

pinkish above, marbled and spotted with brown spots. Ventrally it is pale, pinkish or yellowish white.

The presence of *Uperodon systoma* in

Gujarat is being recorded for the first time with my finding a specimen of this species from Baroda.

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March 1, 1984.

23. SOME ECOLOGICAL OBSERVATIONS LEADING TO A NEW SOURCE OF SEED OF THE FRESHWATER PRAWN *MACROBRACHIUM ROSENBERGII* (DE MAN) IN MAHARASHTRA

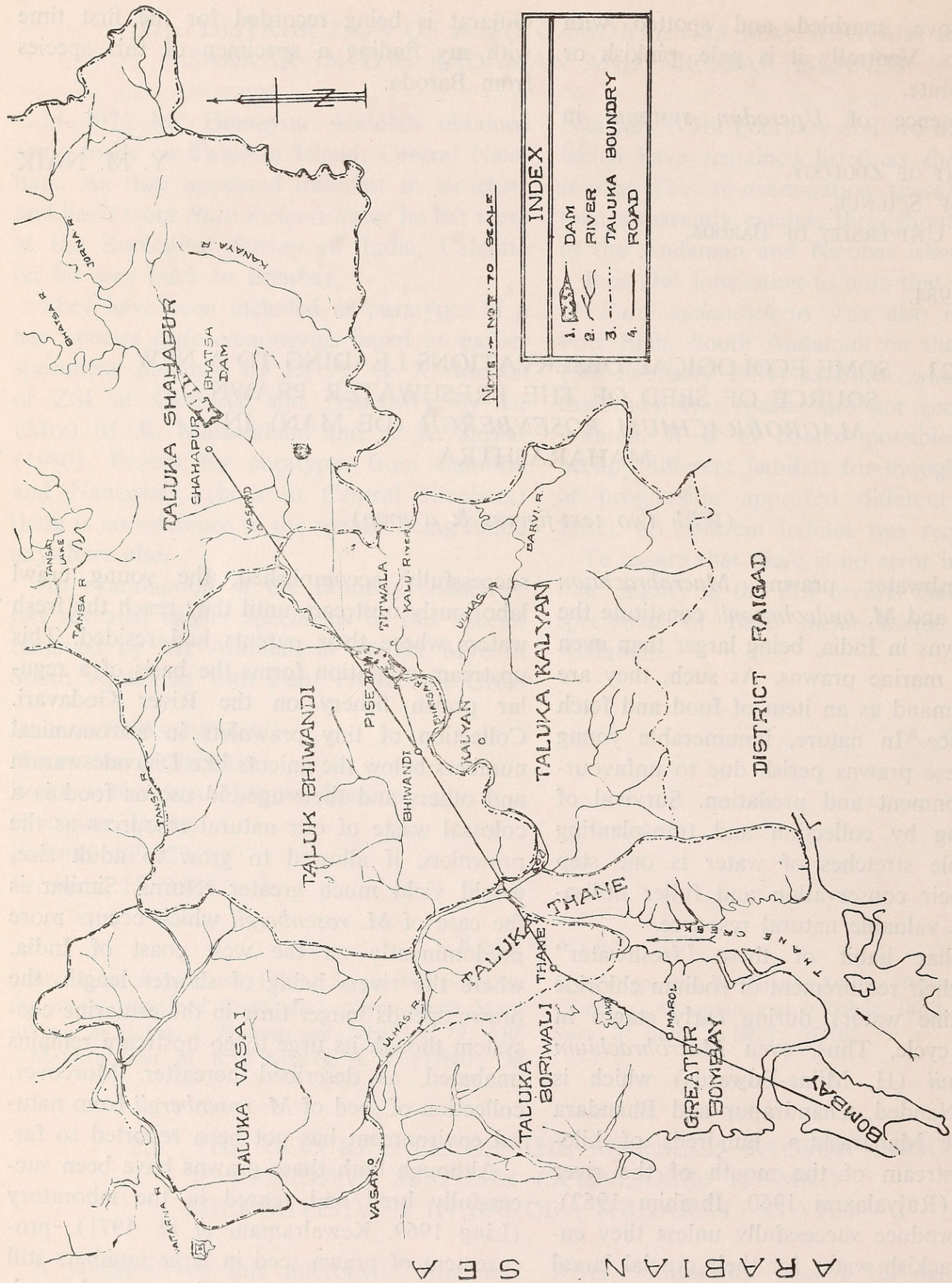
(With two text-figures & a map)

The freshwater prawns *Macrobrachium rosenbergii* and *M. malcolmsonii* constitute the jumbo prawns in India, being larger than even the largest marine prawns. As such, they are in great demand as an item of food and fetch a high price. In nature, innumerable young ones of these prawns perish due to unfavourable environment and predation. Survival of these young by collection and transplanting into suitable stretches of water is one step towards their conservation and fuller utilisation of the valuable natural resource.

A peculiar habit of these "freshwater" prawns is their requirement of sodium chloride (dilute saline water) during early stages in their life cycle. Thus, even *Macrobrachium malcolmsonii* (H. Milne-Edwards) which is found in Nanded, Chandrapur and Bhandara districts of Maharashtra, hundreds of kilometres upstream of the mouth of the river Godavari (Rajyalaxmi 1960, Ibrahim 1962), cannot reproduce successfully unless they encounter brackish water for their crucial larval stages. Once this larval development has been

successfully accomplished, the young crawl laboriously upstream until they reach the fresh waters where their parents had resided. This upstream migration forms the basis of a regular prawn fishery on the River Godavari. Collection of tiny prawnlets in astronomical numbers below the anicuts like Dhavaleswaram and others and their age-old use as food is a colossal waste of our natural resources as the prawnlets, if allowed to grow to adult size, would yield much greater returns. Similar is the case of *M. rosenbergii* which occurs more predominantly on the west coast of India, where the rivers being of shorter length, the prawn spends longer time in the estuarine ecosystem though its urge to go upstream remains unabated, as described hereafter. Moreover, collection of seed of *M. rosenbergii* from natural environment has not been reported so far.

Although both these prawns have been successfully bred and reared in the laboratory (Ling 1969, Kewalramani *et al.* 1971), procurement of prawn seed in large numbers still necessitates collection of the natural seed.



Map. 1. Showing location into the river Bhatasa on which seed of *Macrobrachium rosenbergii* is collected below the Pise Dam

Attempts are, therefore, being made all over India to survey water stretches to assess the availability of prawn seed. In the Thane district of Maharashtra, a potential source of seed of *M. rosenbergii* has been found just below the Pise Dam. The dam was constructed in 1979 by the Bombay Municipal Corporation as an anicut or a pick-up weir into which flows the water coming from the Bhatsa Dam, the Bhatsa river being a tributary of the Ulhas river which empties into the Arabian Sea at Bassein. (Map 1).

Towards the end of the rainy season, i.e. in

September and October, post-larval young of this prawn, varying in length from 30-50 mm, abound in the stream below the dam. At this stage they develop a natural instinct to avoid estuarine environment and prefer ascent into fresh water. During the spring tides when the tidal flow is strong, wide range of fluctuation in salinity was observed below the anicut, ranging from 1 ppt to 15 ppt. The water temperature too varies from 25°C to 29°C depending upon the tidal influx. The pH recorded at the time of observation was 7.5. The brackish water caused by the incoming tidal

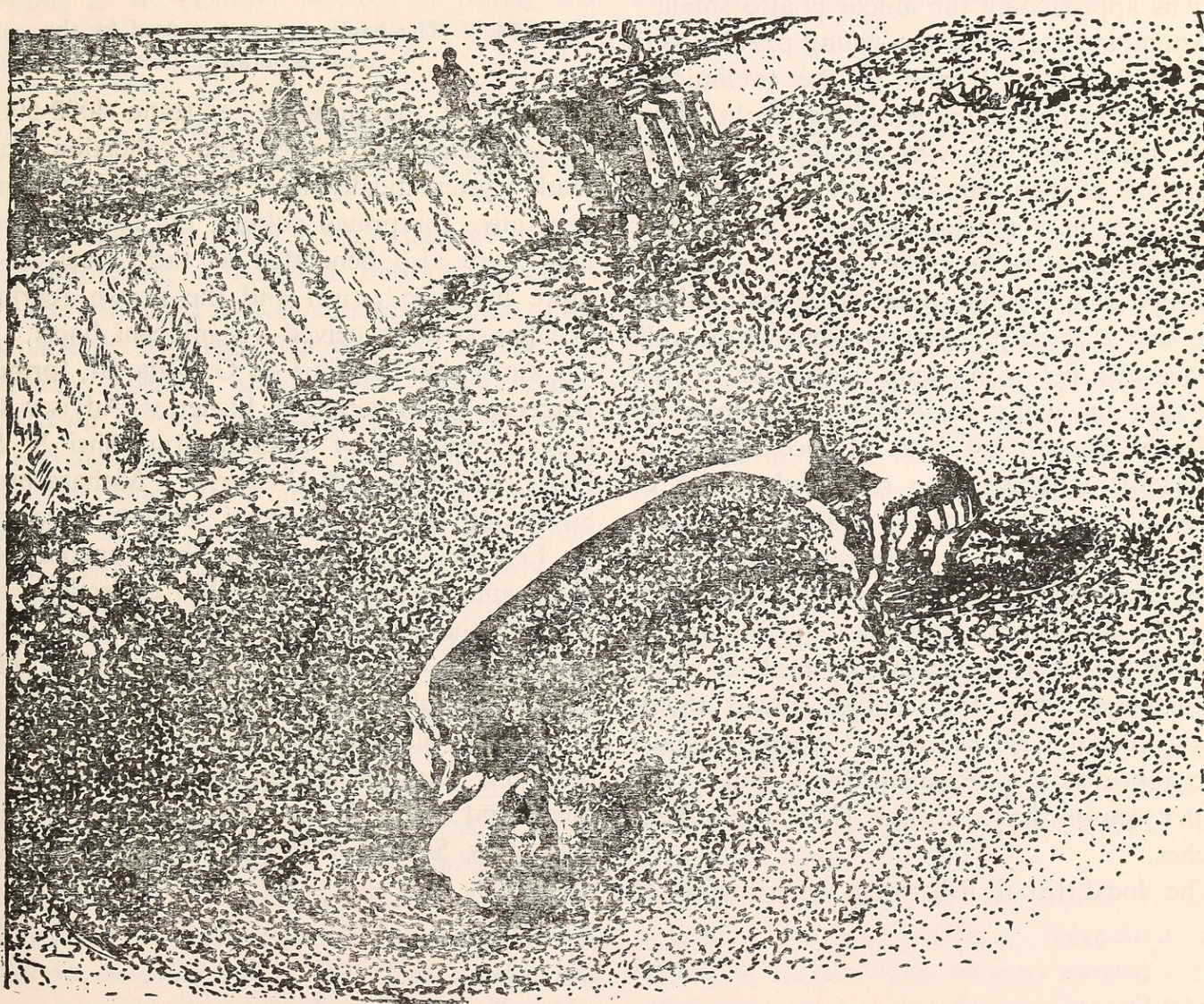


Fig. 1. Collection of *Macrobrachium rosenbergii*.

influx forces the young fry to go away from the changing environment and on approaching the anicut, to move in rows, negotiating the freshwater flow over the indented rocky edges while advancing. In some cases where their desperate bid to advance is foiled by the current, they crawl up on the wet side-rocks in thousands and cover the stones entirely. This movement is more pronounced during night and in the light of an electric torch, their eyes glow in the dark and make a spectacular sight. On other days when the quantity of tidal water entering the river is less the number of young prawns approaching the anicut is also small.

Attempts to capture the young prawns were first made in 1981, and in the preliminary attempt very few young could be caught. However, when the net was modified (Fig. 1) thousands of them literally rushed into the collecting net in a moving stream. The net was a monofilament rectangular piece, 2×1 metres, with two long bamboo poles at the extremities. The net is held by two persons who walk downstream below the dam. In the right season and time, as many as 50,000 young could be collected in half an hour. Concentration of such large numbers in a restricted stretch of water is attributed to the reluctance of the young to move through brackish water brought in by the rising tide. The young congregate near the dam in the fresh water, waiting for the ebb tide to take away the brackish water downstream when they could spread themselves into the fresh water. Collections have been repeated in subsequent years, and in the proper season have always yielded excellent catches.

The local tribal fishermen were aware of

this migration and they used to trap the young prawns in cylindrical bamboo trap nets fixed in the stream with their mouth facing the current (Fig. 2). The fishermen used to catch the prawns for their own consumption or sell them in the market at a rupee for two

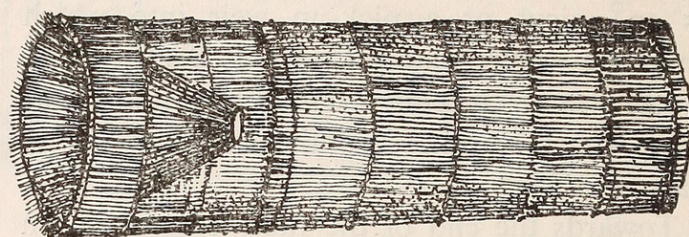


Fig. 2. The bamboo trap net used by the local fishermen.

handfuls of the prawns, i.e. some 4000-5000 prawns. However, when the collection was made systematically and the prawnlets were kept alive for prawn culture, the tribal fishermen were also benefitted as they received a more lucrative return and the prawn rearing occupation too received a significant boost.

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24. A NOTE ON SPECIES NAMED *LYCAENA PAVANA* (LEPIDOPTERA: LYCAENIDAE)

Wynter-Blyth (1957: 301) has given the distribution of a lycaenid butterfly *Lycaena pavana* Horsfield as Kashmir to Kumaon. This is partially incorrect. There are in reality two separate species, which have been named '*Lycaena pavana*' at different periods of time.

Horsfield (1828: 77) described a small butterfly from Java and named it *Lycaena pavana*. It has a 26-28 mm wing span. Subsequently, it was recorded from Tavoy, S. Burma and Andamans, with 'not rare' status (Evans 1932). This species was brought under the genus *Nacaduba* by Wood-Mason & de Niceville in 1886 and referred to as such in the 3rd vol. of BUTTERFLIES OF INDIA, BURMA & CEYLON (de Niceville 1890: 145). Later, Corbet (1938) described a new subspecies of it from Singapore, and this *Nacaduba pavana singapura* is now considered the subspecies found in Assam, Burma, Andamans and Malaya (Cantlie 1962: 75). This species has been recently placed in the subgenus *Rapsidia* by Sibatani (1974: 109), though he wrongly

gave Evans as the author of the species.

Kollar (1948: 416) in Huegel described another lycaenid butterfly as *Polyommatus pavana* from the Western Himalayas. It was published in Huegel's series, in German, on "Kashmir" Part 2 of vol. 4 meant for 1844 and appeared in 1848. This species of Kollar was transferred to genus *Chrysophanus* by Horsfield & Moore in 1857 and referred to as such by de Niceville (1890: 317). This butterfly is a little larger than the *pavana* of Horsfield, its wing span being 37-40 mm, and its range of occurrence is recorded in literature as from Kashmir to Kumaon where it is 'common' in status. Since as early as 1871 Kirby, brought this species into the genus *Lycaena*, both Evans (1932) and Cantlie (1962) have cited it as *Lycaena pavana*.

Thus, what was initially called *Lycaena pavana* is now a species of *Nacaduba*, and what was initially *Polyommatus pavana* is now referred to as *Lycaena pavana*, in well-known works on Indian butterflies.



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