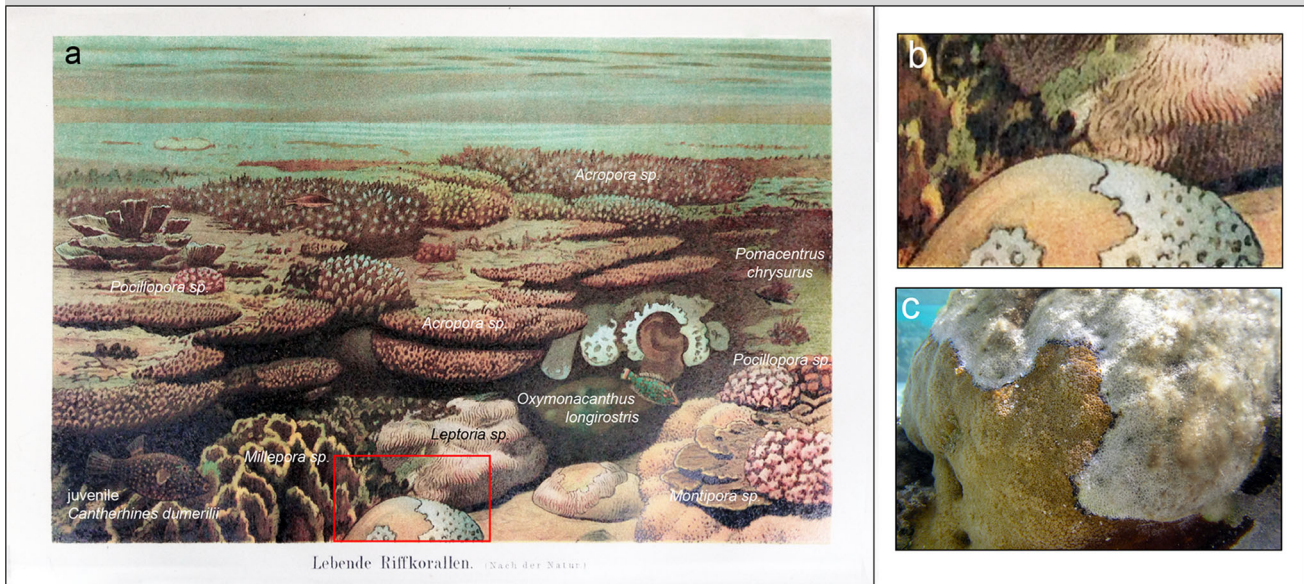


## Earliest record of a coral disease from the Indo-Pacific?



**Fig. 1** **a** Nineteenth-century German lithograph of a shallow Indo-Pacific reef flat (translates to “Living reef corals from nature”) with taxonomic names of fish and corals overlaid. **b** Massive coral exhibiting signs of black band disease with corallite structures clearly visible in the exposed skeleton. **c** Modern photograph of black band disease on a massive reef flat coral from the Great Barrier Reef (*Cyphastrea microphthalmia*; photograph: G. Roff)

Since the discovery of the black band disease in the early 1970s, coral disease outbreaks have become widespread, with an increasing number of disease-like syndromes being reported worldwide (Sutherland et al. 2004). Originally identified in the Caribbean in 1973, black band disease was first observed in the Indo-Pacific in 1981 and is now widespread throughout the region (Sutherland et al. 2004). Due to the paucity of historical records, it is unclear whether outbreaks of black band disease and other disease-like syndromes in recent decades are novel, or whether coral disease occurred naturally in Indo-Pacific reefs prior to anthropogenic disturbance.

In the absence of long-term ecological datasets, unconventional data sources such as historical photographs, museum collections and artwork can provide novel insights into past ecosystem states (Thurstan et al. 2015). Figure 1a is a lithograph print of a shallow Indo-Pacific reef flat in the mid to late 1800s titled “Lebende Riffkorallen Nach Der Natur” (“Living reef corals from nature”, artist and location unknown), printed in the German encyclopedia “Meyers Konversations-Lexikon” (Meyer 1895). As with many lithographs from the era, the print is surprisingly taxonomically detailed, and many coral reef organisms are readily identifiable.

Clearly depicted in the foreground is a massive coral (presumed *Favia* sp.) with a narrow black band separating apparently healthy tissue and exposed white skeleton (Fig. 1b). While equivocal, the appearance bears a striking similarity to black band disease in modern coral reefs (Fig. 1c). If correct, this precedes the first record of black band disease in the Indo-Pacific by over a century and implies that diseases may have been a natural part of coral reef ecosystems prior to human disturbances.

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