

Table 1. Major famines in India

Year	Name
1148–59	Eleven-years famine
1344–45	Great famine
1396–1407	The Durga famine lasting 12 years
1769	Famine
1769–70	Great famine in Bengal – 10 million people perished
1790	The Chalisa famine
1790–92	The Doji Bara or Skull famine
1838	Intense famine in North West Provinces – 800,000 perished
1861	Famine in North West
1866	Famine in Bengal and Orissa – 1 million perished
1869	Intense famine in Rajasthan – 1.5 million perished
1874	Famine in Bihar
1876–78	Famine in Bombay, Madras and Mysore – 5 million perished
1897	Famine in India
1899–1901	Famine in India – 1 million perished, 4.5 million on relief works
1943	Bengal famine – 1.5 million perished.

Source: Ref. 2. Only famines of the Indian subcontinent are listed above. Out of 34 global famines listed from 436 BC to 1962, 16 are for the Indian subcontinent.

logy. Indeed, a significant achievement for the country that was accepting 10 million tons of wheat from the US under PL 480. The nation should be grateful to those who made the technology available,

the Indian agricultural scientists for its rapid validation, and farmers who adapted it. All technologies have some shortcomings that can be rectified by new scientific inputs, and further imp-

roved upon. However, there can be no reverting to the traditional, low-input, animal-based or organic agriculture with no chemical inputs. It cannot feed the present population of billion plus, and more that will be added before the population hopefully, stabilizes. Extensive diffusion of the existing technologies, incessant adoption and development of new technologies are a must to keep food production ahead of the needs, and boost exports of the farm products and agro-based industries.

1. Tiwari, S. C., *Curr. Sci.*, 2003, **85**, 578–581.
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MNCs strategies

Reading through Tiwari's commentary on the paradigm jump in Indian agriculture¹, one is reminded of an old Tamil adage: 'You bring the whole grain; I will blow off the husk and you take it. I will keep the remaining'. This is what the MNCs have been practising for years with the developing and poor nations.

1. Tiwari, S. C., *Curr. Sci.*, 2003, **85**, 578–581.

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Bathynomus giganteus: A rare occurrence in coastal waters of Thoothukkudi, India

A giant isopod was caught in the fish catches from Thoothukkudi coastal waters at a depth of about 300 ft on 16 February 2003. It was identified as *Bathynomus giganteus* A Milne Edwards, 1879 (Figure 1 a and b). It measured 26.0 cm in length and 9.5 cm in breadth. This species is a deep-sea dweller, found normally at a depth of about 1200–2000 ft. Occurrence of this giant isopod in the inshore waters of Thoothukkudi coast is a rare record.

Isopods belong to the order Isopoda of the class Crustacea. The normal size (length) ranges between 1 and 5 cm. This order contains about 10,000 species living in all major habitats—marine, freshwater and terrestrial¹. The giant isopod, *Bathynomus* spp. belongs to the family Cirolanidae of the sub-order Flabellifera. This deep-sea form usually lives in waters at 9°C (ref. 2). There are a number of giant isopod species belonging to the genus

Bathynomus such as *B. giganteus*, *B. dodereini*, *B. affinis*, *B. propinquus*, *B. docemspinosis*, *B. miyarei*, *B. kapala*, *B. immanis* and *B. pelor*³. They are commonly distributed in the United States and Japan.

The giant isopod is a carnivore, feeding on fishes, sponges, shrimps, copepods, nematodes and radiolarians⁴. It has no distinct carapace. The first thoracic segment is fused with the head. Body is depressed. Eyes are sessile. Antennules are uniramous and the exopodites of the antennae are reduced. The first pair of thoracic appendage is specialized as maxilliped and the rest are alike, without exopodites. The abdomen is shortened and its segments are often fused into a caudal shield. The pleopods are typically biramous, with flat rami serving as gills. The uropods and telson form a fan-like fin, and the legs are natatory. Gigantism is

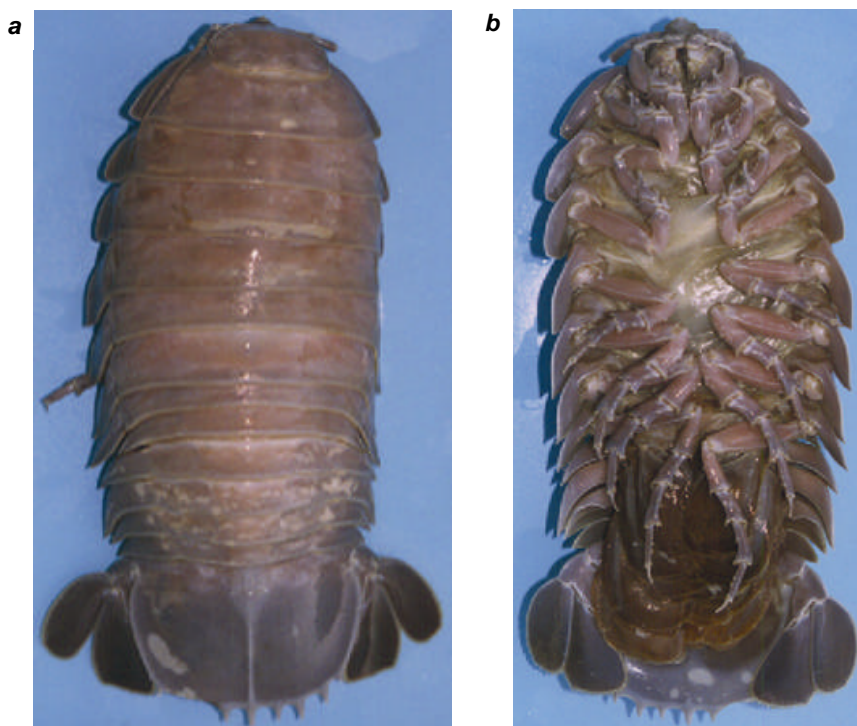


Figure 1. *Bathynomus giganteus*. **a**, Dorsal view; and **b**, ventral view.

common in deep-sea organisms. But this isopod which occurred at about 300 ft still

retains gigantism. There was no chance of drifting of this animal from the deep

sea, as the specimen was live when collected. The occurrence of *B. giganteus* in neritic waters attaches some importance regarding its distribution.

This rare isopod specimen is displayed in the reference museum of the Fisheries College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Thoothukkudi.

1. Parker, S. P., *Synopsis and Classification of Living Organisms*, McGraw Hill, New York, 1982, vol. 2, p. 1232.
2. Cocke, B., *Trop. Fish Hobbyist*, 1986, **2**, 48–52.
3. Tso, S. F. and Mok, H. K., *Crustaceana*, 1991, **61**, 141–154.
4. Briones, F., Patricia and Lozano, E. A., *J. Crust. Biol.*, 1991, **11**, 375–385.

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NEWS

MEETING REPORT

Cold fusion*

In the Tenth International Conference on Cold fusion in the ICCF series, about hundred papers were presented, mostly from USA, Italy, Russia, China and Japan. All papers are put up on the website of the cold fusion community, namely www.lenr-canr.org.

The claims of Fleischmann and Pons made in 1989, that they had experimentally observed large amounts of 'excess heat' during the electrolysis of LiOD with a Pd cathode, and that this was due to (d,d) fusion reactions occurring within

the Pd cathode, was dismissed by the mainstream scientific community, as the results could not be replicated by most groups. Fleischmann had speculated that two deuterons were fusing to yield He-4, but without the accompanying 23.8 Mev gamma rays! A number of researchers around the world, inclusive of some groups from the Bhabha Atomic Research Centre, Mumbai did, however, report finding evidence of fusion reactions, namely detection of neutrons and tritium. I had summarized the then status of the field in a review paper published in *Current Science* (1991, **60**, 617).

During the first few years of the history of cold fusion, the radiationless He-

4-producing mode of fusion was the most widely accepted model of the phenomenon of 'anomalous excess heat'. Experimentalists having expertise in quadrupole mass spectrometry have since reported measuring the production of He-4 during electrolysis. Nobel Laureate Julian Schwinger, Hagelstein and others have theorized how it is indeed possible for the d + d compound nucleus to de-excite by releasing the 23.8 Mev of nuclear energy directly to the lattice as phonons.

But most physicists felt that there were far too many 'puzzles' which were at odds with the existing paradigm and understanding of nuclear reactions, and therefore in all probability the cold fusion

*A report on the Tenth International Conference on Cold Fusion held at Boston, USA during 25–29 August 2003.