18. Anal with 60-75 rays . . . . .  | <i>Ompok bimaculatus</i>         |
| Anal with 86-93 rays . . . . .  | <i>Wallago attu</i>              |

19. Pelvics united, forming a sucking disc . . . . .	<i>Glossogobius giuris</i>
Pelvics separate; . . . . .	20
20. Both edges of preorbital serrated . . . . .	<i>Ambassis ranga</i>
Both edges of preorbital not serrated . . . . .	21
21. Curved canines present in lower jaw . . . . .	<i>Ambassis nama</i>
Curved canines absent in lower jaw . . . . .	<i>Ambassis baculis</i>
22. Barbels 6 or more . . . . .	60
Barbels less than 6 . . . . .	23
23. Abdomen sharp-edged . . . . .	24
Abdomen rounded or flat . . . . .	32
24. Maxilla extending up to front margin of orbit ; lateral line scales 80-87 . . . . .	<i>Oxygaster phulo</i>
Maxilla not extending up to the front margin of orbit ; lateral line scales more than 140 . . . . .	<i>Oxygaster gora</i>
25. Pectoral reach nearly to ventral ; lateral line scales 86-110 . . . . .	<i>Oxygaster bacaila</i>
Pectoral do not reach ventral ; lateral line scales 80-93 . . . . .	<i>Oxygaster clupeoides</i>
26. Lateral line close to ventral edge . . . . .	27
Lateral line not close to ventral edge . . . . .	29
27. Maxillary barbel long, reaching up to the pelvic Maxillary barbel short or absent . . . . .	<i>Esomus danrica</i>
Maxillary barbel short or absent . . . . .	28
28. Dorsal rays 9 or less . . . . .	29
Dorsal rays more than 9 . . . . .	30
29. Anal rays not more than 7 . . . . .	<i>Rasbora daniconius</i>
Anal rays more than 7 (29-36) . . . . .	<i>Osteobrama cotio</i>
30. Barbels present ; blue bands present on sides of body . . . . .	31
Barbels absent ; without blue bands on sides of body ; lateral line scales 41-48 . . . . .	<i>Danio devario</i>
31. Rostral barbel short ; maxillary long, reaching end of the opercle . . . . .	<i>Danio rerio</i>
Rostral barbel long, maxillary minute . . . . .	<i>Danio aequipinnatus</i>
32. Mouth terminal or subterminal . . . . .	33
Mouth markedly inferior . . . . .	34
33. Post-labial groove continuous . . . . .	<i>Tor khudree</i>
Post-labial groove interrupted in middle . . . . .	34
34. Lower jaw with a post-symphyseal knob . . . . .	36
Lower jaw without a post-symphyseal knob . . . . .	38
35. Lower lip present ; lateral line complete . . . . .	<i>Amblypharyngodon     mola</i>
Lower lip absent ; lateral line incomplete . . . . .	<i>Aspidoparia morar</i>
36. Cleft of mouth extending beyond anterior margin of eye ; lower jaw well developed . . . . .	<i>Cirrhinus mrigala</i>
Cleft of mouth not extending beyond anterior margin of eye ; lower lip thin and deficient . . . . .	<i>Cirrhinus reba</i>
37. Barbels absent . . . . .	39
Barbels present . . . . .	38
38. Barbels 2 ; anal 15-17 . . . . .	<i>Barilius bariv.</i>
Barbels 4 ; anal more than 17 . . . . .	40

39. Double row of blotches on body . . . . .	<i>Barilius bola</i>
No double row of blotches on body . . . . .	<i>Barilius barna</i>
40. Several (10) vertical bars on body . . . . .	<i>Barilius vagra</i>
Vertical bars on the body absent . . . . .	<i>Barilius bendelisis</i>
41. Anal spine serrated . . . . .	<i>Carassius carassius</i>
Anal spine not serrated . . . . .	<i>Catla catla</i>
42. With 4 barbels . . . . .	43
With 2 barbels . . . . .	44
43. Last anal ray elongated ; snout and cheek tuberculated . . . . .	<i>Chagunius chagunio</i>
Last anal ray not elongated ; snout and cheek not tuberculated . . . . .	<i>Puntius sarana</i>
44. Last undivided dorsal ray strong and serrated . . . . .	45
Last undivided dorsal ray weak and not serrated . . . . .	<i>Puntius amphibia</i>
45. Lateral line scales 26-28 . . . . .	<i>Puntius chola</i>
Lateral line scales 24-25 . . . . .	<i>Puntius dorsalis</i>
46. Last undivided dorsal ray entire . . . . .	<i>Puntius sophore</i>
Last undivided dorsal ray articulated . . . . .	<i>Puntius vittatus</i>
47. Two black spots at commencement of lateral line . . . . .	<i>Puntius ticto</i>
One black spot at commencement of lateral line . . . . .	<i>Puntius conchoniuis</i>
48. Chin with disc. . . . .	49
Chin without a disc. . . . .	50
49. A probosis on snout . . . . .	<i>Garra gotyla</i>
No probosis on snout . . . . .	<i>Garra mullya</i>
50. Scales along lateral line 60 or more . . . . .	51
Scales along lateral line less than 60 . . . . .	52
51. Barbels 2 ; lateral line scales 60 . . . . .	<i>Labeo boggut</i>
Barbels 4 ; lateral line scales 74-84 . . . . .	<i>Labeo goniis</i>
52. Branched dorsal fin rays more than 18 ; lateral line scales 47 . . . . .	<i>Labeo fimbriatus</i>
Branched dorsal fin rays less than 18 ; lateral line scales 43 . . . . .	<i>Labeo dyocheilus</i>
53. A groove across snout . . . . .	<i>Labeo dero</i>
No groove across snout . . . . .	<i>Labeo angra</i>
54. Branched dorsal rays 14 ; lateral line scales 60 . . . . .	<i>Labeo rajasthanicus</i>
Branched dorsal rays less than 14 ; lateral line scales 42 . . . . .	<i>Labeo nigripinnis</i>
55. Height of the body 4-4½ in total length . . . . .	<i>Labeo bata</i>
Height of the body 5-5½ in total length . . . . .	<i>Labeo boga</i>
55. Branched dorsal rays 12-13 ; lateral line scales 40-42 . . . . .	<i>Labeo rohita</i>
Branched dorsal rays 13-15 ; lateral line scales 40-44 . . . . .	<i>Labeo calbasu</i>
57. Pectoral spotted . . . . .	<i>Channa gachua</i>
Pectoral not spotted . . . . .	58
58. Dorsal with more than 45 rays (45-55) . . . . .	<i>Channa marulius</i>
Dorsal rays 45 or less . . . . .	59
59. Dorsal rays 37-45 . . . . .	<i>Channa striatus</i>
Dorsal rays 29-32 . . . . .	<i>Channa punctatus</i>
60. A sharp prickle beneath eye . . . . .	61
No sharp prickle beneath eye . . . . .	62

- |  |                                   |
|--|-----------------------------------|
| 61. Body compressed (laterally) ; caudal forked  | <i>Botia lohachata</i>            |
| Body elongated, not compressed ; caudal truncate | <i>Lepidocephalichthys guntea</i> |
| 62. Body with 9-12 vertical bands . . . . .      | <i>Noemacheilus denisonii</i>     |
| Body irregularly blotched . . . . .              | <i>Noemacheilus botia</i>         |

V—SYSTEMATIC ACCOUNT

1. *Gudusia chapra* (Hamilton)

(Pl. 3, Fig. 4)

1822. *Clupanodon chapra* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 248, 383. *Type-loc.* Upper parts of Ganges.

*Material.*—11 exs., Gaduli talai (tank), Jhalawar town, Jhalawar Dist., coll. *N. Majumdar* and *R. N. Bhargava*, 22. vi. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere.*—INDIA : Assam, W. Bengal, Bihar, Orissa, Maharashtra, Andhra Pradesh, Madhya Pradesh. EXTRA-INDIAN : E. & W. Pakistan ; Malaya Peninsula.

2. *Notopterus notopterus* (Pallas)

(Pl. 3, Fig. 6)

1769. *Gymnotus notopterus* Pallas, *Spicil. Zool.*, Petersburg. 7, p.40, pl. 6, fig. 2. *Type-loc.* Indian Ocean.

*Material.* (i) 4 exs., Fatehsagar Lake, Udaipur Dist., coll. *R. N. Bhargava*. 11. iii. 61. (ii)-(v) Coll. *N. Majumdar* and *R. N. Bhargava* : (ii) 4 exs., Mangalsar, Alwar Dist., 7.vi.63. (iii) 4 exs., Siliserh Eurd, Alwar Dist., 8.vi.63. (iv) 2 exs., Jeysagar, Alwar Dist., 8.vi.63. (v) 1 ex., Khandia tank, Jhalawar Dist., 21.vi.63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Punjab, Uttar Pradesh, Bihar, W. Bengal, Orissa, Assam, Madras, Madhya Pradesh, Andhra Pradesh, Maharashtra, Kerala. EXTRA-INDIAN : E. & W. Pakistan, Burma, Malaya Peninsula and Archipelago, Thailand.

3. *Oxygaster bacaila* (Hamilton)

(Pl. 3, Fig. 2)

1822. *Cyprinus bacaila* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 265, 384, pl. 8, fig. 76. *Type-loc.* Freshwater rivers of all Gangetic Provinces.

*Material.*—(i) 4 exs., Chota Talao, Pali Dist., coll. *R. N. Bhargava*, 7.iii.61. (ii)-(iii) Coll. *N. Majumdar* and *R. N. Bhargava* : (ii) 16 exs., Jeysagar Bund, Alwar Dist., 7.vi.63. (iii) 27 exs., Khandia tank, Jhalawar Dist., 21.vi.63. (iv)-(vi) Coll. *A. K. Datta* : (iv) 2 exs., tank near Bharatpur Fort, Bharatpur Dist., 19.i.62. (v) 348 exs., Luni river, Jodhpur Dist., 12.xii.62. (vi) 22 exs., Kharala Dam, Jodhpur Dist., 8.i.63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout India (except Kerala, Mysore, Madras). EXTRA-INDIAN : E. & W. Pakistan and Burma.

4. *Oxygaster clupeioides* (Bloch)

(Pl. 3, Fig. 3)

1895. *Cyprinus clupeioides* Bloch, *Auslandische Fische*, Berlin, 12, p. 49, pl. 408, fig. 20. *Type-loc.* Tranquebar.

*Material.*—(i) 2 exs., Chaparwara, Jaipur Dist., coll. *A. K. Mukherjee*, 9.iii.57. (ii) 3 exs., Kherpena-ka-Nalla near Barapal, Udaipur Dist. coll. *B. N. Chopra* and *M. L. Roonwal*, 15. x. 41. (iii)-(vi) Coll. *N. Majumdar* and *R. N. Bhargava* : (iii) 3 exs., Surwal Bund, Sawai Madhopur Dist., 15.vi.63. (iv) 8 exs., Chandra Sarovar, Jhalawar Dist., 2.vi.63. (v) 36 exs., Shukla talai, Jhalawar Dist., 20.vi.63. (vi) 15 exs., Parwan river, Kota Dist., 26.vi.63. (vii)-(x) Coll. *A. K. Datta* : (vii) 10 exs., Pamri nadi, Udaipur Dist., 20.xii.61. (viii) 2 exs., Kailana Lake, Jodhpur Dist., 12.vii.62. (ix) 10 exs., Kharala Dam, Jodhpur Dist., 8.i.63. (x) 96 exs., Sardarsamand Lake, Jodhpur Dist., 19.iv.63.

*Distribution.*—RAJASTHAN : In addition to the above material, the following records (Mathur, 1952) are available : Tanks around Dungarpur town, Dungarpur Dist. Rajsamand near Kankroli, Udaipur Dist. ; R. Banas near Akhol and near Wadaval, Palanpur Dist. *Elsewhere* : INDIA : Gujarat, Madhya Pradesh, Andhra Pradesh, Mysore, Madras and Orissa. EXTRA-INDIAN : Burma.

5. *Oxygaster gora* (Hamilton)

(Pl. 3, Fig. 1)

1822. *Cyprinus gora* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 263, 384. *Type-loc.* Brahmaputra near Goalpara.

*Material.*—1 ex., Fatehsagar Lake, ca. 3.5 km. from Udaipur town, coll. *R. N. Bhargava*, 11.iii.61.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Punjab, W. Bengal, Orissa and Assam. EXTRA-INDIAN : Nepal and E. & W. Pakistan.

6. *Oxygaster phulo* (Hamilton)

1822. *Cyprinus phulo* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 262, 384. *Type-loc.* Rivers and ponds of the north-eastern parts of Bengal.

*Material.*—None. Reported from lakes in Jaipur and Udaipur Dists., and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : Throughout India.

7. *Barilius barila* Hamilton

(Pl. 3, Fig. 5)

1822. *Barilius barila* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 267, 384. *Type-loc.* Rivers of northern Bengal.

*Material.*—2 exs., Ahu river, Jhalawar Dist., coll. *N. Majumdar* and *R. N. Bhargava*, 23.vi.63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Freshwaters of Manipur, Assam, W. Bengal, Delhi, Uttar Pradesh, Bihar, Orissa, Madhya Pradesh and Mysore. EXTRA-INDIAN : E. Pakistan

8. **Barilius barna** (Hamilton)

(Pl. 5, Fig. 12)

1822. *Cyprinus barna* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 268, 384.  
*Type-loc.* Yamuna and Brahmaputra rivers.

*Material.*—(i) 1 ex., R. Ahu, Jhalawar Dist., coll. *N. Majumdar* and *R. N. Bhargava*, 23.vi.63. (ii)-(iii) coll. *A. K. Datta* : (ii) 1 ex., R. Wakal near Kotra village, Udaipur Dist., 20.xii.61. (iii) 1 ex., Sardarsamand Lake, Jodhpur Dist., 19.vi.63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Assam, W. Bengal, Bihar, Uttar Pradesh and Orissa.

9. **Barilius bendelisis** (Hamilton)

1822. *Cyprinus bendelisis* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 270, 385. *Type-loc.* Rivers of Mysore.

*Material.*—None. Reported from lakes in Jaipur Dist. and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Assam, W. Bengal, Bihar, Uttar Pradesh, Punjab, Madras, Mysore and Orissa. EXTRA-INDIAN : E. & W. Pakistan ; Ceylon.

10. **Barilius bola** (Hamilton)

(Pl. 4, Fig. 12)

1822. *Cyprinus bola* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 274, 275.  
*Type-loc.* Brahmaputra.

*Material.*—(i) 2 exs., Parsad-ka-Nalla, Udaipur Dist., coll. *B. N. Chopra* and *M. L. Roonwal*, 18.x.41. (ii) 1 ex., tributary of Parwan river near Aklera village, Jhalawar Dist., coll. *N. Majumdar* and *R. N. Bhargava*, 24.vi.63.

*Distribution.*—RAJASTHAN : As above. First record. *Elsewhere* : INDIA : The hill streams of Assam, West Bengal, Bihar, Uttar Pradesh, Punjab and Orissa. EXTRA-INDIAN : E. & W. Pakistan ; Burma.

11. **Barilius vagra** (Hamilton)

1822. *Cyprinus vagra* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 269, 385.  
*Ganges at Patna.*

*Material.*—None. Reported from lakes in Jaipur Dist. and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout Northern India. EXTRA-INDIAN : W. Pakistan ; Ceylon.

12. **Danio (Danio) aequipinnatus** (McClelland)

(Pl. 4, Fig. 2)

1839. *Perilampus aequipinnatus* McClelland, *Asiatic Researches*, Calcutta, 19, p. 3, pl. 60, fig. 1. *Type-loc.* Assam.

*Material.*—(i) 6 exs., Dhulev-ka-Nalla near Prasad, Udaipur Dist., coll. *B. N. Chopra* and *M. L. Roonwal*, 18.x.41. (ii)-(iii) coll. *A. K. Datta* : (ii) 27 exs., Pamri nadi, Udaipur Dist., 22.xii.61. (iii) 5 exs., rocky pool, Pamri nadi, Udaipur Dist., 22.xii.61.

*Distribution.*—RAJASTHAN : As above. First record. *Elsewhere* INDIA : W Bengal, Assam, Manipur, Mysore, Madras and Andhra Pradesh. EXTRA-INDIAN : Ceylon, Burma, Thailand.

### 13. *Danio (Danio) devario* (Hamilton)

(Pl. 5, Fig. 4)

1822. *Cyprinus devario* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 341-393, pl. 6, fig. 94. *Type-loc.* Rivers and ponds of Bengal.

*Material.*—(i)-(iii) Coll. *B. N. Chopra* and *M. L. Roonwal* : (i) 10 exs., tanks around Dungarpur town, 28.x.41. (ii) 6 exs., Udaisagar Nalla, Udaipur Dist., 11.x.41. (iii) 2 exs., R. Sone, Dungarpur Dist., 27.x.41. (iv)-(vi) Coll. *N. Majumdar* and *R. N. Bhargava* : (iv) 1 ex., Gomti Sagar, Jhalawar Dist., 21.vi.63. (v) 2 exs., Khandia tank, Jhalawar Dist., 21.vi.63. (vi) 8 exs., Sagi river, Jalor Dist., 1.vii.63.

*Distribution.*—RAJASTHAN : In addition to the above material, the following records (Mathur, 1952), are available :—Bundermere Lake and Gora Chapra Nalla, Mount Abu, Sirohi Dist. ; and Balsamand Lake, Jodhpur. *Elsewhere* : INDIA : Throughout Northern India. EXTRA-INDIAN : E. & W Pakistan ; Burma.

### 14. *Danio (Brachydanio) rerio* (Hamilton)

(Pl. 5, Fig. 14)

1822. *Cyprinus rerio* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 323, 390. *Type-loc.* Kosi river.

*Material.*—Coll. *N. Majumdar* and *R. N. Bhargava* : (i) 2 exs., Siliserh Bund, Alwar Dist., 8.vi.63. (ii) 18 exs., Small nalla from Mapdori-ka-Bund near Manoharpur, Jaipur Dist., 9.vi.63. (iii) 1 ex., Mudlia Kheri, Jhalawar Dist., 21.vi.63. (iv) 1 ex., Khandia tank, Jhalawar Dist., 21.vi.63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : Throughout India.

### 15. *Esomus danrica* (Hamilton)

(Pl. 4, Fig. 10)

1822. *Cyprinus danrica* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 325, 327, pl. 16, fig. 88. *Type-loc.* Ponds and ditches of Bengal.

*Material.*—(i)-(ii) Coll. *A. K. Mukherjee* : (i) 16 exs., Ratan talab (tank), Jaipur Dist., 9.x.57. (ii) 5 exs., Chaparwara, Jaipur Dist., 9.xii.57. (iii) 20 exs., Kala tank, Naraina, Jaipur Dist., coll. *S. Biswas*, 1.xi.59. (iv)-(vi) Coll. *B. N. Chopra* and *M. L. Roonwal* : (iv) 8 exs., R. Sone near Pipradia, Dungarpur Dist., 27.x.41. (v) 3 exs., Parai-ki-Nadi, Prasad, Udaipur Dist., 11.x.41. (vi) 1 ex., Udaisagar Nalla, Udaipur Dist., 11.x.41. (vii)-(viii) Coll. *B. Biswas* : (vii) 8 exs., Hemwas tank, Pali Dist., 6.xii.56. (viii) 2 exs., Umedsagar Lake, Jodhpur Dist., 23.xii.56. (ix) 6 exs., Bewara tank, Kotah Dist., coll. *R. N. Bhargava*, 17.iii.61. (x)-(xv) Coll. *N. Majumdar* and *R. N. Bhargava* : (x) 2 exs., Mansarovar, Alwar Dist., 7.vi.63. (xi) 2 exs. Mapdori-ka-

Bund, Jaipur Dist., 9.vi.63. (xii) 2 exs., nalla of Mapdori-ka-Bund, Jaipur Dist., 9.vi.63. (xiii) 17 exs., Shukla talai, Jhalawar Dist., 20.vi.63. (xiv) 7 exs., Dhanwara-ka-Talao, Jhalawar Dist., 20.vi.63. (xv) 1 ex. Mudlia Kheri, Jhalawar Dist., 21.vi.63. (xvi)-(xxii) Coll. *A. K. Datta*: (xvi) 7 exs., Chota talao, Pali Dist., 7.iii.61. (xvii) 13 exs., Pamri Nadi, Udaipur Dist., 22.xii.61. (xviii) 1 ex., pond near Fatehsagar, Udaipur Dist., 23.xii.61. (xix) 2 exs., Umedsagar, Jodhpur Dist., 4.ii.62. (xx) 6 exs., Kharala Dam, Jodhpur Dist., 8.i.63. (xxi) 4 exs., Sardarsamand, Jodhpur Dist., 15.i.63. (xxii) 5 exs., Takhatsagar tank, Jodhpur Dist., 4.v.63. (xxiii) 6 exs., Dara Sanctuary, Kotah Dist., coll. *R. N. Bhargava*, 17.iii.60.

*Distribution*.—RAJASTHAN: In addition to the above material the following records (Mathur, 1952) are available:—R. Phulad near Phulad Railway Station. *Elsewhere*: INDIA: Throughout. EXTRA-INDIAN: E. & W. Pakistan, Burma, Ceylon, Malaya, Thailand.

### 16. *Rasbora daniconius* (Hamilton)

(Pl. 4, Fig. 1)

1822. *Cyprinus daniconius* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 327, 329, pl. 15, fig. 89. *Type-loc.* Rivers of southern Bengal.

*Material*.—(i)-(iv) Coll. *B. N. Chopra* and *M. L. Roonwal*: (i) 66 exs. R. Bedach (Berach) near Chittorgarh, Udaipur Dist., 9.x.41. (ii) Kharpena-ka-Nalla, Udaipur Dist., 10.x.41. (iii) 15 exs., tanks and pools around Dungarpur Dist., 28.x.41. (iv) 40 exs., R. Sone near Pipradia village, Dungarpur Dist., 14.x.41. (v)-(viii) Coll. *R. N. Bhargava*: (v) 1 ex., Jaisamand, Udaipur Dist., 9.iii.61. (vi) 2 exs., Fatehsagar Lake, Udaipur Dist., 11.iii.61. (vii), (viii) 8 exs., Bewara tank, Kotah Dist., 17.ii.61. (ix) (xxi) Coll. *N. Majumdar* and *R. N. Bhargava*: (ix) 2 exs., Siliserh Bund, Alwar Dist., 8.vi.63. (x) 3 exs., Mapdori-ka-Bund, Jaipur Dist., 9.vi.63. (xi) 2 exs., small nalla from Mapdori-ka-Bund, Jaipur Dist., 9.vi.63. (xii) 3 exs., Surwal Bund, Sawai Madhopur Dist., 15.vi.63. (xiii) 45 exs., Chandra Sarovar, Jhalawar Dist., 20.vi.63. (xiv) 6 exs., Shukla talai, Jhalawar Dist., 20.vi.63. (xv) 6 exs., Dhanwara-ka-Talao, Jhalawar town, Jhalawar Dist., 20.vi.63. (xvi) 249 exs., Gomti Sagar, Jhalarpatan town, Jhalawar Dist., 21.vi.63. (xvii) 16 exs., Mudlia Kheri, Jhalarpatan town, Jhalawar Dist., 21.vi.63. (xviii) 1 ex., Khandia tank, Jhalawar town, Jhalawar Dist., 21.vi.63. (xix) 2 exs., Ahu river, Jhalawar Dist., 23.vi.63. (xx) 2 exs., tributary of Parwan river, Jhalawar Dist., 24.vi.63. (xxi) 2 exs., Jawai river, Jalor Dist., 2.vii.63. (xxii)-(xxix) Coll. *A. K. Datta*: (xxii) 1 ex., Wokal river, Udaipur, Udaipur Dist., 20.xii.61. (xxiii) 30 exs., Pamri nadi, Udaipur Dist., 20.xii.61. (xxiv) 7 exs., rocky pool, Pamri nadi, Udaipur Dist., 22.xii.61. (xxv) 27 exs., Fatehsagar, Udaipur Dist., 23.xii.61. (xxvi) 14 exs., pond near Fatehsagar, Udaipur Dist., 23.xii.61. (xxvii) 10 exs., Ahar river, Udaipur Dist., 24.xii.61. (xxviii) 36 exs., Pichola Lake, Udaipur Dist., 24.xii.61. (xxix) 22 exs., Kolaria tank, Udaipur Dist., 24.xii.61.

*Distribution*.—RAJASTHAN: In addition to the above material, the following records (Mathur, 1952) are available:—Rajsamand near Kankroli and R. Phulad, ca. 2 km. from Phulad Railway Station, Udaipur Dist. *Elsewhere*: INDIA: Throughout. EXTRA-INDIAN: E. & W. Pakistan, Ceylon, Malaya.

17. *Carassius carassius* (Linnaeus)

(Pl. 7, Fig. 7)

1758. *Cyprinus carassius* Linnaeus, *Syst. Nat.*, 10, p. 321, 322. *Type-loc* : China.

*Material*.—8 exs., Mandore canal, Jodhpur Dist., coll. J. S. Purohit, 2.v.61.

*Distribution*.—RAJASTHAN : As above. Introduced species. *Elsewhere* : INDIA : Maharashtra (introduced). Its original home is China and Japan.

18. *Garra gotyla* (Gray)

(Pl. 5, Fig. 1)

1832-33. *Cyprinus gotyla* Gray, *Ill. Indian Zoology*, 2, pl. 88, figs. 3, 3A. *Type-loc*. Northern India.

*Material*.—1 ex., R. Alani, Kotah Dist., coll. R. N. Bhargava, 17. iii. 61.

*Distribution*.—RAJASTHAN : As above. First record. *Elsewhere* : INDIA : Eastern and Western Himalayas, Uttar Pradesh, Punjab, Chota-Nagpur plateau, Vindhya and Satpura mountains. EXTRA-INDIAN : W. Pakistan (W. Punjab to Peshawar) ; Burma.

19. *Garra mullya* (Sykes)

(Pl. 5, Fig. 2)

1841. *Chondrostoma mullya* Sykes, *Trans. zool. Soc. Lond.*, London, 2, p. 359, pl. 62, fig. 3. *Type-loc*. Poona.

*Material*.—(i)-(v) Coll. N. Majumdar and R. N. Bhargava : (i) 2 exs., small nalla from Mapdori-ka-Bund, Jaipur Dist., 9. vi. 63. (ii) 11 exs., Bhairudara, Sawai Madhopur Dist., 16. vi. 63. (iii) 1 ex., Chandra Sarovar, Jhalawar Dist., 20. vi. 63. (iv) 5 exs., tributary of Prawan river, Jhalawar Dist., 24. vi. 63. (v) 2 exs., Jawai river, Jalore Dist., 2. vii. 63. (vi) 1 ex., Rocky pool, Pamri nadi, Udaipur Dist., coll. A. K. Datta, 22. xii. 61.

*Distribution*.—RAJASTHAN : As above. *Elsewhere* : INDIA : Maharashtra, Andhra Pradesh, Mysore, Madras and Kerala.

20. *Labeo angra* (Hamilton)

1822. *Cyprinus angra* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 331, 391. *Type-loc*. Brahmaputra river.

*Material*.—None. Reported from lakes in Jaipur and Udaipur Dists., and at Khetri (Jhunjhunu Dist.), by Dutta Gupta *et al* (1961).

*Distribution*.—RAJASTHAN : As above. *Elsewhere* : INDIA : Assam, W. Bengal and Orissa. EXTRA-INDIAN : Burma.

21. *Labeo bata* (Hamilton)

(Pl. 9, Fig. 1)

1822. *Cyprinus bata* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 283, 386.  
*Type-loc.* Rivers and ponds of Bengal.

*Material.*—(i) 1 ex., Fatehsagar Lake, Udaipur Dist., coll. R. N. Bhargava, 11. iii. 61. (ii)-(iii) Coll. A. K. Datta : (ii) 4 exs., Dana-duch-ki-Diggi, Bharatpur Dist., 19. i. 62. (iii) 2 exs., Kailana Lake, Jodhpur Dist., 2. ii. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Madras, Orissa, W. Bengal and Assam, Madhya Pradesh, Maharashtra. EXTRA INDIAN : W. Pakistan.

22. *Labeo boga* (Hamilton)

(Pl. 9, Fig. 4)

1822. *Cyprinus boga* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 286, 386,  
 pl. 28, fig. 80. *Type-loc.* Brahmaputra.

*Material.*—(i)-(ii) Coll. N. Majumdar and R. N. Bhargava : (i) 3 exs., Mui Bund, Sawai Madhopur Dist., 16. vi. 63. (ii) 1 ex., Jawai river, Jalor Dist., 2. vii. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout northern India and Andhra Pradesh. EXTRA-INDIAN : Burma.

23. *Labeo boggut* (Sykes)

(Pl. 6, Fig. 2)

1841. *Chondrostoma boggut* Sykes, *Trans. zool. Soc. Lond.*, London, 2,  
 p. 359. *Type-loc.* Poona.

*Material.*—(i) 1 ex., Kherpena-ka-Nalla, ca. 3 km. N. of Barapal village, Udaipur Dist., coll. B. N. Chopra and M. L. Roonwal. (ii)-(xi) Coll. N. Majumdar and R. N. Bhargava : (ii) 23 exs., small pond in tributary of Sabi river, Jaipur Dist., 9. vi. 63. (iii) 46 exs., Bhairu Dara, Sawai Madhopur Dist., 16. vi. 63. (iv) 22 exs., Gambhir river near Karauli, Sawai Madhopur Dist., 17. vi. 63. (v) 31 exs., Gambhir river near Sri Mahabirji Rly. Station, Sawai Madhopur Dist., 18. vi. 63. (vi) 2 exs., Shukla talai, Jhalawar Dist., 20. vi. 63. (vii) 1 ex., Khandia tank, Jhalawar Dist., 21. vi. 63. (viii) 18 exs., Parwan river, Jhalawar Dist., 24. vi. 63. (ix) 3 exs., a tributary of Parwan river, Jhalawar Dist., 24. vi. 63. (x) 9 exs., Parwan river, Kotah Dist., 26. vi. 63. (xi) 27 exs., Jawai river, Jalor Dist., 2. vii. 63. (xii)-(xv) Coll. A. K. Datta : (xii) 1 ex., Pamri nadi, Udaipur Dist., 20. xii. 61. (xiii) 1 ex., Ki-a-ki-Khai, Bharatpur Dist., 22. i. 62. (xiv) 1 ex., Sardarsamand, Jodhpur Dist., 6. iii. 62. (xv) 2 exs., Kailana Lake, Jodhpur Dist., 2. ii. 63.

*Distribution.*—RAJASTHAN : In addition to the above material, the following records (Mathur, 1952) are available.—R. Phulad near Phulad Railway Station. *Elsewhere* : INDIA : Punjab, Uttar Pradesh, Bihar, W. Bengal, Gujarat, Madhya Pradesh and Madras. EXTRA-INDIAN E. & W. Pakistan and Malaya.

24. *Labeo calbasu* (Hamilton)

(Pl. 9, Fig. 6)

1822. *Cyprinus calbasu* Hamilton, *Fishes of Ganges*, Edinburg, pp. 297, 307, pl. 2, fig. 83. *Type-loc.* Rivers and ponds of Bengal and western Provinces.

*Material.*—(i)-(iii) Coll. N. Majumdar and R. N. Bhargava : (i) 2 exs., Jeysagar Bund, Alwar Dist., 7. vi. 63. (ii) 3 exs., Siliserh Bund, Alwar Dist., 8. vi. 63. (iii) 1 ex., Jai Samand, Alwar Dist., 8. vi. 63. (iv)-(vi) Coll. A. K. Datta : (iv) 2 exs., Danaduch-ki-Diggi, Bharatpur Dist., 19. i. 62. (v) 2 exs., Aghapur, Bharatpur Dist., 20. i. 60. (vi) 1 ex., Uttangan Nadi, Bharatpur Dist., 27. i. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Burma, Thailand and Yunnan.

25. *Labeo dero* (Hamilton)

(Pl. 9, Fig. 5)

1822. *Cyprinus dero* Hamilton, *Fishes of Ganges*, Edinburg, pp. 277, 335, pl. 17, fig. 78. *Type-loc.* River Brahmaputra.

*Material.*—1 ex., Kharpena-ka-Nalla near Barapal village, Udaipur Dist., coll. B. N. Chopra and M. L. Roonwal, 15.x.41.

*Distribution.*—RAJASTHAN : As above. First record. *Elsewhere* : INDIA : Assam, W. Bengal, Uttar Pradesh and Punjab. EXTRA-INDIAN : E. & W. Pakistan and Burma.

26. *Labeo dyocheilus* (McClelland)

(Pl. 4, Fig. 13)

1839. *Cyprinus dyocheilus*, McClelland, *Asiatic Researches*, Calcutta, pp. 268, 330. *Type-loc.* Not given.

*Material.*—(i)-(ii) Coll. N. Majumdar and R. N. Bhargava : (i) 6 exs., Bhairu Dara, Sawai Madhopur Dist., 16.vi.63, (ii) 1 ex., Parwan river, Kotah Dist., 26. vi. 63. (iii)-(v) Coll. A. K. Datta : 2 exs., Danduchi-ki-Diggi, Bharatpur Dist., 19.i.62. (iv) 1 ex., Aghapur, Bharatpur Dist., 20.i.62. (v) 1 ex., Umran Lake, Alwar Dist., 25.i.62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Assam ; Tarai region in W. Bengal, Bihar, Uttar Pradesh and Punjab. EXTRA-INDIAN : W. Pakistan.

27. *Labeo fimbriatus* (Bloch)

(Pl. 9, Fig. 3)

1797. *Cyprinus fimbriatus* Bloch, *Ausländische Fische*, Berlin, 12, p. 50, pl. 407. *Type-loc.* Madras.

*Material.*—2 exs., Soorpur-ki-Nadi, Dungarpur Dist., coll. B. N. Chopra and M. L. Roonwal, 26.x.41.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout, except in W. Bengal and Malabar. EXTRA-INDIAN : W. Pakistan.

28. *Labeo gonius* (Hamilton)

(Pl. 9, Fig. 2)

1822. *Cyprinus gonius* Hamilton, *Fishes of Ganges* Edinburgh, pp. 292.  
387. *Type-loc.* Freshwater rivers and ponds of Bengal.

*Material.*—(i) 2 exs., Fatehsagar Lake, Udaipur Dist., coll. R. N. Bhargava, 11. iii. 61. (ii)-(iii) Coll. N. Majumdar and R. N. Bhargava : (ii) 1 ex., Mui Bund, Sawai Madhopur Dist., 16.vi.63. (iii) 1 ex., Khandia tank, Jhalawar Dist., 21.vi.63. (iv) 1 ex., tank near Alahapur village, Alwar Dist., coll. A. K. Datta, 25. i. 62. (v) 1 ex., Sarup Sagar, Udaipur Dist., coll. K. K. Mahajan, 6. ii. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Assam, W. Bengal, Uttar Pradesh and Punjab. EXTRA-INDIAN : Burma.

29. *Labeo nigripinnis* Day

1878. *Labeo nigripinnis* Day, *Fishes of India*, London, p. 544. pl. 132. fig. 81.  
*Type-loc.* Not given.

*Material.*—None. Reported from Jaipur and Udaipur Dists. and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al.* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Punjab, EXTRA-INDIAN : W. Pakistan.

30. *Labeo rohita* (Hamilton)

(Pl. 8, Fig. 6)

1822. *Cyprinus rohita* Hamilton, *Fishes of Ganges* Edinburgh, pp. 301, 388.  
pl. 36, fig. 85. *Type-loc.* Freshwater rivers of Gangetic provinces.

*Material.*—(i) 1 ex., Fatehsagar Lake, Udaipur Dist. coll. R. N. Bhargava, 11. iii. 61. (ii) 2 exs., Mui Bund, Sawai Madhopur Dist., coll. N. Majumdar and R. N. Bhargava, 16. vi. 63. (iii)-(v) Coll. A. K. Datta : (iii) 2 exs., Kherad village, Jaisamand Lake, Udaipur Dist., 23. xii. 61. (iv) 2 exs., Danaduch-ki-Diggi, Bharatpur Dist., 19. i. 62 (v) 6 exs., Aghapur, Bharatpur Dist., 20. i. 62.

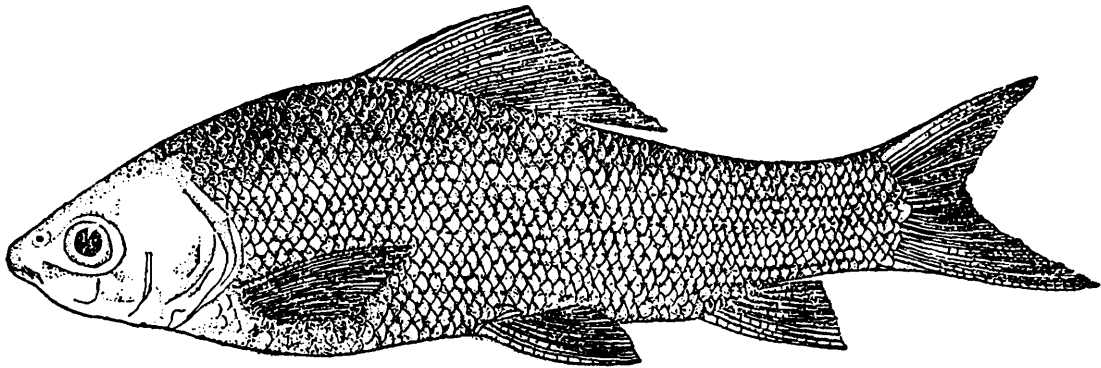
*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Assam, W. Bengal, Uttar Pradesh, Punjab and Madhya Pradesh. EXTRA-INDIAN : W. Pakistan : Burma.

31. *Labeo rajasthanicus* sp. n.

(Pl. 8, Fig. 3 ; Text-fig. 2)

*Material.*—1 ex., Jaisamand Lake, near Kherad village, ca. 61 km S. E. Udaipur, Udaipur Dist., Rajasthan, coll. A. K. Datta, 23.xii. 1961.

*Diagnosis.*—Standard length 231 mm.; with 16 rays in dorsal fin, the first 2 unbranched, other 14 branched ; with 60 scales along lateral line ; lateral transverse scales  $11\frac{1}{2}$  from origin of dorsal to lateral line and  $9\frac{1}{2}$  between lateral line and pelvic fin. Fin formula : D. 2/14, P.1/14, V.1/8, A.2/5, C. 19, L. L. 60, L. tr.  $11\frac{1}{2}$ ,  $9\frac{1}{2}$ .



TEXT-FIG. 2.—*Labeo rajasthanicus* sp. n. Holotype.

*Description.*—Depth of body 3.4, length of head 3.9 in standard length. Width of head 1.6 in length of head. Height of head 1.8 in height of body, Diameter of eye 5.2 in length of head. Nares placed at upper margin of snout and separated by membranous flap ; snout smooth without any tubercles. Gape of mouth 4 in length of head. Barbels 4. Lips nonfimbriated, continuous, crescent-shaped, without horny covering inside. Lateral line scales 60,  $9\frac{1}{2}$  between this and pelvic. Mid-dorsal streak in front of dorsal with 16 scales ; crest, belly and posterior pelvic region up to vent scaly. Dorsal fin with 16 rays, first 2 unbranched, other 14 branched ; distance between its anterior origin and tip of snout 2.2 in standard length ; situated before the origin of pelvic and nearer to snout than to caudal base ; height of dorsal fin shorter than depth of body below it, its free margin nearly straight. Pectoral fin with 14 rays, non-pedunculate, non-expanded and not bearing any tubercles. Pectoral fins placed vertically to body, shorter than head. Ventral fin inserted on ventral surface of body on a flat base ; with 9 rays, the first ray unbranched and other 8 branched. Margin of ventral fin not extending behind the anal opening. Anal fin with 7 rays, first 2 unbranched, rest branched. Anal opening away from origin of ventral and close to origin of anal fin. Distance from vent to anal fin 7 times in that between anterior origins of ventral and anal fin. Caudal fin with 19 rays, emarginate, with equal lobes. Length of caudal peduncle 2 times width and 1.2 times length of head. Posterior chamber of air bladder reduced : inner surface of peritonium black ; stomach thick-walled-lined with membranous fleshy, posteriorly directed papillae, arranged in spirial rows. The basipterygium and structure of pharyngeal bone

and teeth corresponding to those of *Labeo boggut* (Sykes). Colour, in alcohol, dark olive above, pale below ; fins dusky.

*Measurements* (mm.).—

Standard length	. . . . .	231
Head length	. . . . .	58
Head width	. . . . .	36
Head depth	. . . . .	42
Diameter of eye	. . . . .	11
Body depth	. . . . .	68
Predorsal length	. . . . .	105
Postdorsal length	. . . . .	30
Snout length	. . . . .	21
Gape of mouth	. . . . .	14
Height of caudal peduncle	. . . . .	49
Length of caudal peduncle	. . . . .	29
Lateral line scale	. . . . .	60
Lateral transverse scales	. . . . .	11½ and 9½

*Holotype*.—The specimen mentioned above under 'Material' Deposited in the Zoological Survey of India, Calcutta, Z. S. I. Reg. No. F. 4179/2.

*Type-locality*.—Jaisamand Lake, Udaipur District, Rajasthan.

*Relationship*.—*Labeo rajasthanicus* sp. n. is closely related to *Labeo boggut* (Sykes), a species found in W. Bengal, Orissa, Andhra Pradesh, Madhya Pradesh and Punjab, and resembles it in general facies and build, but differs as follows : (i) number of dorsal fins rays 16 vs. 12 ; (ii) number of lateral transverse scales in the body 11½ and 9½ vs. 12 and 14.

### 32. *Aspidoparia morar* (Hamilton)

(Pl. 4, Fig. 11)

1822. *Cyprinus morar* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 264, 381, pl. 31, fig. 75. *Type-loc.* Rivers of Yamuna and Teesta, two large but distinct branches of Ganges.

*Material*.—(i) 13 exs., Gambhir river, Sawai Madhopur Dist., coll. N. Majumdar and R. N. Bhargava, 18. vi. 63. (ii) 1 ex., Maharaja's Agricultural Farm tank, Sardarsamand, Pali Dist., coll. K. K. Mahajan, 21. xi. 63.

*Distribution*.—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout, except western coast and in localities south of Kistna river. EXTRA-INDIAN : E. & W. Pakistan, Burma and Thailand.

33. *Amblypharyngodon mola* (Hamilton)

(Pl. 4, Fig. 15)

1822. *Cyprinus mola* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 334, 392, pl. 38, fig. 92. *Type-loc.* Ponds and freshwater rivers in every part of the Gangetic provinces.

*Material.*—(i)-(vi) Coll. *N. Majumdar* and *R. N. Bhargava* : (i) 1 ex., Mansarovar, Alwar Dist., 7. vi. 63. (ii) 375 exs., Jeysagar Bund, Alwar Dist., 7. vi. 63. (iii) 1 ex., Gambhir river, Sawai Madhopur Dist., 18. vi. 63. (iv) 1 ex., Chandra Sarovar, Jhalawar Dist., 20. vi. 63. (v) 1 ex., Mudlia Kheri, Jhalawar Dist., 21. vi. 63. (vi) 2 exs., Jawai river, Jalor Dist., 2. vii. 63. (vii)-(viii) Coll. *A. K. Datta* : (vii) 3 exs., pool near Kailana Lake bridge, Jodhpur Dist., 7. vii. 62. (viii) 2 exs., Parlora talab, Dhrasani village, Jodhpur Dist., 19. vi. 63.

*Distribution.*—RAJASTHAN: As above. *Elsewhere* : INDIA : Throughout, except Kerala. EXTRA-INDIAN : E. & W. Pakistan ; Burma.

34. *Chagunius chagunio* (Hamilton)

(Pl. 5, Fig. 3)

1822. *Cyprinus chagunio* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 295, 387. *Type-loc.* Yamuna and in the northern rivers of Bihar and Bengal.

*Material.*—4 exs., Parwan river, Kotah Dist., coll. *N. Majumdar* and *R. N. Bhargava*, 26. vi. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Assam, W. Bengal, Punjab, Uttar Pradesh and Bihar, Orissa. EXTRA-INDIAN : E. & W. Pakistan, Burma and Thailand.

35. *Catla catla* (Hamilton)

(Pl. 5, Fig. 15)

1822. *Cyprinus catla* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 287, 318, 387, pl. 13, fig. 81. *Type-loc.* Rivers and tanks of Bengal.

*Material.*—Coll. *A. K. Datta*, Bharatpur Dist.: (i) 1 ex., Danaduch-ki-Diggi, 19. i. 62 ; (ii) 1 ex., Aghapur, 20. i. 62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : Burma and Thailand.

36. *Cirrhinus mrigala* (Hamilton)

(Pl. 8, Fig. 1)

1822. *Cyprinus mrigala* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 279, 386, pl. 6, fig. *Type-loc.* Ponds and freshwater rivers of Gangetic province.

*Material.*—(i)-(iii) Coll. *N. Majumdar* and *R. N. Bhargava* : (i) 3 exs., Jeysagar Bund, Alwar Dist., 7. vi. 63. (ii) 4 exs., Siliserh Bund, Alwar Dist., 8. vi. 63 ; (iii) 7 exs., Mui Bund, Sawai Madhopur Dist., 16. vi. 63. (iv)-(vi) Coll. *A. K. Datta* : (iv) 1 ex., Kherad village, Jaisamand lake, Udaipur Dist., 23. xii. 61. (v) 2 exs., Danaduch-ki-Diggi, Bharatpur Dist., 19. i. 63. (vi) 4 exs., Aghapur, Bharatpur Dist., 20. i. 62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : Burma.

### 37. *Cirrhinus reba* (Hamilton)

(Pl. 8, Fig. 5)

1822. *Cyprinus reba* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 280, 386  
*Type-loc.* Rivers and ponds of Bengal and Bihar.

*Material.*—(i)-(viii) Coll. *N. Majumdar* and *R. N. Bhargava* : (i) 1 ex., Jeysagar Bund, Alwar Dist., 7. vi. 63. (ii) 2 exs., Siliserh Bund, Alwar Dist., 8. vi. 63. (iii) 1 ex., Surwal Bund, Sawai Madhopur Dist., 15. vi. 63. (iv) 3 exs., Bhagwatigarh, Sawai Madhopur Dist., 18. vi. 63. (v) 4 exs., Gomti Sagar, Jhalawar Dist., 21. vi. 63. (vi) 2 exs., Mudlia kheri, Jhalawar Dist., 21. vi. 63. (vii) 2 exs., Ahu river, Jhalawar Dist., 23. vi. 63. (viii) 2 exs., Jawai river, Jalor Dist., 2. vii. 63. (ix)-(xvi) Coll. *A. K. Datta* : (ix) 6 exs., Pamri nadi, Udaipur Dist., 20. xii. 61. (x) 1 ex., Ahar river, Udaipur Dist., 24. xii. 61. (xi) 13 exs., Danaduch-ki-Diggi, Bharatpur Dist., 19.i.62. (xii) 2 exs., Ghanna Sanctuary, Bharatpur Dist., 20. i. 62. (xiii) 1 ex., Aghapur, Bharatpur Dist., 20. i. 62. (xiv) 3 exs., tank at Kherli village, Bharatpur Dist., 22. i. 62. (xv) 2 exs., tank, near Alahapur village, Alwar Dist., 25. i. 62. (xvi) 3 exs., Uttangan nadi, Bharatpur Dist., 27.i.62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan.

### 38. *Puntius amphibia* (Valenciennes)

(Pl. 4, Fig. 9)

1842. *Capoeta amphibia* Valenciennes, *Hist. Nat. Poissons*, Paris., 16, p. 282, pl. 478. *Type-loc.* Bombay.

*Material.*—(i) 5 exs., Khandia tank, Jhalawar Dist., coll. *N. Majumdar* and *R. N. Bhargava*, 21. vi. 63. (ii) 2 exs., Kherad village, Udaipur Dist., Coll. *A. K. Datta*, 23. xii. 61.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Uttar Pradesh, Madhya Pradesh, Maharashtra and Madras. EXTRA-INDIAN : Ceylon.

### 39. *Puntius conchoni* (Hamilton)

1822. *Cyprinus conchoni* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 317, 389. *Type-loc.* North-east of Bengal and in the rivers of Kosi and Ami.

*Material.*—None. Reported from lakes in Jaipur and Udaipur Dists. and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Assam, W Bengal, Orissa, Bihar, Uttar Pradesh, Punjab, Madhya Pradesh, Maharashtra. EXTRA-INDIAN E. & W Pakistan.

40. *Puntius chola* (Hamilton)

(Pl. 4, Fig. 4)

1822. *Cyprinus chola* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 312, 389.  
*Type-loc.* Ponds and other stagnant waters in northern parts of Bengal.

*Material.*—(i)-(iii) Coll. *B. N. Chopra* and *M. L. Roonwal* : (i) 2 exs., R. Bearch (Bedach) near Chittorgarh, Udaipur Dist., 8.x.41. (ii) 4 exs., Prasad (Palsad). Udaipur Dist., 17.x.41. (iii) 4 exs., tank near Barapal village. Udaipur Dist., 15.x.41. (iv) 1 ex., Fatehsagar Lake, Udaipur Dist. Coll. *R. N. Bhargava*, 11. iii. 61. (v)-(xi) Coll. *N. Majumdar* and *R. N. Bhargava* : (v) 64 exs., Manasarovar, Alwar Dist., 7. vi. 63. (vi) 1 ex., Jeysamand Bund, Alwar Dist., 7. vi. 63. (vii) 12 exs., Mui Bund, Sawai Madhopur Dist., 16. vi. 63. (viii) 12 exs., Shukla talai, Jhalawar Dist., 20. vi. 63. (ix) 22 exs., Gomti Sagar, Jhalawar Dist., 21. vi. 63. (x) 5 exs., Mudlia Kheri, Jhalawar Dist., 21. vi. 63. (xi) 14 exs., Gaduli talai, Jhalawar Dist., 22. vi. 63. (xii)-(xiii) Coll. *A. K. Datta* : 1 ex., tank (diggi) Bharatpur Dist., 19.i. 62. (xiii) 2 exs., tank in Ghana Sanctuary, Bharatpur Dist., 20. i. 62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIAN : Throughout. EXTRA-INDIAN : E. & W. Pakistan.

41. *Puntius dorsalis* (Jerdon)

1849. *Systomus dorsalis* Jerdon, *Madras, J. Lit. & Sci. Madras*. pp. 314, 316.  
*Type-loc.* Not given.

*Material.*—None. Reported from lakes in Jaipur and Udaipur Dists. and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Mysore, Madras, Andhra Pradesh. EXTRA-INDIAN : Ceylon.

42. *Puntius sarana* (Hamilton)

(Pl. 8, Fig. 2)

1822. *Cyprinus sarana* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 307, 388. *Type-loc.* Ponds and rivers of India.

*Material.*—(i) 12 exs., Chaparwara, Jaipur Dist., coll. *A. K. Mukherjee*, 9. xii. 57. (ii) 1 ex., on the way to Chaparwara Bunda near Naraina Jaipur Dist., Coll. *S. Biswas*. 30. ix. 58. (iii) 21 exs., tanks and pools around Dungarpur town, coll. *B. N. Chopra* and *M. L. Roonwal*. 28.x.41. (iv) 4 exs., Rajsamand. Udaipur Dist., coll. *K. S. Pradhan*. 27.xi.48. (v) 1 ex., Parai-ka-Nadi, Udaipur Dist., coll. *B. N. Chopra* and *M. L. Roonwal*. 23. x. 41. (vi) 1 ex., Fatehsagar Lake, Udaipur Dist., coll. *R. N. Bhargava*, 11. iii. 61. (vii)-(xi) coll. *N. Majumdar* and *R. N. Bhargava* : (vii) 4 exs., Siliserh Bund, Alwar Dist. 8. vi. 63. (viii) 10 exs., Sawai Madhopur Dist., 16. vi. 63. (ix) 1 ex., Mui Bund, Sawai Madhopur Dist., 16. vi. 63. (x) 2 exs., Gambhir river, Sawai Madhopur Dist., 17. vi. 63. (xi) 3 exs., Gomti Sagar, Jhalawar Dist., 21. vi. 63. (xii)-(xiv) Coll. *A. K. Datta* : (xii) 5 exs., Pamri nadi, Udaipur Dist., 20. xii. 61. (xiii) 1 ex., Kila-ki-Khai, near Deeg town, Bharatpur Dist., 21. i. 62. (xiv) 2 exs., Sardarsamand, Jodhpur Dist., 6. iii. 62. (xv) 3 exs., Sarupsagar, Udaipur Dist., coll. *K. K. Mahajan*, 6. xi. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan ; Malaya.

43. *Puntius sophore* (Hamilton)

(Pl. 4, Fig. 14)

1822. *Cyprinus sophore* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 310, 389, pl. 19, fig. 86. *Type-loc.* Ponds of Bengal.

*Material.*—(i) 55 exs., Jaipur Dist., coll. *A. K. Mukherjee*, 9. xii. 57. (ii)-(iv) Coll. *B. N. Chopra* and *M. L. Roonwal* : (ii) 18 exs., a baori (well) near Barapal village, Udaipur Dist., 14. x. 41. (iii) 9 exs., R. Berach, near Chittorgarh, Udaipur Dist. 9. x. 41. (iv) 3 exs., Prasad-ka-Nalla near Udaipur Dist., 21. x. 41. (v)-(vi) Coll. *B. Biswas* : (v) 3 exs., Nandana nadi, Nawa, Nagaur Dist., 15. xi. 56. (vi) 4 exs., Chat, Nasirabad, Ajmer Dist., 28. xii. 56. (vii)-(x) Coll. *R. N. Bhargava* : (vii) 1 ex., Chhota Talao, Pali Dist., 7. iii. 61. (viii) 2 exs., Bewara tank, Kotah Dist., 17. iii. 61. (ix) 1 ex., Nanta tank No. 1, Kotah Dist., 18. iii. 61. (x) 4 exs., Anasagar Lake, Ajmer Dist., 14. iii. 61. (xi)-(xxii) Coll. *N. Majumdar* and *R. N. Bhargava* : (xi) 16 exs., Mangalsar, Alwar Dist., 7. vi. 63. (xii) 14 exs., small pond, Sabi river, Jaipur Dist., 9. vi. 63. (xiii) 4 exs., Mapdori-ka-Bund, Jaipur Dist., 9. vi. 63. (xiv) 4 exs., Bhairu Dara, Sawai Madhopur Dist., 16. vi. 63. (xv) 18 exs., Chandra Sarovar, Jhalawar Dist., 20. vi. 63. (xvi) 15 exs., Jhalawar Dist., 20. vi. 63. (xvii) 28 exs., Dhanwara-ka-Talao, Jhalawar Dist., 20. vi. 63. (xviii) 63 exs., Gomti Sagar, Jhalawar Dist., 21. vi. 63. (xix) 31 exs., Khandia tank, Jhalawar Dist., 21. vi. 63. (xx) 46 exs., Gaduli talai, Jhalawar Dist., 22. vi. 63. (xxi) 21 exs., Jalor Dist., 30. vi. 63. (xxii) 33 exs., Dadeli-ka-Talao, Jalor Dist., 30. vi. 63. (xxiii)-(xxxiii) Coll. *A. K. Datta* : (xxiii) 51 exs., Tank, Kumbher village, Bharatpur Dist., 21. i. 62. (xxiv) 21 exs., Umedsagar, Jodhpur, Jodhpur Dist., 4. ii. 62. (xxv) 1 ex., Anasagar lake, Public Garden, Ajmer Dist., 14. iii. 61. (xxvi) 1 ex., Kailana Lake, Jodhpur Dist., 21. iv. 61. (xxvii) 20 exs., Pamri nadi, Udaipur Dist., 20. xii. 61. (xxviii) 1 ex., Aghapur, Bharatpur Dist., 20. i. 62. (xxix) 1 ex., tank at Kherli village, Bharatpur Dist., 22. i. 62. (xxx) 4 exs., Sardarsamand, Jodhpur Dist., 6. iii. 62. (xxxi) 14 exs., pool near Kailana lake bridge, Jodhpur Dist., 7. vii. 62. (xxxii) 196 exs., Sardarsamand, Jodhpur Dist., 15. i. 63. (xxxiii) 12 exs., Chota talab, Durasani village, Jodhpur Dist., 20. ii. 63. (xxxiv) 2 exs., Dara Sanctuary, Kotah Dist., coll. *R. N. Bhargava*, 17. iii. 61. (xxxv) 3 exs., Anasagar Lake, Ajmer Dist., coll. *K. K. Mahajan*, 19. x. 63.

*Distribution.*—RAJASTHAN : In addition to the above material the following records are available :—(a) Mathur (1952) : R. Phulad, near Phulad Railway Station ; Jai Vilas Palace Tank, and a stream near Dilwara temple, Bendermere Lake, Mount Abu, Sirohi Dist. ; (b) Krishna and Menon (1958) : Balsamand Lake, near Jodhpur. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W Pakistan, Burma and Yunnan.

44. *Puntius ticto* (Hamilton)

(Pl. 4, Fig. 8)

1822. *Cyprinus ticto* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 314, 389, pl. 8, fig. 87. *Type-loc.* South-east part of Bengal.

*Material.*—(i) 3 exs., Bandi Nadi at Sanodia, Jaipur Dist., coll. *B. Biswas*, 30. x. 58. (ii) 9 exs., Datra nadi, Jaipur Dist., 30. x. 58 (iii) 2

exs., Mandore canal, Jodhpur Dist., coll. *J. S. Purohit*, 2. v. 61. (iv)-(x) coll. *N. Majumdar* and *R. N. Bhargava* : (iv) 4 exs., Mapdori-ka-Bund, Jaipur Dist., 9. vi. 63. (v) 71 exs., small nulla from Mapdori-ka-Bund, Jaipur Dist., 9. vi. 63. (vi) 24 exs., Surwal Bund, Sawai Madhopur Dist., 15. vi. 63. (vii) 61 exs., Chandra Sarovar, Jhalawar Dist., 20. vi. 63. (viii) 4 exs., Gomti Sagar, Jhalawar Dist., 21. vi. 63. (ix) 4 exs., a tributary of Parwan river, Jhalawar Dist., 24. vi. 63. (x) 40 exs., Jawai river, Jalor Dist., 2. vii. 63. (xi)-(xviii) coll. *A. K. Datta* : (xi) 20 exs., Pamri nadi, Udaipur Dist., 20. vii. 61. (xii) 3 exs., rocky pool, Pamri nadi, Udaipur Dist., 22. x. 61. (xiii) 10 exs., pond near Fatehsagar, Udaipur Dist., 23. xii. 61. (xiv) 1 ex., tank near Ajan village, Bharatpur Dist., 19. i. 62. (xv) 3 exs., Kailana Lake, Jodhpur Dist., 12. vii. 62. (xvi) 1 ex., Luni river, Jodhpur Dist., 12. xii. 62. (xvii) 1 ex., Kharala Dam, Jodhpur Dist., 8. i. 63. (xviii) 5 exs., Sardarsamand, Jodhpur Dist., 15. i. 63. (xxix) 14 exs., lake in Ghana Sanctuary, Bharatpur Dist., coll. *R. N. Bhargava*, 20. i. 62.

*Distribution*.—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W Pakistan, Ceylon, Burma, Siam and Thailand.

#### 45. *Puntius vittatus* Day

(Pl. 5, Fig. 6)

1865. *Puntius vittatus* Day, *Proc. zool. Soc. Lond.*, London, 1865, p. 303. *Type-loc.* Madras.

*Material*.—Coll. *A. K. Datta* : (i) 118 exs., Pamri nadi, Udaipur Dist., 22. xii. 61. (ii) 1 ex., tank near Ajan village Bharatpur Dist., 19. i. 62. (iii) 20 exs., Luni river, Jodhpur Dist., 12. xii. 62. (iv) 45 exs., Kailana Lake, Jodhpur Dist., 25. ii. 62. (v) 11 exs., Sardarsamand, Jodhpur Dist., 15. i. 63.

*Distribution*.—RAJASTHAN : As above. *Elsewhere* : INDIA : Gujarat, Maharashtra, Mysore and Madras. EXTRA-INDIAN : Ceylon.

#### 46. *Osteobrama cotio* (Hamilton)

(Pl. 5, Fig. 11)

1822. *Cyprinus cotio* Hamilton, *Fishes of Gorges*, Edinburgh, pp. 329, 393, pl. 39, fig. 93. *Type-loc.* Ponds and ditches of Bengal.

*Material*.—(i)-(v) Coll. *N. Majumdar* and *R. N. Bhargava* : (i) 19 exs., Gomti Sagar, Jhalawar Dist., 21. vi. 63. (ii) 4 exs., Mudlia Kheri, Jhalawar Dist., 21. vi. 63. (iii) 4 exs., Khandia tank, Jhalawar Dist., 21. vi. 63. (iv) 1 ex., Parwan river, Jhalawar Dist., 22. vi. 63. (v) 7 exs., Gaduli talai, Jhalawar Dist., 22. vi. 63. (vi)-(viii) Coll. *A. K. Datta* : (vi) 28 exs., tank near Mundaya, Bharatpur Dist., 23. i. 62. (vii) 25 exs., tank, Alwar Dist., 23. i. 62. (viii) 2 exs., tank, Bharatpur Dist., 26. i. 62.

*Distribution*.—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout, except Mysore, Kerala and Madras. EXTRA-INDIAN : Burma.

47. *Tor khudree* (Sykes)

(Pl. 8 Fig. 4)

1838. *Barbus khudree* Sykes, *Proc. zool. Soc. Lond.*, London, 1838, p. 159.  
*Type-loc.* Mota-Mola river, 8 miles east of Poona.

*Material.*—(i) 3 exs., Fatehsagar Lake, Udaipur Dist., coll. R. N. Bhargava, 11. iii. 61. (ii) 7 exs., Parwan river, Kotah Dist., coll. N. Majumdar and R. N. Bhargava, 26. vi. 63. (iii) 3 exs., Kherat village, Jaisamand Lake, Udaipur Dist., coll. A. K. Datta, 23. xii. 61.

*Distribution.*—RAJASTHAN : In addition to the above material, the following record (Mathur, 1952) is available : — R. Surpur near Dungarpur. *Elsewhere* : INDIA : Uttar Pradesh, Orissa and Peninsular India.

48. *Botia lohachata* Chaudhuri

(Pl. 5, Fig. 13)

1912. *Botia lohachata* Chaudhuri, *Rec. Indian Mus.*, Calcutta, 7, pp. 441-442. *Type-loc.* Gandak river, Saran, Bihar.

*Material.*—(i)-(ii) Coll. N. Majumdar and R. N. Bhargava, Sawai Madhopur Dist. : (i) 1 ex., tributary of Gambhir river, 17. vi. 63. (ii) 1 ex., Gambhir river, 18. vi. 63. (iii)-(iv) Coll. A. K. Datta, Bharatpur Dist. : (iii) 1 ex., Danaduch-ki-Diggi, 19. i. 62. (iv) 1 ex., Kila-ki-Khai 21. i. 62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Bihar and Uttar Pradesh.

49. *Lepidocephalichthys guntea* (Hamilton)

(Pl. 5, Fig. 8)

1822. *Cobitis guntea* Hamilton, *Fishes of Ganges*, Edinburg, pp. 353, 394. *Type-loc.* Ponds and freshwater rivers of Bengal.

*Material.*—(i)-(iv) Coll. B. N. Chopra and M. L. Roonwal : (i) 40 exs., Prasad-ka-Nalla, Udaipur Dist., 21. x. 41. (ii) 1 ex., tanks and pools around Dungarpur, Dungarpur Dist., 29. x. 41. (iii) R. Sone near Pipradia, Dungarpur Dist., 27. x. 41. (iv) 1 ex., large tank near Parsad, Udaipur Dist., 21. x. 41. (v)-(vii) Coll. N. Majumdar and R. N. Bhargava : (v) 1 ex., small nulla from Mapdori-ka-Bund, Jaipur Dist., 9. vi. 63. (vi) 1 ex., Chandra Sarovar, Jhalawar Dist., 20. vi. 63. (vii) 1 ex., Gomti Sagar, Jhalawar Dist., 21. vi. 63. (viii)-(ix) Coll. A. K. Datta : (vi) 1 ex., Chandra Sarovar, Jhalawar Dist., 20. vi. 63. (vii) 1 ex., Gomti Udaipur Dist. : (viii) 1 ex., Pamri nadi, 20. xii. 61. (ix) 2 exs., Ahar river, 24. xii. 61.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout northern India. EXTRA-INDIAN : E. & W. Pakistan.

50. *Noemacheilus botia* (Hamilton)

(Pl. 4, Fig. 16)

1822. *Cobitis botia* Hamilton, *Fishes of Ganges*, Edinburg, pp. 350, 358, 394, 395. *Type-loc.* Rivers of north-eastern parts of Bengal.

*Material.*—Coll. N. Majumdar and R. N. Bhargava : (i) 1 ex., Chandra Sarovar, Jhalawar Dist., 20. vi. 63. (ii) 38 exs., Sagi river Jaswantpura, Garh village, Jalor Dist., 1. vi. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : W. Pakistan and Ceylon.

51. *Noemacheilus denisonii* Day

(Pl. 5, Fig. 7)

1867. *Noemacheilus denisonii* Day, *Proc. zool. Soc. Lond.*, London, 1867, p. 287. *Type-loc.* Not given.

*Material.*—(i) 1 ex., Fatehsagar Lake, Udaipur Dist., coll. R. N. Bhargava, 11. iii. 62. (ii) 18 exs., Sagi river, Jalor Dist., coll. N. Majumdar and R. N. Bhargava, 1. vii. 63. (iii)-(vii) Coll. A. K. Datta. (iii) 1 ex., Nagadari, Mandore, Jodhpur Dist., 10. iv. 61. (iv) 1 ex., Kailana Lake, Jodhpur Dist., 21. iv. 61. (v) 1 ex., Bijolai tank, Jodhpur Dist., 7. xi. 62. (vi) 17 exs., Sardarsamand, Jodhpur Dist., 15. i. 63. (vii) 1 ex., Kharala Dam, Jodhpur Dist., 8. i. 63.

*Distribution.*—RAJASTHAN: In addition to the above material, the following records (Mathur, 1952) are available :—R. Phulad, a hill stream near Piple village 27 km. from Phulad; Jogmandi Jharna (waterfall) 18 km. E. of Phulad Railway Station; Trevor Tal (tank) and *nala* (stream) near Dilwara Temple, and Gora chapra *nala*, Mount Abu. Sirohi Dist.) *Elsewhere* : INDIA : Madras (Nilgiri Hills), Mysore, Maharashtra and Madhya Pradesh.

52. *Mystus bleekeri* (Day)

(Pl. 6, Fig. 6)

1877. *Macrones bleekeri* Day, *Fish. India*, p. 451, p. 101, fig. 1. *Type-loc.* Sind, Jamuna, upper waters of Ganges, Burma.

*Material.*—Coll. N. Majumdar and R. N. Bhargava : (i) 7 exs., Jeysagar Bund, Alwar Dist., 7. vi. 63. (ii) 1 ex., Bhairu Dara, Sawai Madhopur Dist., 16. vi. 63. (iii) 3 exs., Khandia tank, Jhalawar Dist., 21. vi. 63.

*Distribution.*—RAJASTHAN: As above. *Elsewhere* : INDIA : Throughout northern India. EXTRA-INDIAN : W. Pakistan, Burma and Malaya.

53. *Mystus cavasius* (Hamilton)

(Pl. 6, Fig. 3)

1822. *Pimelodus cavasius* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 203, 379, pl. 11, fig. 67. *Type-loc.* Larger freshwater rivers of Gangetic Provinces.

*Material.*—(i)-(vii) Coll. N. Majumdar and R. N. Bhargava : (i) 3 exs., Surwal Bund, Sawai Madhopur Dist., 15. vi. 63. (ii) 5 exs., Mui Bund, Sawai Madhopur Dist., 16. vi. 63. (iii) 1 ex., Bhagwatigarh Bund, Sawai Madhopur Dist., 18. vi. 63. (iv) 3 exs., Shukla talai, Jhalawar Dist., 20. vi. 63. (v) 7 exs., Gomti Sagar, Jhalawar Dist., 21. vi. 63. (vi) 1 ex., Mudlia Kheri, Jhalawar Dist., 21. vi. 63. (vii)-(ix) Coll. A. K. Datta. (vii) 1 ex., Aghapur, Bharatpur Dist., 20. i. 62. (viii) 1 ex., tank, Kumbher village, Bharatpur Dist., 21. i. 62. (ix) 1 ex., Kila-ki-Khai, Deeg town, Bharatpur Dist., 21. i. 62.

*Distribution.*—RAJASTHAN: As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Burma, Thailand, Malay-Archipelago and China.

54. *Mystus seenghala* (Sykes)

(Pl. 7, Fig. 5)

1839. *Platystomus seenghala* Sykes, *Trans. zool. Soc. Lond.*, London, 2, p. 371. *Type-loc.* Mola Mota River at Poona.

*Material.*—(i) 1 ex., Fatehsagar Lake, Udaipur, coll. R. N. Bhargava, 11. iii. 61. (ii) 1 ex., Mudlia Kheri, Jhalawar Dist., coll. N. Majumdar and R. N. Bhargava, 21. vi. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Andhra Pradesh, Punjab, Uttar Pradesh, W. Bengal and Madhya Pradesh. EXTRA-INDIAN : Burma.

55. *Mystus vittatus* (Bloch)

(Pl. 4, Fig. 5)

1797. *Silurus vittatus* Bloch, *Ichth.*, Leyden, pl. 371, fig. 2. *Type-loc.* Tranquebar.

*Material.*—(i) 7 exs., Kiyard Bund, Sawai Madhopur Dist., coll. N. Majumdar and R. N. Bhargava, 17. vi. 63. (ii) 2 exs., Umran Lake, Alwar Dist., coll. A. K. Datta, 25. i. 62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Punjab, Uttar Pradesh, Bihar, W. Bengal, Assam, Orissa, Madhya Pradesh, Madras and Kerala. EXTRA-INDIAN : E. & W. Pakistan, Burma, Ceylon and Thailand.

56. *Ompok bimaculatus* (Bloch)

(Pl. 6, Fig. 7)

1794. *Silurus bimaculatus* Bloch, *Ausländische Fische*, Berlin, 8, p. 24, pl. 364. *Type-loc.* Tranquebar.

*Material.*—(i) 1 ex., Fatehsagar Lake, Udaipur Dist., coll. R. N. Bhargava, 11. iii. 61. (ii)-(iv) Coll. N. Majumdar and R. N. Bhargava : (ii) 3 exs., Jeysagar Bund, Alwar Dist., 7. vi. 63. (iii) 10 exs., Mui Bund, Sawai Madhopur Dist., 16. vi. 63. (iv) 1 ex., Bhagwatigarh Bund, Sawai Madhopur Dist., 18. vi. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : Ceylon, Burma, Malaya, Thailand and Yunnan.

57. *Wallago attu* (Schneider)

(Pl. 7, Fig. 4)

1801. *Silurus attu* Schneider, *Syst. Ichth. Bloch*, p. 338, pl. 75. *Type-loc.* Malabar.

*Material.*—(i)-(iii) Coll. N. Majumdar and R. N. Bhargava : (i) 1 ex., Siliserh Bund, Alwar Dist., 8. vi. 63. (ii) 1 ex., Bhairu Dara, Sawai Madhopur Dist., 16. vi. 63. (iii) 1 ex., Mui Bund, Sawai Madhopur Dist., 16. vi. 63. (iv)-(v) Coll. A. K. Datta, Bharatpur Dist. : (iv) 3 exs., Agharpur, 20. i. 62. (v) 6 exs., Danaduch-ki-Diggi, 19. i. 62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Ceylon, Burma, Malay-  
Archipelago, Thailand, Indo-China and W. Yunnan.

58. *Silonia silondia* (Hamilton)

1822. *Pimelodus silondia* Hamilton, *Fishes of Ganges*, Edinburg, pp. 160, 375, pl. 7, fig. 50. *Type-loc.* Gangetic estuaries.

*Material.*—None. Reported from lakes in Jaipur and Udaipur Dists. and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Uttar Pradesh, Bihar, Punjab, W. Bengal, Orissa, Andhra Pradesh and Maharashtra. EXTRA-INDIAN : Burma.

59. *Bagarius bagarius* (Hamilton)

1822. *Pimelodus bagarius* Hamilton, *Fishes of Ganges*, Edinburg, pp. 186, 378, pl. 7, fig. 62. *Type-loc.* Ganges.

*Material.*—None. Reported from lakes in Jaipur and Udaipur Dists. and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout northern India, Orissa, Madhya Pradesh and Maharashtra. EXTRA-INDIAN : W. Pakistan, Burma, Malaya, Thailand and Indo-China.

60. *Heteropneustes fossilis* (Bloch)

(Pl. 7, Fig. 3)

1794. *Silurus fossilis* Bloch, *Auslandische Fische*, Berlin, 6, p. 370, text-fig. 2. *Type-loc.* Tranquebar.

*Material.*—(i) 1 ex., Julga, Jaipur Dist., coll. A. K. Mukherjee, 23. xi. 57. (ii) 1 ex., Datri Nadi at Naraina, Jaipur Dist., coll. S. Biswas, 30. x. 58. (iii)-(iv) Coll. N. Majumdar and R. N. Bhargava : (iii) 3 exs., Mangalsar, Alwar Dist., 7. vi. 63. (iv) 1 ex., Bhagwatigarh Bund, Sawai Madhopur Dist., 18. vi. 63. (v)-(xiii) Coll. A. K. Datta : (v) 1 ex., Takhatsagar tank, Jodhpur Dist., 21. vi. 61. (vi) 4 exs., bawari (tank) near Ghenari village, Pali Dist., 20. xi. 61. (vii) 1 ex., Nandri tank, Jodhpur Dist., 7. vii. 62. (viii) 3 exs., Umedsagar, Jodhpur Dist., 28. vi. 62. (ix) 2 exs., Kailana Lake, Jodhpur Dist., 12. vii. 62. (x) 5 exs., Kharala Dam, Jodhpur Dist., 8. i. 63. (xi) 3 exs., Sardarsamand, Jodhpur Dist., 15. i. 63. (xii) 9 exs., Gangani tank, Jodhpur Dist., 17. iii. 63. (xiii) 8 exs., well near Sapa Sarowar in Pipar, Jodhpur Dist., 23. v. 63.

*Distribution.*—RAJASTHAN : As above. Also : Kailana Lake, Jodhpur (Krishna and Menon, 1958) and Bharatpur Dist. (Moona, 1962). *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Ceylon, Nepal, Burma, Thailand and Indo-China.

61. *Xenentodon cancila* (Hamilton)

(Pl. 7, Fig. 6)

1822. *Belone cancila* Hamilton, *Fishes of Ganges*, Edinburg, pp. 213, 380, pl. 27, fig. 70. *Type-loc.* Ponds and smaller rivers of Gangetic Province.

*Material.*—(i) 5 exs., Chaparwara, Jaipur Dist., coll. A. K. Mukherjee, 9. iii. 57. (ii) 1 ex., Fatehsagar Lake, Udaipur Dist., coll. R. N. Bhargava, 11. iii. 61. (iii) 5 exs., Chandra Sarovar, Jhalawar Dist., coll. N. Majumdar and R. N. Bhargava, 20. vi. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Ceylon, Burma and farther east,

62. *Gambusia affinis* (Baird & Girard)

(Pl. 4, Fig.6)

1853. *Heterandia patruelis* Baird & Girard, *Proc. Acad. nat. Sci. Philad.* Philadelphia, 6, p. 360. *Type-loc.* Rio Sabinal, Texas, U.S.A.

*Material.*—(i) 4 exs., Kherpena-ka-Nalla, Udaipur Dist., coll. B. N. Chopra and M. L. Roonwal, 15. x. 41. (ii) Many exs., Kailana Lake, Jodhpur Dist., coll. J. S. Purohit, 19. ii. 61. (iii)-(vi) Coll. A. K. Datta: (iii) 33 exs., Ranibag garden, Mandore, Jodhpur Dist., 27. x. 60. (iv) 55 exs., Kailana Lake, Jodhpur Dist., 19. ii. 61. (v) many exs., Nagadari, Mandore, Jodhpur Dist., 10. iv. 61. (vi) 23 exs., Takhatsagar tank, Jodhpur Dist., 21. iv. 61. (vii) 301 exs., Mandore canal, Jodhpur Dist., 17. v. 61. (viii) 61 exs., Dam, Jodhpur Dist., 23. ix. 61. (ix) 1 ex., Ahar river, Udaipur Dist., 24. xii. 61. (x) 25 exs., Main tank at Barli village, Jodhpur Dist., 4. ii. 62. (xi) 49 exs., Bhurd Bhaker, Jodhpur Dist., 28. iv. 62, (xii) 48 exs., tank, Jodhpur Dist., 28. iv. 62. (xiii) 36 exs., Sardarsamand Jodhpur Dist., 15. i. 63. (xiv) 1 ex., Luni river, Jodhpur Dist., 12. vii. 62. (xv) 94 exs., Padam Sagar, Jodhpur Dist., 21. iii. 63. (xvi) 8 exs., Ranisagar, Jodhpur Dist., 21. iii. 63. (xvii) 7 exs., Galta, Jaipur Dist., coll. K. K. Mahajan, 10. ix. 63.

*Distribution.*—RAJASTHAN : As above. Introduced species. *Elsewhere:* INDIA : Kashmir and Mysore. EXTRA-INDIAN : Ceylon, Malaya, Philippines, Formosa and Italy. Native to southern United States.

63. *Aplocheilus lineatum* (Valenciennes)

(Pl.4, Fig.7)

1846. *Panchax lineatum* Valenciennes, *Hist. Nat. Poissons*, Paris, 18, p. 381. *Type-loc.* Bombay.

*Material.*—(i) 3 exs., Ahar River, Udaipur Dist., coll. A. K. Datta and party, 24. xii. 61. (ii) 2 exs., Sardarsamand, Pali Dist., coll. K. K. Mahajan, 25. xi. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere:* INDIA : Maharashtra, Kerala and Madras. EXTRA-INDIAN: Ceylon.

64. *Channa gachua* (Hamilton)

(Pl. 6, Fig. 1)

1822. *Ophiocephalus gachua* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 68, 367, pl. 21, fig. 21. *Type-loc.* Ponds and ditches of Bengal.

*Material.*—(i)-(ii) Coll. B. Biswas : (i) 3 exs., Bandi nadi at Pali, Pali Dist., 6. xii. 56. (ii) 2 exs., Kolayat, Bikaner Dist., 5. xi. 56. (iii)-(iv) Coll. N. Majumdar and R. N. Bhargava : (iii) 11 exs., small pond in tributary of Sabi river, Jaipur Dist., 9. vi. 63. (iv) 3 exs., small nulla from Mapdori-ka-Bund, Jaipur Dist., 9. vi. 63. (v)-(viii) Coll. A. K. Datta : (v) 1 ex., Pamri nadi, 12 km. N. of Katra, Udaipur Dist., 22. xii. 61. (vi) 2 exs., Pamri nadi, 8 km. N. of Katra, Udaipur Dist., 20. xii. 61. (vii) 3 exs., Sardarsamand, Jodhpur Dist., 15. i. 63. (viii) 1 ex., Umedsagar, Jodhpur Dist., 11. iii. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere:* INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Afghanistan, Ceylon, Burma, Malaya, Thailand, Indo-China, Yunnan and, Haryana.

65. *Channa marulius* (Hamilton)

(Pl. 7, Fig. 2)

1822. *Ophiocephalus marulius* Hamilton, *Fishes of Ganges*, pp. 65, 367, pl. 17, fig. 19. *Type-loc.* Ponds and freshwater rivers of India.

*Material.*—(i) 1 ex., Jeysagar Bund, Alwar Dist., Coll. *N. Majumdar* and *R. N. Bhargava*, 7. vi. 63. (ii) 1 ex., Kailana Lake, Jodhpur Dist., coll. *A. K. Datta*, 2. ii. 63.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Ceylon and China.

66. *Channa punctatus* (Bloch)

(Pl. 6, Fig. 5)

1793. *Ophiocephalus punctatus* Bloch, *Auslandische Fische*, Berlin, 6, p. 139, pl. 358. *Type loc.* Malabar.

*Material.*—(i)-(vii) Coll. *B. N. Chopra* and *M. L. Roonwal* : (i) 3 exs., Soorpur-ka-Nadi, Dungarpur Dist., 26. x. 41. (ii) 2 exs., R. Sone near Pipradia village, Dungarpur Dist., 27. x. 41. (iii) 2 exs., tanks and pools around Dungarpur, Dungarpur Dist., 28. x. 41. (iv) 1 ex., Udaisagar nalla, Udaipur Dist., 10. iv. 41. (v) 1 ex., R. Berach near Chittorgarh, 8. x. 41. (vi) 2 exs., Parai-ka-Nadi near Prasad, Udaipur Dist., 17. x. 41. (vii) 1 ex., Dhulev-ka-Nadi, Prasad, Udaipur Dist., 20. x. 41. (viii) 1 ex., Chat, Ajmer Dist., coll. *B. Biswas*, 28. xi. 56. (ix) 1 ex., pond at Pali, Pali Dist., coll. *B. Biswas*, 6. xii. 56. (x) 4 exs., Julga, Jaipur Dist., coll. *A. K. Mukherjee*, 13.xi.57. (xi)-(xxii) Coll. *N. Majumdar* and *R. N. Bhargava* : (xi) 1 ex., Mansarovar, Alwar Dist., 7. vi. 63. (xii) 9 exs., Mangalsar, Alwar Dist., 7. vi. 63. (xiii) 1 ex., Siliserh Bund, Alwar Dist., 8. vi. 63. (xiv) 1 ex., Chhitoli Bund, Jaipur Dist., 11. vi. 63. (xv) 1 ex., Bhairu Dara, Sawai Madhopur Dist., 16. vi. 63. (xvi) 13 exs., Kiyard Bund, Sawai Madhopur Dist., 17. vi. 63. (xvii) 1 ex., pond in Gambhir river, Sawai Madhopur Dist., 17. vi. 63. (xviii) 1 ex., Shukla talai, Jhalawar Dist., 20. vi. 63. (xix) 6 exs., Gomti Sagar, Jhalawar Dist., 21. vi. 63. (xx) 1 ex., Mudlia kheri, Jhalawar Dist., 21. vi. 63. (xxi) 3 exs., Gaduli talai, Jhalawar Dist., 22. vi. 63. (xxii) 2 exs., Jawai river, Jalor Dist., 2. vii. 63. (xxiii)-(xxx) Coll. *A. K. Datta*. (xxiii) 2 exs., Ahar river, Udaipur Dist., 24. xii. 61. (xxiv) 16 exs., tank near Ajan village, Bharatpur Dist., 19. i. 62. (xxv) 2 exs., Umran Lake, Alwar Dist., 25. i. 62. (xxvi) 5 exs., Umedsagar, Jodhpur Dist., 4. ii. 62. (xxvii) 4 exs., Sardarsamand, Jodhpur Dist., 6. iii. 62. (xxviii) 1 ex., Kailana Lake, Jodhpur Dist., 12. vii. 62. (xxix) 11 exs., Kharala Dam, Jodhpur Dist., 8. i. 63. (xxx) 2 exs., Sardarsamand, Jodhpur Dist., 15. i. 63. (xxxi)-(xxxii) Coll. *K. K. Mahajan* : (xxxi) 3 exs., Maota tank, Amber, Jaipur Dist., 12. ix. 63. (xxxii) 1 ex., Sardarsamand, Jodhpur Dist., 26. xi. 63.

*Distribution.*—RAJASTHAN : In addition to the above material, the following records (Mathur, 1952) are available :—R. Phulad near Phulad Railway Station ; Jayvilas Palace tank, Mount Abu, Sirohi Dist. ; and Bharatpur Dist. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Ceylon, Burma, Malaya, China and Polynesia.

67. *Channa striatus* (Bloch)

1793. *Ophiocephalus striatus* Bloch, *Auslandische Fische*, Berlin, 2, p. 141, pl. 359. *Type-loc.* Malabar.

*Material.*—None. Reported from lakes in Jaipur and Udaipur Dists., and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Ceylon, Burma, China and Polynesia.

68. *Ambassis baculis* (Hamilton)

1822. *Chanda baculis* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 112, 371. *Type-loc.* North-eastern parts of Bengal.

*Material.*—None. Reported from lakes in Jaipur and Udaipur Dists. and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout northern India ; EXTRA-INDIAN : E. & W. Pakistan, Burma and Thailand.

69. *Ambassis nama* (Hamilton)

(Pl. 4, Fig. 3)

1822. *Chanda nama* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 109, 371, pl. 39, fig. 37. *Type-loc.* Ponds throughout Bengal.

*Material.*—(i)-(v) Coll. N. Majumdar and R. N. Bhargava : (i) 2 exs., Gambhir river, Sawai Madhopur Dist., 18. vi. 63. (ii) 63 exs., Chandra Sarovar, Jhalawar Dist., 20.vi.63. (iii) 2 exs., Khadia tank, Jhalawar Dist., 21.vi.63. (iv) 2 exs., Gaduli Talai, Jhalawar Dist., 22.vi.63. (v) 43 exs., Jawai river, Jalor Dist., 2.vii.63. (vi)-(ix) Coll. A. K. Datta : (vi) 45 exs., tank near Ajan village, Bharatpur Dist., 19.i.62. (vii) 9 exs., tank, Alwar Dist., 23.i.62. (viii) 19 exs., pucca tank in Bharatpur, Bharatpur Dist., 26.i.62. (ix) 1 ex., tank near Alahapur village, Alwar Dist., 25.i.62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan and Burma.

70. *Ambassis ranga* (Hamilton)

(Pl. 5, Fig. 5)

1822. *Chanda ranga* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 113, 371. pl. 16, fig. 38. *Type-loc.* Freshwater rivers of Gangetic Provinces

*Material.*—(i) 4 exs., Udaisagar nalla, Udaipur Dist., coll. B. N. Chopra and M. L. Roonwal, 11.x.41. (ii) 1 ex., Fatehsagar Lake, Udaipur Dist., coll. R. N. Bhargava, 11.iii.61. (iii)-(iv) Coll. N. Majumdar and R. N. Bhargava, Jhalawar Dist. (iii) 83 exs., Chandra Sarovar, 20.vi.63. (iv) 14 exs., Khandia tank, 21.vi.63. (v)-(xiii) Coll. A. K. Datta : (v) 20 exs., Ahar river, Udaipur Dist., 24.xii.61. (vi) 8 exs., Lake in Ghana Sanctuary, Bharatpur Dist. 20.i.62. (vii) 14 exs., tank Khumber village, Bharatpur Dist., 21.i.62. (viii) 6 exs., Roopsagar near Dreg

Palace, Bharatpur Dist., 21.i.62. (ix) 18 exs., Kila-ki-Khai, Deeg town, Bharatpur Dist., 21.i.62. (x) 11 exs., tank, Kherli village, Bharatpur Dist., 22.i.62. (xi) 19 exs., tank near Mohanpur Mundy, Bharatpur Dist., 23.i.62. (xii) 2 exs., tank, Alwar Dist. 23.i.62.

*Distribution.*—RAJASTHAN : As above. First record. *Elsewhere*: INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Burma, Malaya and Thailand.

### 71. *Colisa fasciatus* (Bloch & Schneider)

(Pl. 5, Fig. 10)

1801. *Trichogaster fasciatus* Bloch and Schneider, *Ichthyologia*, Leyden, p. 164, text-fig. 36. *Type-loc.* Bengal.

*Material.*—(i) 3 exs., small nalla from Mapdori-ka-Bund, Jaipur Dist., coll. N. Majumdar and R. N. Bhargava, 9.vi.63. (ii)-(vii) coll. A. K. Datta : (ii) 5 exs., Ahar river, Udaipur Dist., 24.xii.61. (iii) 11 exs., Pichola Lake, Udaipur Dist., 24.xii.61. (iv) 66 exs., tank (diggi), Bharatpur Fort, Bharatpur Dist., 19.i.62. (v) 5 exs., Aghapur, Bharatpur Dist., 20.i.62, (vi) 21 exs., Kila-ki-Khai, Deeg, Bharatpur Dist., 21.i.62. (vii) 26 exs., tank near Akata village, Bharatpur Dist., 24.i.62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Orissa, Andhra Pradesh, Madras, Assam, Bihar, Punjab and Uttar Pradesh. EXTRA-INDIAN : E. & W. Pakistan ; and Burma.

### 72. *Osphronemus goramy* Lacèpède

1802. *Osphronemus gourami* Lacèpède, *Hist. Poissons*, Paris, 3, pp. 116, 117, pl. 8, fig. 2. *Type-loc.* Mauritius.

*Material.*—None. Reported from lakes in Jaipur and Udaipur Dists. and at Khetri (Jhunjhunu Dist.) by Dutta Gupta *et al* (1961).

*Distribution.*—RAJASTHAN : As above. Introduced species in India. *Elsewhere* : INDIA : W. Bengal, Madras and Nilgiri Hills. EXTRA-INDIAN : Malaya, China, Mauritius, Philippines and Australia.

### 73. *Glossogobius giuris* (Hamilton)

(Pl. 5, Fig. 9)

1822. *Gobius giuris* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 51, 366, pl. 33, fig. 15. *Type-loc.* Ponds and freshwater rivers of Gangetic Provinces.

*Material.*—(i) 2 exs., Gomti Sagar, Jhalawar Dist., coll. N. Majumdar and R. N. Bhargava, 21.vi.63. (ii) 1 ex., Kila-ki-Khai, Deeg, Bharatpur Dist., coll. A. K. Datta, 21.i.62.

*Distribution.*—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Burma, Ceylon, Malaya, Thailand, China, Japan, Philippines, Melanesia, Polynesia, Australia ; also E. Africa.

74. *Mastocembelus armatus* (Lacépède)

(Pl. 6, Fig. 4)

1800. *Macrogathus armatus* Lacépède, *Hist. Poissons*, Paris, 2, 286, Type-loc. Bengal.

*Material*.—(i) 1 ex., Udaisagar nalla, Udaipur Dist., coll. B. N. Chopra and M. L. Roonwal, 25.x.41. (ii) 4 exs., R. Phulad, near Phulad Railway Station, Udaipur Dist., coll. K. S. Pradhan, 1.iii.48. (iii) 1 ex., Fatehsagar Lake, Udaipur Dist., coll. R. N. Bhargava, 11.iii.61. (iv)-(vii) Coll. N. Majumdar and R. N. Bhargava : (iv) 1 ex., Bhairu Dara, Sawai Madhopur Dist., 16.vi.63. (v) 1 ex., Mui Bund, Sawai Madhopur Dist., 16.vi.63. (vi) 1 ex., Gomti Sagar, Jhalawar Dist., 21.vi.63. (vii) 1 ex., Ahu River, Jhalawar Dist., 23.vi.63. (viii)-(ix) coll. A. K. Datta : (viii) 1 ex., Ahar river, Udaipur Dist., 24.xii.61. (ix) 2 exs., Kailana Lake, Jodhpur Dist., 11.iii.63.

*Distribution*.—RAJASTHAN : As above. Also R. Phulad, ca. 3 km. S. E. of Phulad stream (Mathur, 1952), and Bharatpur Dist. (Moona, 1963). *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan, Ceylon, Burma and Thailand.

75. *Mastocembelus pancalus* (Hamilton)

(Pl. 7, Fig. 1)

1822. *Macrogathus pancalus* Hamilton, *Fishes of Ganges*, Edinburgh, pp. 30, 364. Type-loc. Tanks of Gangetic Provinces.

*Material*.—Coll. A. K. Datta : (i) 2 exs., Kila-ki-Khai, Deeg, Bharatpur Dist., 21.i.62. (ii) 2 exs., Kailana Lake, Jodhpur Dist., 11.iii.63.

*Distribution*.—RAJASTHAN : As above. *Elsewhere* : INDIA : Throughout. EXTRA-INDIAN : E. & W. Pakistan.

VI—SUMMARY

1. A list of 75 species of fishes known to occur in Rajasthan is given and a field key to their identification provided.

2. Of these 75 species, 63 species belonging to 33 genera and 14 families were examined from specimens obtained largely from the collections made by the field parties of the Zoological Survey of India, during the years 1941-63, from 93 collecting stations in 14 districts of Rajasthan (Text-fig. 1).

3. The family Cyprinidae, with 44 species, forms the largest single group in the fish fauna of Rajasthan.

4. A new species, *Labeo rajasthanicus* (Cypriniformes : Cyprinidae), is described.

5. The following eleven species are recorded for the first time from Rajasthan :—(i) *Gudusia chapra* (Hamilton). (ii) *Barilius barila* Hamilton. (iii) *Danio* (*Brachydanio*) *rerio* (Hamilton).

(iv) *Amblypharyngodon mola* (Hamilton). (v) *Aspidoparia morar* (Hamilton). (vi) *Chagunius chagunio* (Hamilton). (vii) *Labeo dyocheilus* (McClelland). (viii) *Botia lohachata* Chaudhuri. (ix) *Puntius vittatus* Day. (x) *Mystus vittatus* (Bloch). (xi) *Mastocembelus pancalus* (Hamilton).

6. In the Systematic Account, the distribution, etc., of all the species is given.

#### VII—REFERENCES

- DUTTA GUPTA, A. K., MENON, P. K. B., NAIR, C. K. G., and DAS, C. R. 1961. An annotated list of fishes of Rajasthan.—*Proc. Rajasthan Acad. Sci.*, Pilani, 8 (1 & 2), pp. 129-134.
- HAMILTON, F. 1822. *An Account of the Fishes of Ganges*. vii+405 pp.—Edinburgh.
- HORA, S. L. and MATHUR, B. B. L. 1952. On certain palaeographical features of Rajasthan as evidenced by the distribution of fishes.—*Bull. nation. Inst. Sci. India*, Delhi, 1, pp. 32-36.
- KRISHNA, D. and MENON, C. B. 1958. A note on the fishes of Jodhpur (Rajasthan). (*In Hindi*).—*Vijnan Parishad Anusandhan Patrika*, Allahabad, 1 (4), pp. 207-209.
- MATHUR, B. B. L. 1952. Notes on fishes from Rajasthan, India.—*Rec. Indian Mus.*, Delhi, 50 (1), pp. 105-110.
- MISRA, K. S. 1950. Sexual dimorphism in *Labeo boggut* (Sykes).—*J. zool. Soc. India*, Calcutta, 2 (2), pp. 91-92, 1 pl.
- MOONA, J. C. 1963. Notes on fishes from Bharatpur District, Rajasthan.—*Rec. Indian Mus.*, Delhi, 58 (2), pp. 59-66.