alone. The tenth haul of the voyage made on 20th November, between 10-20 and 11-50 a.m. brought in the maximum catch of 2,500 kg. of pomfrets, giving a catch rate of 1,667 kg. per hour for this species. The last haul of the voyage made between 3-00 and 4-30 p.m. the next day gave a catch rate of 1,167 kg. of pomfrets per hour. Although no published records on individual hauls are available, the catch rate of 1,667 kg. per hour for the species is perhaps the highest obtained in Indian waters.

The pomfrets landed are presumably of the same age group as the length frequency distribution of a random sample of 352 individuals would indicate.

<table>
<thead>
<tr>
<th>Length group (Fork length in mm.)</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>161-170</td>
<td>1-6</td>
</tr>
<tr>
<td>171-180</td>
<td>1-4</td>
</tr>
<tr>
<td>181-190</td>
<td>10-2</td>
</tr>
<tr>
<td>191-200</td>
<td>30-5</td>
</tr>
<tr>
<td>201-210</td>
<td>35-2</td>
</tr>
<tr>
<td>211-220</td>
<td>9-3</td>
</tr>
<tr>
<td>221-230</td>
<td>2-6</td>
</tr>
<tr>
<td>231-240</td>
<td>0-6</td>
</tr>
<tr>
<td>241-250</td>
<td>0-6</td>
</tr>
</tbody>
</table>

The smallest fish in the sample measured 170 mm. and the largest 247 mm. Examination of the gonads of a subsample of 30 fish revealed that they were all immature being at stage II of maturity. Gopalan has found that *P. argenteus* has a prolonged spawning season extending from February to August with a probable intensive spawning during April to June. The stomach contents were in a pulvcrised state, the food having been thoroughly ‘milled’.

The average annual landings of marine fish in India are 860,650 tonnes, of which pomfrets are 22,115 tonnes constituting 2-54% of the total. Maharashtra and Gujarat are the leading pomfret-landing states with an annual average of 9,518 and 6,275 tonnes respectively. Pomfrets in the Kerala waters contribute only 942 tonnes which forms 0-28% of the total marine fish production of Kerala. (All figures relate to the averages of last five years, 1964-1968).²

Kerala coastal waters have been one of the most intensely trawled areas in India during the last about 10 years and pomfrets have been caught only in small quantities. It would appear that the shoals caught by Blue Fin had migrated from elsewhere. Though pomfrets are known as a migrating group no work has been done in India on this aspect.

The authors express their appreciation of the excellent team-work of Skipper K. Balan and his crew which made this catch of pomfrets possible.

Central Institute of Fisheries Operatives, Cochin-16, November 29, 1969.


**BRACHYGNATHIA IN SHEEP AND ITS INHERITANCE**

A case of short lower jaw in Chokla breed of sheep is reported. It was found to be associated with rudimentary tongue, absence of teeth and partial development of buccopharyngeal opening. The inheritance of the brachygnathia is suggested to be simple autosomal recessive.

Brachygnathia, overshut or parrot mouth in sheep, where the lower jaw appears too short in comparison to upper jaw, has been described by Rae (1962). From the genetic and economic point of view this condition is important since it is suspected of being inherited and results in lamb losses (Dennis, 1965). A case of brachygnathia has been observed and discussed in this paper.

An otherwise normal female lamb No. C 278 of Chokla breed weighing 3-75 kg. was born to a Chokla ewe No. C 14 on 18-9-1969, with an extremely short lower jaw² (Fig. 1). The sire of the lamb was of Chokla breed (No. C 19). Neither the sire nor the dam of the lamb were scored for brachygnathia. The dam (C 14) had no abnormal lamb on previous lambings. During this lambing season C 19 has sired 9 lambs in addition to the one under consideration. None of the members of half-sib family

![Fig. 1](image-url)
showed this abnormality. The lamb attempted to suckle the milk from udder but failed. Milk was poured in the mouth, directly and through a nipple but the animal could not swallow. On examination of the mouth it was observed that there was underdevelopment of tongue, and teeth were not present in the lower jaw. Attempts were then made to feed the lamb through stomach tube. It could not be passed through and suggested blockage of buccopharyngeal passage. Fingers were inserted for palpation and it was felt that the buccopharyngeal passage was blocked. Had the lamb been aided with artificial feeding, it would not have been able to eat independently at later stage; further, in order to examine the animal in detail it was decided to sacrifice the animal. Saturated magnesium sulphate intracardiarily was used for euthanasia after 8 hours of birth.

On opening the oral cavity the following abnormalities were observed:

1. Under development of the lower jaw (half the size of a normal lamb); 2. Complete absence of teeth; 3. Rudimentary tongue (1.0 cm. × 0.5 cm.); 4. A very small buccopharyngeal opening which was closed with mucus; 5. Rest of the digestive tract was found to be normal. No abnormalities could be detected in other organs.

Nordby (1935) suggested that brachygnathia may result from a normal maxilla and a short mandible or from normal mandible and long maxilla or over development of maxilla and underdevelopment of mandible. Theret (1948) had described a lamb of Indre Berry breed in which the lower mandible was missing and buccopharyngeal passage closed by mucus membrane. Smith (1968) reported a similar case in a female lamb of Dorset Down breed which had a rudimentary mandible and tongue. Fischer (1955), McFarland and Deniz (1964) and Smith (1968) have described some extreme cases where the mandible was completely missing. In the present study the condition was not so severe; in the lamb under consideration the brachygnathia had resulted from underdevelopment of the lower jaw and normal development of maxilla.

Kelly (1942) reported the inheritance of a short lower jaw and postulated that the condition was due to a recessive gene. In the present case it appears that the character is controlled by a pair of recessive genes. The absence of brachygnathia either in the sire or in the dam rules out the dominance theory of inheritance. Since sire and dam are normal and their offspring exhibited brachygnathia the only hypothesis which can be put forward for the inheritance of this trait is the recessive inheritance. The sire and dam both are heterozygous for this trait and thus not exhibiting it. Nordby et al. (1945) in a study of the same condition concluded that the defect resulted from interaction among several pairs of genes some of which are certainly dominant. Smith (1968), however, had no obvious evidence that it was due to either genetic or teratogenic factors. Since no definite mode of inheritance of this trait is established it needs further investigation. It is suggested that half-sib and parent offspring matings may be done which will help to draw a valid conclusion regarding the mode of inheritance.


DISTRIBUTION OF ROOT (WILT) PATHOGEN IN DEVELOPING SEED COCONUTS

A SAP transmissible virus was reported to be associated with the root (wilt) disease—a serious menace of coconut in Kerala.¹ The disease was also found to be transmitted by an insect vector Stephanitis typicus Distinct² and through soil.³ Cowpea (Vigna sinensis Endl.) was used as the indicator host for transmission studies.⁴ During the course of further investigations, the pathogen was also detected from the pollen of diseased palms. The possibility of the occurrence of the pathogen in the different parts of developing nut was therefore investigated and the results are presented in this note.

Twenty-four coconut trees in early and advanced stages of disease were selected for the study. Nuts under different stages of development were collected from these palms and mechanical inoculations with various parts, viz., husk, kernel and embryo were carried out