

XVIII.—NOTES ON A COLLECTION OF  
MARKETABLE FISH FROM AKYAB,  
WITH A DESCRIPTION OF A NEW  
SPECIES OF *LACTARIUS*

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In February this year Mr. I. H. Burkill, Reporter on Economic Products to the Government of India, sent an agent to Akyab, on the Arakan Coast of Burma, to make a collection of the fish exposed for sale in the market. This collection, which includes no less than 69 different species, was handed over to the Indian Museum for investigation. Dr. Annandale, who looked through the specimens and identified some of the species, has invited me to complete the identifications and to publish the results.

The collection includes fish from both fresh and salt water, but even taking this fact into consideration, it is surprising to find so many different species of edible fish on sale in the market at one season. Their variety illustrates the great wealth of fish life in Indian waters.

Most of the species have been identified from Francis Day's admirable monograph on the fishes of India, and also by reference to his original collection, which is available for comparison in the Indian Museum. Several of the species show slight variations from Day's descriptions, and in one case it has been found necessary to describe a new species (*Lactarius burmanicus*).

The agent who collected the fish also gathered together information of various kinds about them, such as their Arakanese names, the season of the year at which they are common, the character of the water in which they are found, and their market value. Some of his statements are at variance with those of Day; but it must be remembered how difficult it is to obtain accurate information on such subjects. In the following list the statements in inverted commas are extracts from the notes of Babu Rajoni Kanta Das, who made the collection. All undefined references are to Day's *Fishes of India*. The classification adopted is that of Boulenger. The term "river fish" may here be taken to include all fish from water on the landward side of Akyab bar.

## ELASMOBRANCHIA (SELACHII).

## CARCHARIIDÆ.

1. *Carcharias gangeticus.*
2.     ,,     *laticaudatus.*

“ Name *Nga man* ; common ; the fins are purchased by China-men for export ; white fins fetch as much as one rupee per lb.”

## ELASMOBRANCHIA (BATOIDEA).

## PRISTIDÆ.

3. *Pristis cuspidatus.*

“ Name *Nga man sway they.* Common from September to March ; fins exported.”

## TRYGONIDÆ.

4. *Trygon uarnak.*

“ Name *Lcik chout* ; common in the sea.”

5. *Trygon walga.*

“ Name *Phat shay* ; common in the sea ; a favourite food fish.”

6. *Pteroplatea micrura.*

“ Name *Htamane* ; common in the sea from October to March ; highly esteemed as a food fish by the Arakanese.”

## MYLIOBATIDÆ.

7. *Aëtobatis narinari.*

“ Name *Swan shay* ; common in the sea from October to February ; esteemed as food by the Arakanese.”

It is interesting to notice that three of these rays are said to be common only during the winter months. It is well known that many of the tropical sharks and rays are viviparous and are frequently caught pregnant during winter and spring (Alcock, *Journ. Asiatic Soc Bengal* (2) 1890, and other papers). Their frequent appearance in the market at that season is most probably due to the fact that they then come close to shore to produce their young, winter being the season of calms in the Bay of Bengal. This view accords with the well-established facts that the young of most shore fishes are to be found close to the shore, and that they migrate out to deeper waters as they grow larger (McIntosh, “Scientific Work on Sea Fisheries,” Lecture 1, *The Zoologist*, 1907).

## TELEOSTII (MALACOPTERYGII).

## CLUPEIDÆ.

8. *Clupea variegata*.

There are 14 ventral spines in front of the pelvic fins and 12 behind. *C. variegata* is defined as having 10 in front and 10 behind, while *C. chapta*, a closely allied form, has 19 before and 9 behind.

"Name *Taymi*, or *Nga tha tout too*; common during winter months in the river."

9. *Clupea ilisha*.

("Hilsa.")

"Name *Nga thalout*; common in the river from January to March, rare in other months; much esteemed as food; salted for export."

10. *Clupea lile*.

"Name *Sha shari wat toung*; common in the river during the rains."

11. *Engraulis taty*.

"Name *Nga pasha*; common throughout the year both in river and sea."

12. *Engraulis breviceps*.

This specimen closely resembles *E. taty*, but the proportion of the head to the body is as 1 : 7, and the anal fin arises in advance of the dorsal. The Arakanese seem to recognize the difference.

"Name *Nga ba*; generally taken from the sea; grows to 14 inches."

13. *Engraulis* sp.

A small damaged specimen resembling *E. indicus* in many ways; but the eye is much too large.

14. *Pellona indica*.

"Name *Myat san gyai*; common throughout the year in sea and river; its flesh is reputed a cure for fever, among the Arakanese."

15. *Coilia ramcarati*.

Typical except that the anal fin is somewhat short, containing only about 85 rays.

"Name *Nga lawa*; common throughout the year in both river and sea."

16. *Megalops cyprinoides*.

"Name *Cha bouk han*; only occurs in tanks."

Day also states that this fish, which is a true herring, occurs commonly in tanks, rarely in rivers.

## CHIROCENTRIDÆ.

17. *Chirocentrus dorab.*

This is an interesting specimen as it differs from the description somewhat in its proportions: head to body, 1 : 6; height to length, 1 : 6. Day gives these proportions as: head to body, 1 :  $6\frac{1}{2}$ — $7\frac{1}{4}$ ; height to length, 1 :  $6\frac{1}{2}$ —9. Bleeker divides the species into two, *C. dorab* and *C. hypselosoma*. The present specimen agrees with his *C. hypselosoma*.

"Name *Nga darhay*; common in the sea throughout the year."

## NOTOPTERIDÆ.

18. *Notopterus kapirot.*

This specimen resembles the type in having large scales on the cheeks, in having 105 rays in its anal fin, and in its proportions generally. It differs from the type in that the angle of the mouth is behind the centre of the eye, the dorsal profile is more convex than the ventral, and there is a slight concavity in the profile of the head. In these three points it approaches the type of *N. chitala*. It also has a wide scaleless flap of skin attached to the margin of the opercle. Such a flap is not mentioned by Day in the description of either species; but it is figured in the case of *N. chitala* alone.

"Name *Nga phay*; common in rivers from February to March."

## OSTERIOPHYSI.

## SILURIDÆ.

19. *Saccobranchus fossilis.*

"Name *Nga cray*; common in rivers and tanks."

20. *Plotosus canius.*

Both dorsal and pectoral spines are quite smooth on the exposed edge though serrated on the other; otherwise the specimen is typical.

"Name *Pin lay nga khoo*; common in the sea, sometimes enters the river."

21. *Pangasius buehanani.*

"Name *Nga tan*; common in the river during the rains; grows two feet in length."

22. *Clarias magur.*

"Name *Nga khoo*; a common tank fish."

23. *Arius cœlatus*.

Typical, except that the ventral fins are somewhat large, reaching nearly to the anal.

"Name *Nga soo* ; common in the river and sea during the winter months."

24. *Arius gagora*.

I have included two specimens in this species, one of them being referred to in the Babu's notes as *Nga moot*, the other as *Nga sook*. They do not entirely resemble one another in their proportions, nor is either quite typical of *A. gagora*. They both have a patch of globular palatine teeth on either side, so far back that they lie under the eye. The "*Nga sook*" is 10 inches long, the length of its eye is contained 7 times in the length of the head,  $2\frac{1}{2}$  times in the snout, and  $3\frac{1}{2}$  times in the interocular distance.

The "*Nga moot*" is 18 inches long, the eye diameter is contained 8 times in the head, 3 times in the snout, 4 times in the interocular distance. The head is somewhat flatter than that of the other specimen.

In both specimens the maxillary barbel is a little shorter than the head. They are both reported to be common in river and sea.

## APODES.

## ANGUILLIDÆ.

25. *Murænesox talabonoides*.

"Name *Thin bawhto* ; found only in the river, not common ; attains four feet in length."

26. *Ophichthys boro*.

"Name *Nga hout pru* ; common in the river during the rains."

## MURÆNIDÆ.

27. *Muræna macrura*.

"Name *Nga shing gra* ; river and sea, not common."

## HAPLOMI.

## SCOPELIDÆ.

28. *Harpodon nehereus*.

("Bombay Duck.")

"Name *Baraiga* ; common, taken from the river chiefly."

## PERSOCES.

## SCOMBRESOCIDÆ.

29. *Belone cancila.*

“ Name *Nga toung nhin*; plentiful during the rains, in the river ”

## POLYNEMIDÆ.

30. *Polynemus tetradactylus.*

“ Name *Nga taya*; uncommon, taken usually from the sea; attains 3 feet in length.”

31. *Polynemus indicus.*

(“ Topsee Fish.”)

“ Name *Luckwa*; common in the sea during the winter months; attains 40 inches.”

32. *Polynemus paradiseus.*

“ Name *Musi rhay*; common, usually taken at sea.”

## MUGILIDÆ.

33. *Mugil* sp.

## 34. „ sp.

These two species of mullet closely resemble one another, but I have not been able to identify either of them with any of Day's species of the genus, most of which are separated by small distinctions. The two specimens resemble one another in the following features:—

The greatest depth of the body is more than the length of the head, which is  $\frac{1}{5}$  of the total length; the dorsal fin commences half way between the end of the snout and the base of the caudal; the snout is equal to the diameter of the eye, which is half the interocular distance; the mandibles meet at an obtuse angle; both anterior and posterior eyelids are present.

They differ from one another in the following points:—

One specimen, which is called “*Nga man*,” is 8 inches long and is said not to exceed this length and to be common in river and sea. Its anal fin commences well in front of the second dorsal; the pectoral is as long as the head; the head is convex from side to side, and the specimen has a yellowish tint in spirit.

The other species, which is called “*Nga cangying*,” is said to be uncommon and never to be found in the sea; it is also said to attain a length of 14 inches. The second dorsal and the anal commence at the same level; the pectoral is not so long as the head, which is nearly flat.

These two forms seem to be different species. The smaller one is very like *M. dussumieri*, while the "*Nga cangying*" comes nearest to *M. planiceps*; but neither is quite typical of either species.

## SPHYRÆNIDÆ.

35. *Sphyræna jello*.

"Name *Nga kyauk tying*; common in winter months in sea and river."

## STROMATEIDÆ

36. *Stromateus sinensis*.

("Pomfret.")

"Name *Ruza na panat*; common in the sea; much esteemed."

37. *Stromateus cinereus*.

"Name *Ruzana*; common in the sea during the winter months; much esteemed as food; dried and exported."

## OPHIOCEPHALIDÆ.

38. *Ophiocephalus striatus*.

"Name *Nga rin*; a common river fish."

## ACANTHOPTERYGII.

## SERRANIDÆ.

39. *Lates calcarifer*.

("Bekti.")

"Name *Nga tha dil*; common throughout the year in river and sea; attaining 3 feet in length; a favourite food fish."

40. *Serranus* sp.

An immature fish 4 inches long. Owing to the absence of colour in spirit certain identification is impossible.

"Name *Nga tout too*; sea and river; not common; grows to over 4 feet in length. The Chinese export the skin of this fish."

It is well known that the species of *Serranus* attain a very large size, and it is interesting to see that our Indian informant knows that this small fish grows to over 4 feet in length. It speaks well for his knowledge of fish. Apart from the mere difference in size, there is a considerable difference in general appearance between the young fish 4 inches long and a giant sea perch over 4 feet in length, for a *Serranus* of this size becomes very bulky and attains a great weight. There is a specimen of this genus in the Indian Museum that was over 7 feet in length and weighed 460 lb.

41. *Lutianus johnii.*

"Name *Nga wat pani*; found in the sea only, not common."

42. *Therapon jarbua.*

"Name *Sa ba sa*; river fish, common during the rains."

43. *Ambassis urotænia.*

"Name *Nga san zat*; river fish, common in the rains."

## SCIÆNIDÆ.

44. *Sciæna bleekeri.*

"Name *Nga pa thon*; sea and river fish, common in the winter months."

45. *Sciæna aneus.*

"Name *Ba sha*; common in river and sea throughout the year."

46. *Sciæna miles.*

"Name *Nga baragar*; common in the sea throughout the year."

47. *Otolithus maculatus.*

"Name *Taw ba la*; sea fish, not common; reaches 2 feet in length."

48. *Sciænoides pama.*

"Name *Wa marhi*; sea fish, common; said to attain a length of 12 inches only."

49. *Sciænoides microdon.*

"Name *Ro rhi*; common in the river; attains 4 feet in length."

These two forms, *Wa marhi* and *Ro rhi*, each represented by a single specimen, resemble one another very closely, but differ in the following points:—

The "*Wa marhi*" has ten spines in the first dorsal fin, and eight pyloric cæca; its præopercular edge has blunt, obscure crenulations, and the posterior angle of the maxilla falls behind the eye. This form agrees very closely with *S. pama*.

The "*Ro rhi*," on the other hand, has eight spines, four pyloric cæca, a finely serrated præopercular edge, and the posterior angle of the maxilla falling below the centre of the eye. This form agrees fairly well with *S. microdon*, which is defined, however, as having six pyloric cæca.

Our Indian informant says that the "*Wa marhi*" (*S. pama*) does not grow longer than 12 inches, while the "*Ro rhi*" attains a length of 4 feet. *S. pama*, however, according to Day, grows at

least 5 feet long, while *S. microdon* is a small species. There is evidently a mistake somewhere, but it is noteworthy that local observation has established the fact that one species outgrows the other, especially as it requires careful examination, aided by dissection, to distinguish between the two, at any rate when they are presented in the form of museum specimens.

Both specimens show the lateral line continued along the middle of the tail to its very tip. This feature, which is very conspicuous, is neither remarked in the text nor illustrated in the figures of Day's monograph, in which (pl. xlv, fig. 2) the lateral line is clearly shown as ending before reaching the tail in the case of *S. microdon*.

#### CHÆTODONTIDÆ.

##### 50. *Scatophagus argus*.

"Name *Bishat tara*; common in the river and sea throughout the year; esteemed as food" (in spite of its reputed habits).

#### DREPANIDÆ.

##### 51. *Drepane punctata*.

"Name *Swin ma rwat*; common in the sea during winter."

#### SCORPIDIDÆ.

##### 52. *Psettus argenteus*.

"Name *Nga than zay*; common in the sea in the winter months."

#### LOBOTIDÆ.

##### 53. *Datnioides polota*.

"Name *Nga pan lun gaing*; taken usually from the river throughout the year, but not common."

##### 54. *Lobotes surinamensis*.

"Name *Kyauk nag pree*; river fish, very uncommon."

#### LACTARIIDÆ.

##### 55. *Lactarius burmanicus*, sp. nov.

The single specimen differs so widely from *L. delicatulus*, the only other known species of the genus, that it has been necessary to describe it as a new species. The diagnosis is printed at the end of this paper.

"Name *Ah phying zar*; common throughout the year in river and sea."

## SILAGINIDÆ.

56. *Sillago domina.*

"Name *Nga rwan nat* ; not common, taken occasionally in the river in the winter months."

## PRISTOPOMATIDÆ.

57. *Diagramma crassispinum.*

"Name *Kyauk nga wat* ; taken occasionally in the river during the winter months."

## SPARIDÆ.

58. *Chrysophrys datnia.*

"Name *Nga wat* ; common in the river during the winter."

## GERRIDÆ.

59. *Equula edentula.*

"Name *Nga wagy* ; common in river in winter months."

## ACANTHOPTERYGII (SCOMBRIFORMES).

## CARANGIDÆ.

60. *Caranx gallus.*

"Name *Nga bya byay* ; common in the river in the winter."

61. *Caranx sansun.*

"Name *Nga ohn* ; common in the sea in the winter months."

62. *Chorinemus lysan.*

"Name *Nga khin ba* ; common in the sea throughout the year."

## TRICHIURIDÆ.

63. *Trichiurus haumela.*

"Name *Nga tha rway mingya* ; common in the winter months in the sea ; its flesh is a reputed cure for fever ; attains 3 feet in length."

64. *Trichiurus muticus.*

"Name *Nga tharway* ; common throughout the year in river and sea ; a reputed fever cure."

## ZEO RHOMBI.

## PLEURONECTIDÆ.

65. *Cynoglossus lingua*.

“ Name *Khwa sha* ; common throughout the year in river and sea , esteemed by Europeans.”

## GOBIIFORMES.

## GOBIIDÆ.

66. *Gobius viridipunctatus*.

“ Name *Un doat ma tha* ; river fish, common in the rains.”

67. *Gobioides rubicundus*.

“ Name *Nga yit ni* ; common river fish.”

68. *Boleophthalmus dentatus*.

“ Name *Doung brout* ; common river fish.”

## SCLEROPAREI.

## PLATYCEPHALIDÆ.

69. *Platycephalus insidiator*.

“ Name *Nga prunkhat* ; river fish, not common.”

DESCRIPTION OF A NEW SPECIES OF THE GENUS  
LACTARIUS.

*Lactarius burmanicus*, sp. nov.

B 7—D 7 1-22—P 16—A 3.28.

Ll. 85. Trv.  $\frac{11}{20}$  at widest point. P.C. 6.

The description has been drawn up after comparing the specimen with four examples of *L. delicatulus* (the only other known species of the genus) from Malabar. These examples agree with Day's figure and description of the species and with the earlier description of Cuvier and Vallance.

The new species differs from *L. delicatulus* in the following points :—

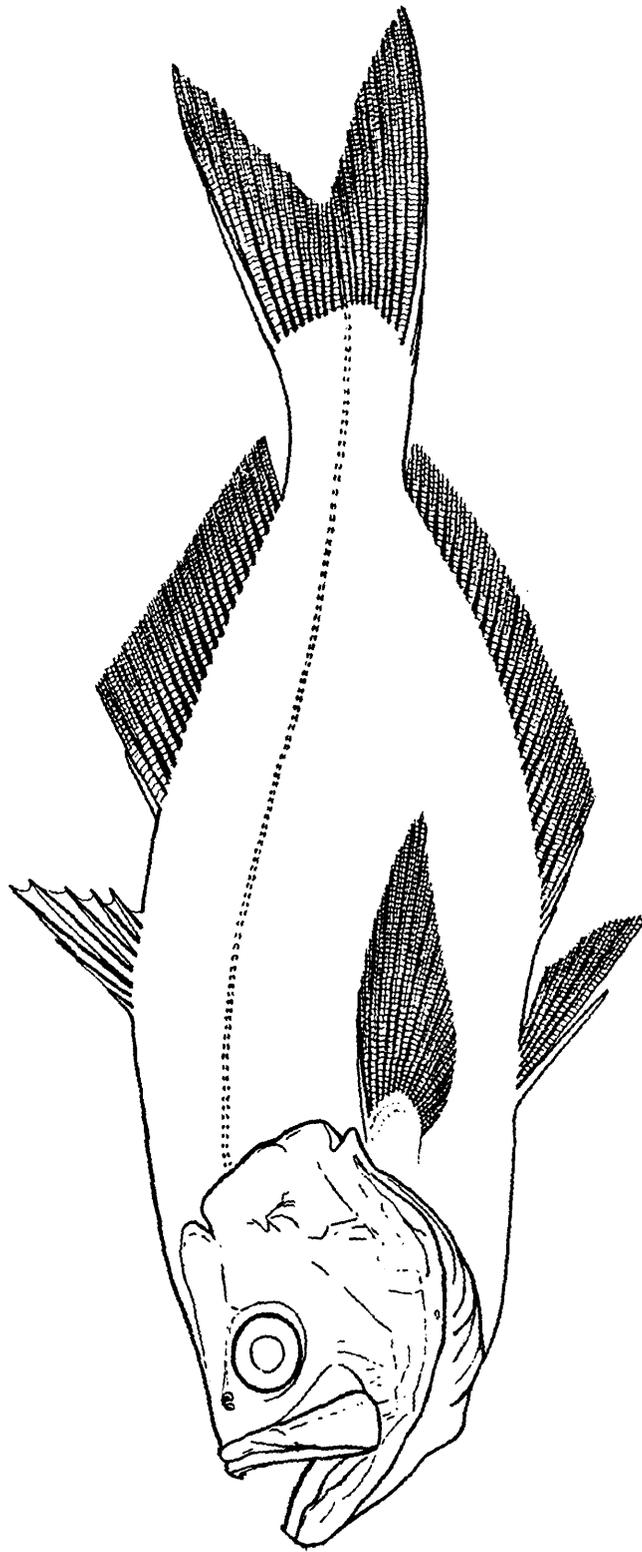
1. The diameter of the eye is  $\frac{1}{4}$  of the total head length ( $\frac{1}{3}$  in *L. delicatulus*), and the snout is longer than the eye.
2. The first dorsal fin is separated from the second by an interval at least as wide as the base of the first dorsal

measured between the first and last spines (in *L. delicatulus* it is considerably less).

3. The ends of the ventral fin just touch the first anal spine.
4. The pectoral fin is as long as the head.
5. Perhaps the most marked difference is in the teeth of the upper jaw. In examples of *L. delicatulus* I find that in addition to two well-marked canines, the upper jaw has a single series of small pointed teeth on the biting edge of the premaxilla in its front half. Posteriorly these pass into a wide band of minute viliform teeth, at least ten deep transversely, situated on the inner side of the premaxilla in its posterior half. Day only mentions the front or single series. In *L. burmanicus*, except for well-marked canines, the anterior half of the premaxilla is toothless, but on the inner side of this bone in its posterior half there is a wide band of very minute teeth. There are one or two minute teeth on the vomer, and a small band of teeth on either palatine. In the lower jaw there are 30 small teeth on either side and 3 canines close to the symphysis.

In all other points this species resembles *L. delicatulus*.

The type of *L. burmanicus* is 14 inches long, while Day says that *L. delicatulus* attains a length of 10 inches and Cuvier and Vallance one of 9 inches. The former species is said to be common in the river and sea at Akyab throughout the year, and to grow to 16 inches long.



*Lactarius burmanicus*, sp. nov., X  $\frac{2}{3}$