SHELLS FROM PREHISTORIC KITCHEN-MIDDENS IN SOME CAVES IN CELEBES.

By

W. S. S. VAN BENTHEM JUTTING
(Zoological Museum, Amsterdam).

For some years the Archaeological Survey of the Netherlands Indies has been exploring various caves in the Island of Celebes, where the occurrence of prehistoric settlements was proved or supposed.

Under the leadership of the late Dr. P. V. VAN STEIN CALLENFELS, at that time Head of the Archaeological Survey, excavations were made in a Cave North of Tjani, in South Bone, in 1934, and in the Cave of Panganrejang Toedeja, near Bonthain, 1937. In both caves shells and shell-fragments were found. Some of these were evidently collected by the primitive inhabitants for food or ornamental purposes. The presence of others, however, must be regarded as merely casual, introduced accidentally by man or animals, or by the agency of inanimate forces such as water, wind or earthfalls.

The shells were presented to the Zoological Museum of Buitenzorg, Java. The Director of this Institute, Dr. K. W. DAMMERMAN, transmitted them to me for identification and discussion.

In the same Southern fork of Celebes, at a little distance from the grottoes just mentioned, excavations were also carried out by Dr. VAN STEIN CALLENFELS and his collaborators in a cave near Tjita. On these operations a preliminary report was published: "Archaeologisch Onderzoek in Celebes" (Tijdschr. Kon. Ned. Aardr. Genootsch. (2) Vol. 60, 1938, p. 138 - 142). At p. 140 of this account

Correction-slip

TREUBIA DEEL 16, 1938, AFL. 4.

Corrigenda:

Page 491, Line 4 from foot of page, for *Miorhiza,* read: *Ophiorrhiza.*
Page 495, Line 5 from foot of page, for G. Lande, read: G. Lawoe (= Mt. Lawoe, in the Residency Madioen, East Java).

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These two authors described the snail as *Nanina toalarum* (nowadays *Hemiplecta toalarum*), and although I have not seen the implements which Dr. VAN STEIN CALLENFELS collected, it seems reasonably safe to assume that his objects belong to the same species.

In the paper of Messrs. SARASIN eight other species of molluscs were mentioned together with *Hemiplecta toalarum*. Of these three were probably used for (*Cyrena suborbicularis, Batissa violacea* and *Melania perfecta*), the others introduced accidentally (*Cyclotus politus, C. celebensis, Nanina* (*Hemiplecta*) *ribbei, Obba marginata sororcula* and *Planispira zodiacus*).

The spoils which I received for identification contained a much larger number of species. The following is a list:

Cave North of Tjani, South Bone, 1934.
(Specimens bearing a number above 200 were found in the lower layer).

Thiara robusta (MRTS) 1 spec., entirely fresh and undamaged, probably introduced in recent years.
Hemiplecta rugata MRTS 2 fragments of ultimate whorl (No. 543).
Xesta sp. 2 fragments, perhaps *X. nitida* MLLDFF.? suggesting a species with rather inflated whorls and relatively narrow base (No. 534).
Planispira zodiacus tuba (ALBERS) 1 spec., in good condition although a little bleached (No. S. 246).

Cave of Panganrejang Toedeja, near Bonthain, 1937.
(The shells from the upper layers A-B are younger than those from the lower layers C-D).

Name of species.	Layer A-B	Layer C-D
Trochus fenestratus GEML.	—	fragm. of shell-base
Turbo cinereus BORN	7 shells, more or less damaged, 1 fragm., 1 operculum	1 shell, a little damaged at aperture
Nerita albicilla L.	1 shell	—
Nerita planospira ANTON	—	fragm. of aperture
Theodoxus subpunctatus (RÉCL.)	3 spec., tops of shells broken away	—
Cyclotus pyrostoma SMITH	—	1 spec., rather small, high 10.6, broad 17.8 mm (including peristome)
Telescopium telescopium (L.)	5 fragments	2 fragm.: 1 spire (± 8 whorls) and 1 basal part with the characteristic plicae
Terebralia palustris (BRUG.)	1 fragm., with aperture	—
Terebralia sulcata (BORN)	1 fragment	—
Thiara crenulata DESH.	lower part of large specimen	—
Strombus isabella LAM.	1 fragm. of last whorl	—
Murex capucinus LAM.	2 fragm. with aperture	small fragm. of columella and siphonal funnel
Murex adustus LAM.	—	part of aperture
Drupa buccinea (DESH.)	fragm. of aperture	—
Arca helblingi BRUG.	1 fragm.	—
Arca sp.	—	fragm., probably *Arca*
Glycymeris amboinensis (GMEL.)	—	1 fragm., with part of hinge
Ostrea hyotis (L.)	1 single valve	—
Ostrea (gryphoides SCHLOTH.?)	1 single valve	—
Ostrea cucullata BORN	1 single valve and 2 fragm.	—

Name of species	Layer A-B	Layer C-D
Ostrea sp.	15 fragments	5 fragments, small
Polymesoda (cf. *expansa* Mouss.)	10 fragments	4 fragm., only 3 with part of the hinge
Batissa (probably *violacea* Lam.)	1 fragm. of large spec., with part of the hinge	—
Megaxinus corrugatus (Desh.)	1 fragment	3 small fragments
Gafrarium tumidum (Röd.)	3 single valves	—
Katelysia opima (Gmelin)	1 fragment	—
Venerupis variegatus (Sow.)	1 single valve, damaged	—
Asaphis dichotoma (Anton)	3 fragments	—
Psammobia sp.	1 fragment, with hinge	—

The shells from the first Cave (at some distance from the shore) are all non-marine, those from the Cave of Panganrejang Toedeja (close to the sea) nearly all marine, with the exception of *Cyclotus pyrostoma* (land) and *Theodoxus subpunctatus* and *Thiara crenulata* (fresh water). The specimen of *Cyclotus pyrostoma* I consider as accidentally washed into the cave. The other species are in all likelihood food remains. This is proved by the fact that in nearly all the Gastropods the spires are missing. These parts of the shells were probably crushed by pounding with a large stone. There are no signs of burning.

The marine shells are common species on the coral reefs and in the mangrove swamps throughout the entire Archipelago, and will certainly have occurred at the sea side near Bonthain in the days of the ancient cave inhabitants. Therefore these people were not obliged to wander far and wide, but could ransack the reefs near by in search of appetizing shell-fish.