RESEARCH ON PREHISTORIC BEADS IN INDONESIA

Ratna Indraningsih
Indonesian National Research Centre of Archaeology
Jakarta

INTRODUCTION

Beads have been found in Indonesia on nearly every archaeological site; prehistoric, classic and Islamic. In some regions beads are still very popular among the people, and they are used for ornamental as well as ceremonial purposes.

The oldest beads yet found in Indonesia come from the cave of Gua Lawa near Sampung in East Java. These are of drilled shells and human teeth, and were found associated with human and animal bones. The site dates back to the Paleolithic stage (Soejono 1984).

The majority of prehistoric beads date back to the Paleometallic stage and are associated with burials. Findplaces include Pasemah (South Sumatra); Anyer, Krawang and Bekasi (West Java); Gunung Kidul and Plawangan (Central Java); Kidangan and Besuki (East Java); Gilimanuk (Bali); and Flores, Sumba and Timor (East Nusa Tenggara).

Beads from the Classical Period (5th-15th century) have been found in sites in Jambi (in the temple complex of Muara Jambi), Palembang and Muara Takus (all in Sumatra), and around ancient temples in Central and East Java. Other findplaces include Trowulan, the site of the capital of Majapahit (14th-15th centuries), Islamic sites in Banten (West Java), and Selayar island in South Sulawesi.

The earliest commentators on Indonesian beads include G.P. Rouffaer (1899), who examined the so-called "mutisala"beads from Timor and suggested that they originated in the 15th century. However, there is now proof that mutisala date back to the prehistoric period, since some have been found in prehistoric burials in Sumatra, Java and Bali.

Another researcher who contributed to bead research in Indonesia was van der Hoop (1932), who investigated beads found in a burial site in Tegurwangi (Pasemah, South Sumatra). These beads are now in the collection of the National Museum in Jakarta. In addition, van Heekeren (1958) has published the results of laboratory analyses of beads stored in the National Museum, and Nieuwenhuis (1907) has made a comparative study of beads found in Kalimantan and in Italy. Van der Sande (1907) found similarities between beads found in Irian (Indonesia) and in China.

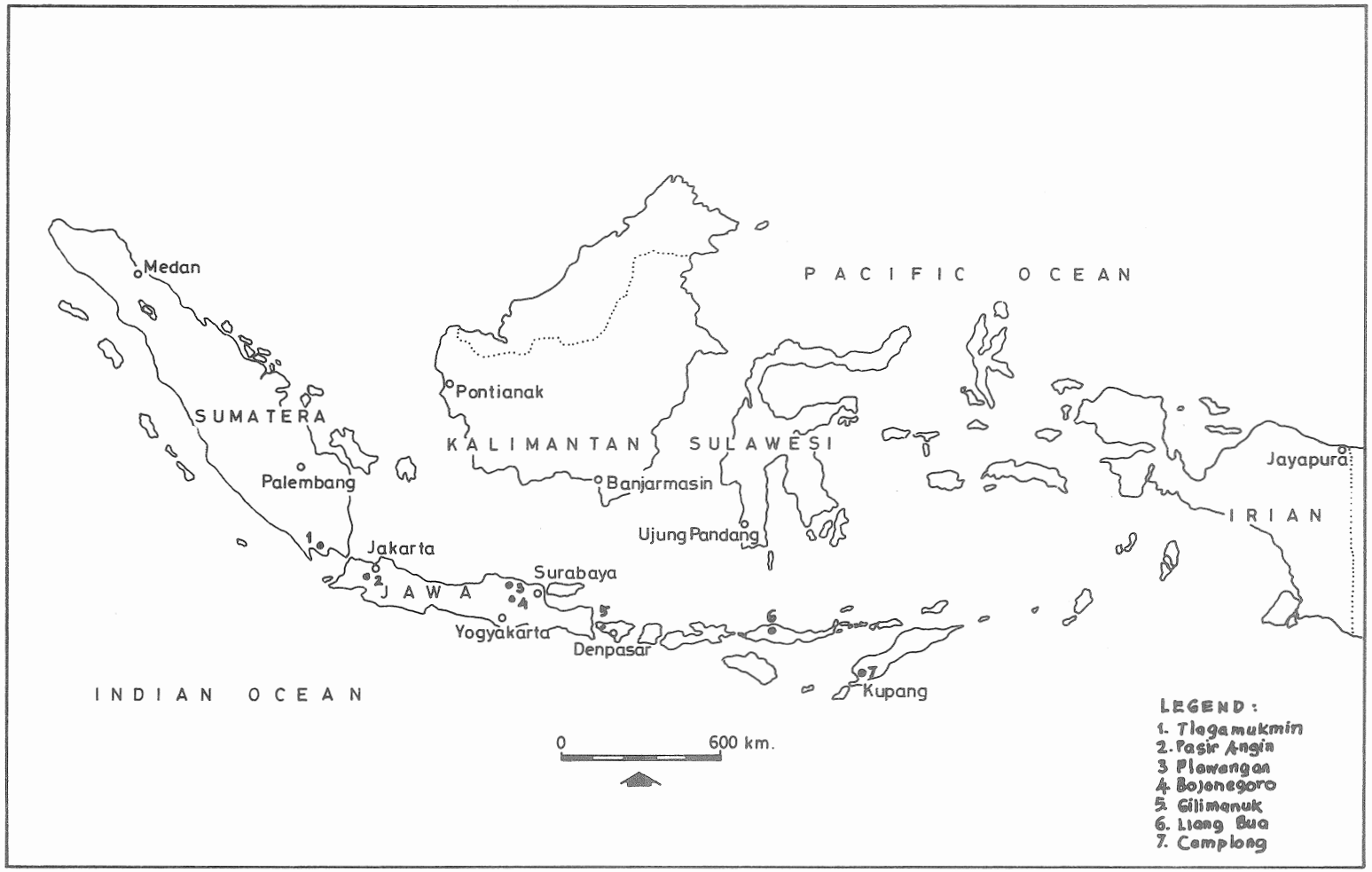

Figure 1. Locations of sites discussed in the text, which have yielded beads.

RESEARCH DATA AND METHODS

This paper focusses only on beads from prehistoric sites excavated by the Prehistoric Division of the Indonesian National Research Centre of Archaeology. The sites for discussion have been selected at random, and include Tlaga Mukmin (Lampung, Sumatra); Pasir Angin (West Java); Plawangan (Central Java); Kidangan/Kawengan (East Java); Gilimanuk (Bali); Liang Bua (Flores); and Gua Oelnaik at Camplong (West Timor).

Excavations at the dolmen site of Tlaga Mukmin were carried out in 1980. The ceremonial site at Pasir Angin near Bogor in West Java was excavated in 1971, 1972 and 1973. Plawangan, a site with prehistoric burials and traces of a prehistoric settlement, has been continuously excavated since 1978. The two sites with stone cist burials at Kidangan and Kawengan were excavated in 1980 and 1981. The burial and settlement site of Gilimanuk was excavated in 1963, 1964, 1973, 1977, 1978 and 1984. The cave of Liang Bua (Flores), where prehistoric graves, a workshop and traces of a settlement have been found, was excavated in 1978, 1980, 1981 and 1982. Finally, the Camplong cave site in West Timor was excavated in 1981 and 1983.

It is hoped that by using a typological analysis based on form, material, color and decoration according to the Beck (1928) classification, the distribution of beads in the prehistoric period in Indonesia can be more precisely outlined. This research is focussed on beads from excavations, as it is expected that their *in situ* associations with other artifacts may throw light on the periods of their use. For comparative purposes, some results of laboratory analyses are added.

The following is a list of the sites chosen for analysis and the numbers of beads found therein during excavations:-

Tlaga Mukmin	48
Pasir Angin	68 (Ratna 1977)
Plawangan	2650 (Sukendar and Awe 1981)
Kidangan/Kawengan	180 (Suryanto 1985)
Gilimanuk	6308 (Ratna 1977)
Liang Bua	58
Camplong	73

Table 1 lists the contexts and associations of the beads found in the analysed sites.

Name of site	Context and association
Tlaga Mukmin	beneath a dolmen; with a bronze bracelet and Chinese ceramics; no human remains.
Pasir Angin	adjacent to a menhir; with bronze, iron and gold artefacts, sherds, stone adzes, glass bracelets, and obsidian; no human remains. Radiocarbon age c. 2460 bp.
Plawangan	a) settlement layer; with earthenwares, bronze and iron, glass, molluscs, and animal remains. b) burial layer; with extended or jar burials, earthen-wares, bronze, iron and molluscs.
Kidangan/ Kawengan	stone slab graves; with human bones, a gold ring, iron adze, pots and kendis.
Gilimanuk	a) settlement layer; with earthenwares, bronze, iron, shell artifacts, molluscs and animal remains. b) burial layer; with extended or jar burials, earthenwares, bronze, iron, gold, molluscs and animal remains. Radio-carbon age c. 1900 bp.
Liang Bua (cave)	burial layer; with an extended human skeleton, stone artifacts, pottery, tools made of shell, animal teeth and bones.
Gua Oelnaik, Camplong (cave)	a) burial layer; with ceramics, pottery, a human skeleton, and shells. b)lower layer; with stone artifacts (flakes and blades), animal bones, teeth and shells.

TABLE 1: Contexts and associations of excavated beads.

In Table 2, the materials of the beads from the 7 sites are shown.

Site	Fossil Dentalium Shell	Shell	Stone	Glass	Gold
Tlaga Mukmin	-	-	10	38	-
Pasir Angin	-	-	19	49	-
Plawangan	-	98	41	2511	-
Kidangan/ Kawengan	89	21	-	68	2
Gilimanuk (except 1984)	-	1900	646	3721	41
Liang Bua	-	43	5	10	-
Camplong	-	59	5	9	-

TABLE 2: Frequencies of materials used for bead manufacture.

Among the seven sites, beads with decorative motifs have been found at Tlaga Mukmin, Plawangan, Kidangan/Kawengan and Gilimanuk. The decorated beads of Tlaga Mukmin are globular and blue with eye spots. Those from Plawangan are made of black stone with ellipsoid shapes and white lines. At Kidangan/Kawengan blue beads with eye spots were found. From Gilimanuk there are black stone beads with white lines, and also black beads with red linear decoration. The golden beads of Gilimanuk have floral motifs.

The Tlaga Mukmin monochrome beads are blue, green, red and yellow, and forms are oblate, barrel-shaped, cylindrical and annular. The Pasir Angin beads are globular, oblate, cylindrical, annular, and prismatic with 6, 8 or 12 facets. Colors include transparent white, red, orange, blue and black.

The forms of the Plawangan beads include globular, oblate, barrel-shaped, cylindrical, ellipsoid, annular, hexagonal prismatic, collared, rectangular faceted, and lozenge-shaped. Colors include blue, red, yellow, orange, green, white and black. The beads from Kidangan and Kawengan are mostly greyish-white, with some blue and red. Shapes include oblate, barrel and annular.

Gilimanuk shapes include globular, oblate, barrel-shaped, cylindrical, ellipsoid, annular, lozenge-shaped, rectangular, 8 and 12 faceted, segmented, and concave bicone. Colors are red, blue, green, yellow, orange, black and white.

The colors of the Liang Bua beads are white, red, blue and green. Dominant shapes are oblate, annular, and disc-like. The dominant colors of the Camplong beads are white, grey, red, blue and yellow. Shapes include globular, oblate, disc-like and cylindrical.

Though the numbers given in this paper are only provisional (to be revised after further research), it appears that the largest numbers of beads have been found in the Plawangan and Gilimanuk sites. These two sites were both ancient settlements as well as burial grounds around the beginning of the Christian Era; both are very extensive, and research will be continued on them in the near future.

As can be seen from Table 2, beads made of fossil Dentalium shell have only been found in the sites of Kidangan and Kawengan. The shells come from the Lower Pleistocene Pucangan beds.

The presence of great numbers of shell beads in the Plawangan and Gilimanuk sites may be connected with their coastal locations. The fact that shell beads are also found in the inland sites of Kidangan/Kawengan, Liang Bua and Camplong suggests that coastal to inland trade routes once existed. There are tribes in Indonesia who still use shell beads in their daily life; for example in Irian Jaya, where they are used for ornaments, for counting purposes and as currency (Koentjaraningrat 1963).

Stone beads are mostly made of carnelian of different colours. There are also clay, quartz and agate beads. Stone beads were not found in the Kidangan/Kawengan sites. Most of the beads which are still traded in Indonesia are carnelian, but unfortunately their origins are unknown.

The largest quantities and variety of glass beads have been found in Plawangan and Gilimanuk. In the latter site, the presence of glass fragments and lumps of beads suggests manufacturing. Other sites where such materials have been found include Lebak Kranji (Palembang), Muara Jambi (Sumatra) and Gresik, Ratu Baka and Blambangan in Java.

The beads found under the dolmen at Tlaga Mukmin in association with Sung ceramic sherds show that the tradition of using dolmens persisted far into the historical period, and that beads were still employed for ceremonial purposes. In the Camplong site, a cave which was occupied during the Epi-Paleolithic, Neolithic and later stages, excavations showed that the practice of placing beads in burials continued until around the 10th century.

LABORATORY ANALYSES ON BEADS

Laboratory analyses have been performed on four beads from Kidangan/Kawengan and eight from Gilimanuk. The results are given in the following tables 3 and 4.

Element	Yellow	White	Red	Dark Blue
SiO_2	60.70	0.40	60.90	63.80
Fe_2O_3	4.20	0.39	3.78	3.36
Al_2O_3	12.30	0	7.47	6.39
CaO	3.71	54.08	4.12	6.18
MgO	0.44	0.37	1.33	2.96
SO_3	0	0.30	0	0
K_2O	2.65	0.06	1.76	2.35
Na_2O	12.65	0.75	17.86	14.29
Cu	3.40	-	1.00	0.31
HP	0.10	44.0	0.80	0.50

TABLE 3: Percentage composition of four beads from Kidangan/ Kawengan. HP = lost in combustion.

Element	Blue	DRB	White	Green	DRB	Yellow	Glass Fragments	Light Grey
SiO_2	70.40	62.60	7.90	61.60	50.10	56.20	75.0	21.40
Fe_2O_3	2.30	2.50	1.47	2.72	2.93	11.09	1.68	1.26
Al_2O_3	6.45	8.25	1.28	11.03	20.07	5.91	3.57	55.74
CaO	5.50	5.51	49.05	5.25	5.50	4.41	6.27	2.94
MgO	1.50	0.90	0.30	0.15	0.90	0.74	0.75	0.75
SO_3	nil	nil	nil	nil	nil	nil	nil	nil
K_2O	4.0	4.44	0.08	4.40	10.00	4.81	2.22	1.11
Na_2O	8.70	13.75	0.30	13.13	3.75	15.00	10.00	3.75
Cu	0.36	0.90	nil	0.85	0.40	0.13	0.07	0.07
BaO	nil	nil	nil	nil	nil	nil	nil	10.0
HP	1.60	1.20	39.40	1.30	6.80	1.60	0.30	3.40

TABLE 4: Percentage composition of eight beads from Gilimanuk. DRB = dark reddish brown; HP = lost in combustion.

CONCLUSIONS

The beads discussed in this paper constitute only a small part of the thousands of beads which have been found in Indonesia. Nevertheless, this preliminary study has discussed some of the possible functions of beads, their different types and variations, and raw materials.

In Indonesia, research on beads has so far been based on megascopic observation and to a small extent only on laboratory analysis. Attempts to identify beads have included data collection about raw materials, contexts, typological classification and distribution.

It is generally assumed that beads served mainly for adornment of the human body, for daily wear, for ceremonial purposes and for funeral gifts. The possibility cannot be excluded that beads were also trading commodities with specific values.

For further research, maximum objectivity should be attained by studies in a regional context over the whole of Southeast Asia, on the mainland as well as in the archipelago. To set up such a regional study there should be uniformity in methods and techniques of analysis.

REFERENCES

Beck, H.C. 1928. Classification and nomenclature of beads and pendants. Archaeologia, volume 77 (London).

Heekeren, H.R. van 1958. The Bronze-Iron Age of Indonesia. The Hague: Nijhoff.

Hoop, A.N.J. van der 1932. Megalithic remains in South Sumatra. Zutphen: Thieme.

Koentjaraningrat 1963. Penduduk Irian Brat, Jakarta: Universitas Indonesia.

Nieuwenhuis, A.W. 1907. Quer durch Borneo. 2 volumes. Leiden.

Ratna Indraningsih 1977. Manik-manik dari situs Pasir Angin dan Gilimanuk. M.A. Thesis, Universitas Indonesia.

Rouffaer, G.P. 1899. Waar kwamen de raadselachtige moetisalah's (Aggri-kralen) in de Timor-groep oorspronkelijk vandaan? Bijdragen Koninklijke Instituut Taal-, Land- en Volkenkunde 50:409-675.

Sande, G.A.J. van der 1907. Nova Guinea, volume III. Leiden.

Soejono, R.P. (ed.). 1984. Sejarah Nasional Indonesia, volume I. Jakarta.

Sukendar, H. and Awe, R.D. 1981. Laporan penelitian Terjan dan Plawangan, Jawa Tengah. Berita Penelitian Arkeologi 27, Pusat Penelitian Arkeologi Nasional, Jakarta.

Suryanto, D. 1985. Kubur peti batu Kidangan dalam perbandingan. Pertemuan Ilmiah Arkeologi III, pp. 142-8. Pusat Penelitian Arkeologi Nasional, Jakarta.