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## Tripod Ceramics and Grater Bowls from Mojos, Bolivia

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One of the most remarkable results of Erland Nordenskiöld's researches in Eastern Bolivia 1908—1909 was his discovery of the mound culture in Mojos, a culture characterized also by rich finds of ceramics. Three mounds were made the subject of a more detailed study, namely Mound Velarde, Mound Hernmarck and Mound Masicito.

On the basis of ceramic finds from Mound Velarde, Nordenskiöld was able to identify two different horizons, a later one characterized e. g. by secondary urn burial, the use of rifled bowls of earthenware — with corresponding mullers, which according to Nordenskiöld were used as grinders — stools of earthenware and tripod ceramics, and an earlier horizon, characterized e. g. by quadruped ceramics instead of tripods and by the dead having been buried, extended on their backs (Nordenskiöld 1913; 1930 Pls. XLVII—XLIX).

The tripod ceramics from the later horizon comprize partly the burial urns, partly hemispherical bowls (Figs. 1—3), used as lids for the urns or as burial gifts, and finally scattered finds — foot fragments or whole vessels — from the actual dwelling site, the mound.

The decoration of hemispherical bowls by the South American Indians shows certain regularities, particularly on the inside. They divide the decoration for the most part into concentric circles, radial fields or sometimes in a cross. Figural decoration, where it exists, is often placed in the centre of the bottom of the bowl or as a band along the rim.

The outside is decorated nearest the rim. The rim is then usually curved inwards, i. e. the bowl has its greatest diameter slightly below it. Decoration was limited in this way quite simply because outside decoration on a hemispherical bowl is difficult to see, unless the bowl is placed high up. Purely hemispherical bowls for this reason often have no decoration whatever on the outside.

With the tripod hemispherical bowls from Nordenskiöld's mound studies in Mojos, we notice however that the decoration on the inside is characterized by parallel fields and lines going straight over the bowl (Figs. 1—3), a pattern that is to be found in individual bowls from the north western Argentine (Bregante 1926 Fig. 141) and in the highlands in the west mainly in scattered, shallow Inca bowls of earthenware (or occasionally silver) with a bird-shaped, looped or lug-shaped handle, or opposing pairs of rim bosses (Valcarcel 1935 Lam. 1: 1/479, 1/83. Lam. V: 638; Lam. 1: 2/358 b). These designs also later found their way to the north western Argentine (Bregante 1926 Figs. 355, 357). In the area east of the Andes, however, the mound culture in Mojos would seem to be alone in this form of decoration.

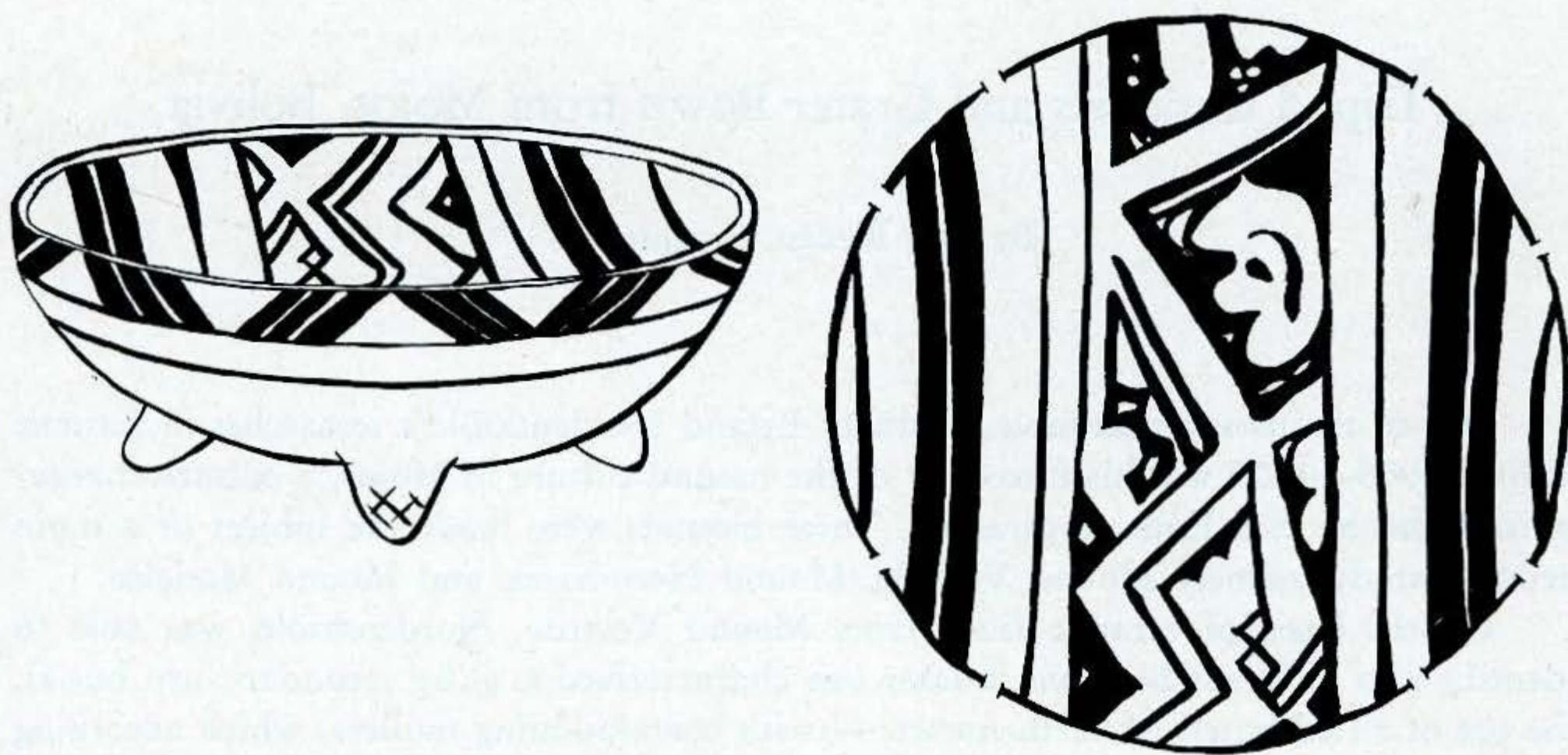


Fig. 1.  
Tripod bowl. Mound Hernmarck. S.E.M.: Coll. Nordenskiöld, 13.22.252. Diam. 14 cm.

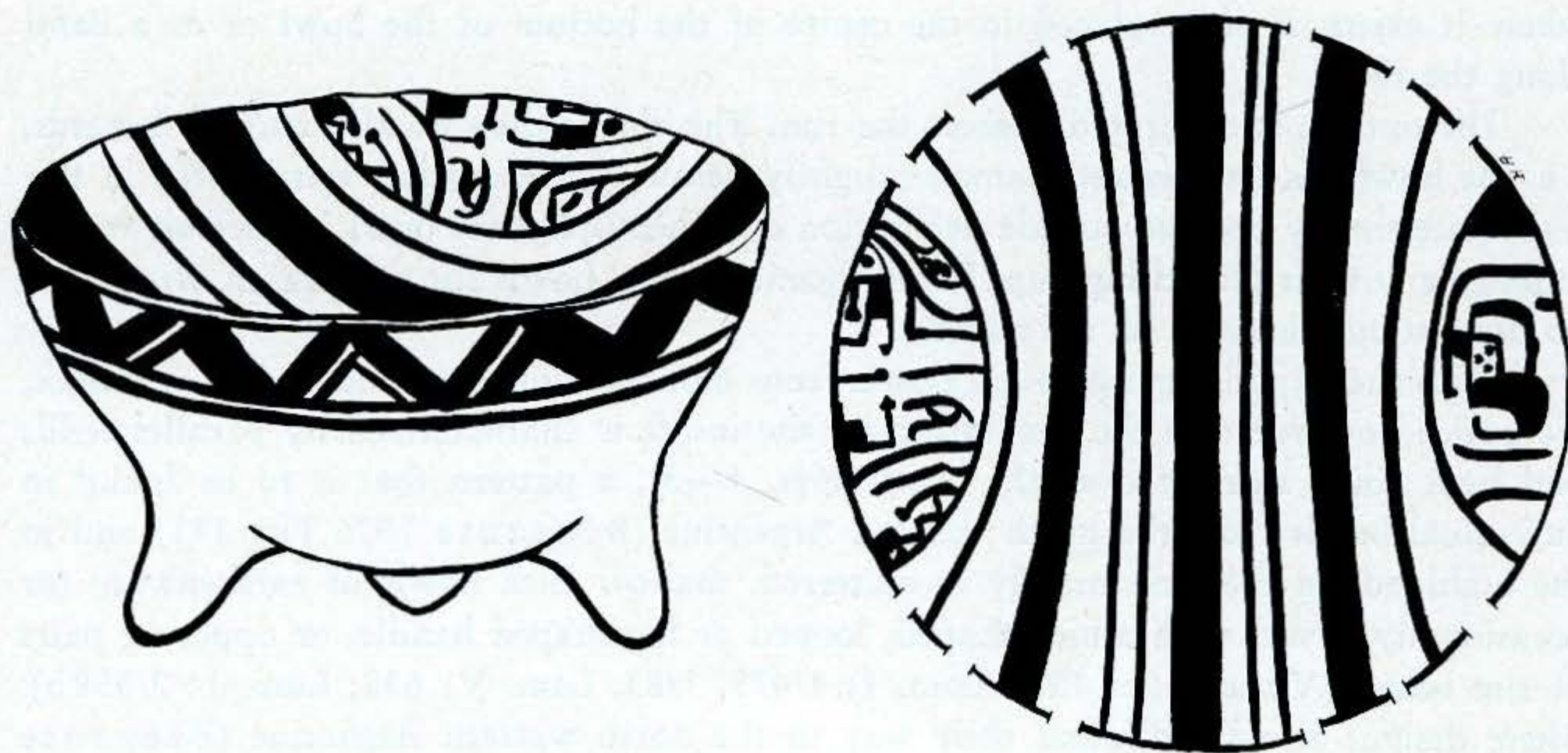
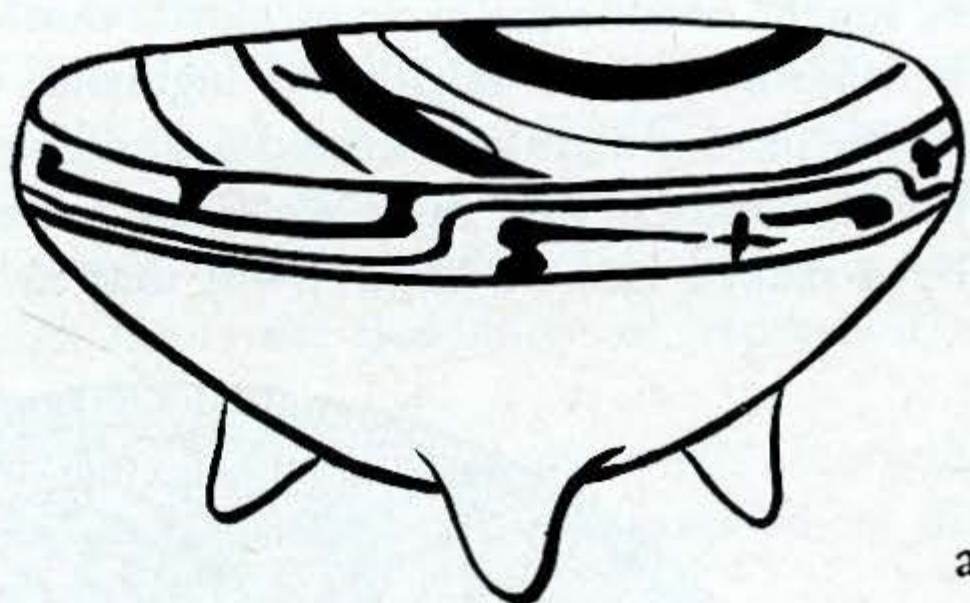
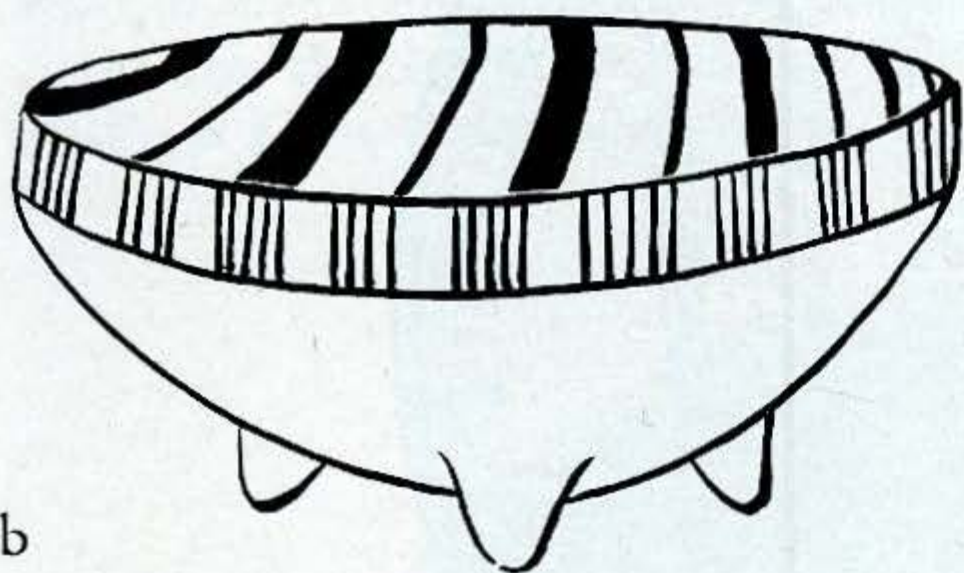


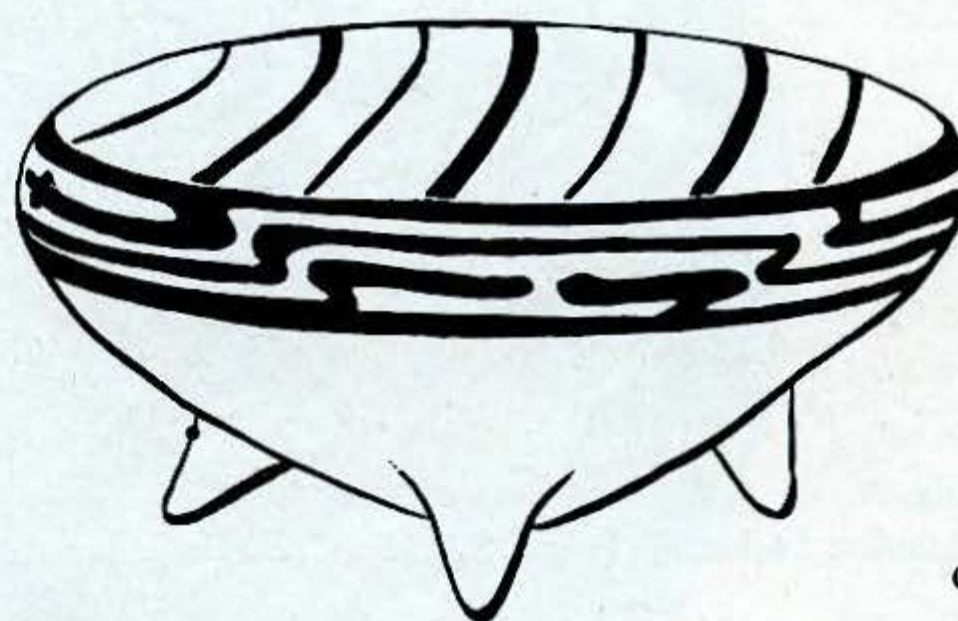
Fig. 2.  
Tripod bowl. Mound Hernmarck. S.E.M.: Coll. Nordenskiöld, 13.22.274. Diam. 22 cm.



a



b



c

Fig. 3.

Tripod bowls. Mound Velarde. S.E.M.: Coll.  
Nordenskiöld

- a) 13.30.551 Diam. 24 cm.
- b) 13.30.533 Diam. 25 cm.
- c) 13.30.550 Diam. 25 cm.

The decoration we encounter on the hemispherical, tripod bowls from the later horizon in Mojos is thus more or less unique. Its source of inspiration is probably to be sought outside the cycle of motifs that appears on the other earthenware vessels. But it is hardly to be sought in the highlands to the west, as the steep eastern slopes of the Andes have always constituted a dividing wall between the highlands of the west and the lowlands of the east. We find, however, the same disposition of pattern on the bowl-shaped baskets (Figs. 4—5) that in certain parts of the northern Amazon basin

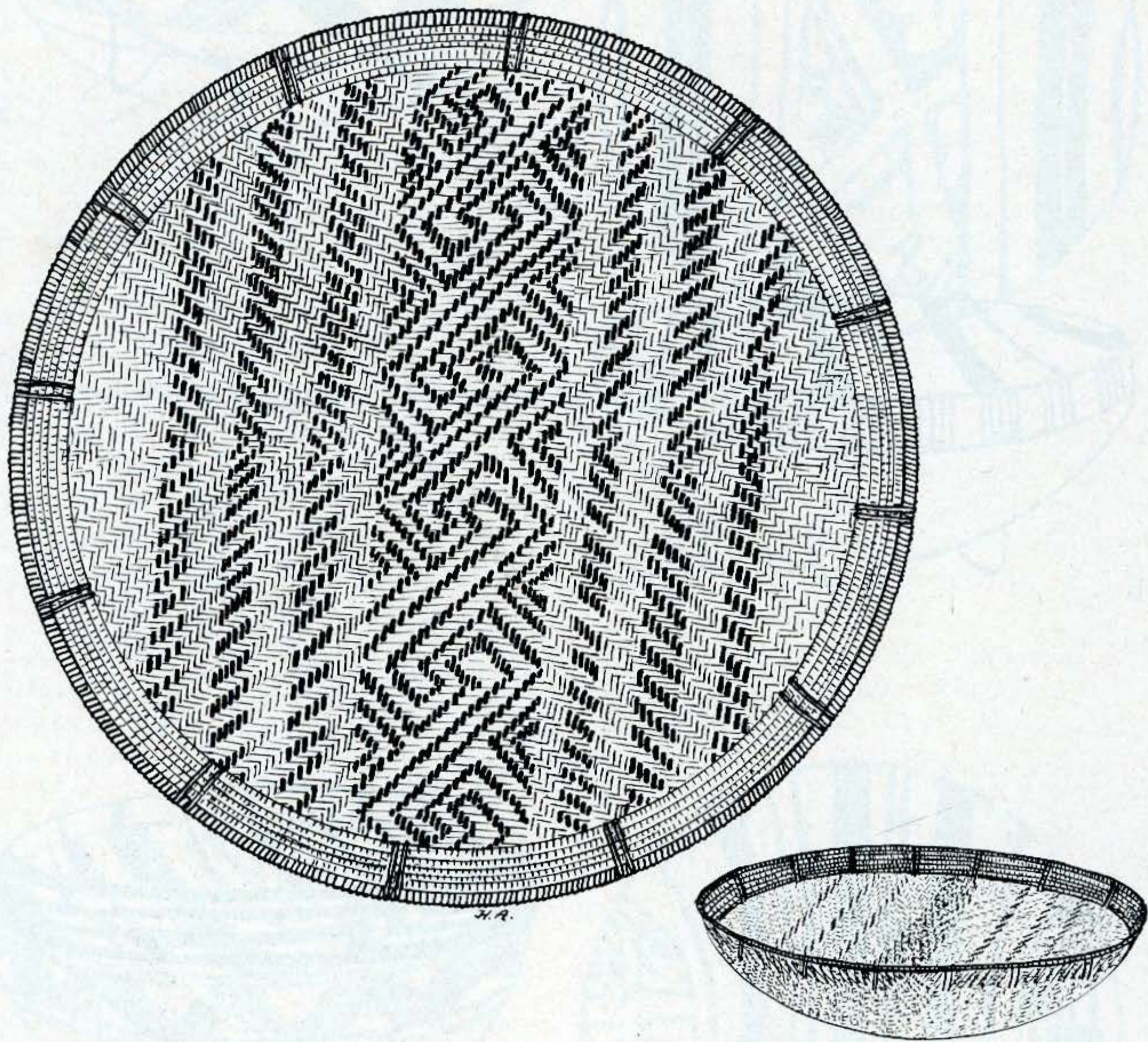


Fig. 4.  
Manioc basket. Puinave. S.E.M.: Coll. Bolinder, 56.5.29 Diam. 50 cm.

and in the Orinoco basin were used in the preparation of manioc, as bowls in which to keep *bejus* and *farinha* and as sieves or bowls for drying (Koch-Grünberg 1909—1910 Vol. II Abb. 137; G. E. M.<sup>1</sup>) 25.6.160. Tribe: Deseana, Coll. Melin = Fig. 5; S. E. M.<sup>2</sup>) 56.5.29. Tribe: Puinave, Coll. Bolinder = Fig. 4).

<sup>1</sup>) The Ethnographical Museum, Gothenburg.

<sup>2</sup>) The Ethnographical Museum of Sweden, Stockholm.

The pattern of the broad middle field crossing these baskets is purely geometrical, however. On the bowls from Mojos (Fig. 1) the geometric pattern is replaced or influenced in the direction of a looser pattern by the ornamentation on certain of the burial urns (Nordenskiöld 1913 Figs. 118, 123, 130—135; 1930 Pl. XLVII: b), an ornamentation based on a strongly stylized human face executed in curving lines. On the bowls, the same decoration can occur on the inside, in the outermost of the parallel side fields (Fig. 2). The geometrical decoration on the baskets, with its straight lines alone, is dictated by the basket weaving technique, which limits the possibility of expression to straight lines and thus to geometrical patterns.

The edges of these baskets are reinforced. This has possibly inspired the decoration on the outside of the hemispherical tripod bowls from Mojos, in the cases where this decoration too is comprized of straight lines.

It must be stressed, however, that there are no baskets of this kind in the museum collections from Mojos. But when the ethnographical study of the Indians and the work of collection started in Mojos with Nordenskiöld's research, there remained only decultured relics of the original Indian population, and this can explain their absence. The tribes in the area that still at that time preserved their independence and their original way of life, e. g. the Chacobo, were from the more remote and isolated parts of Mojos and

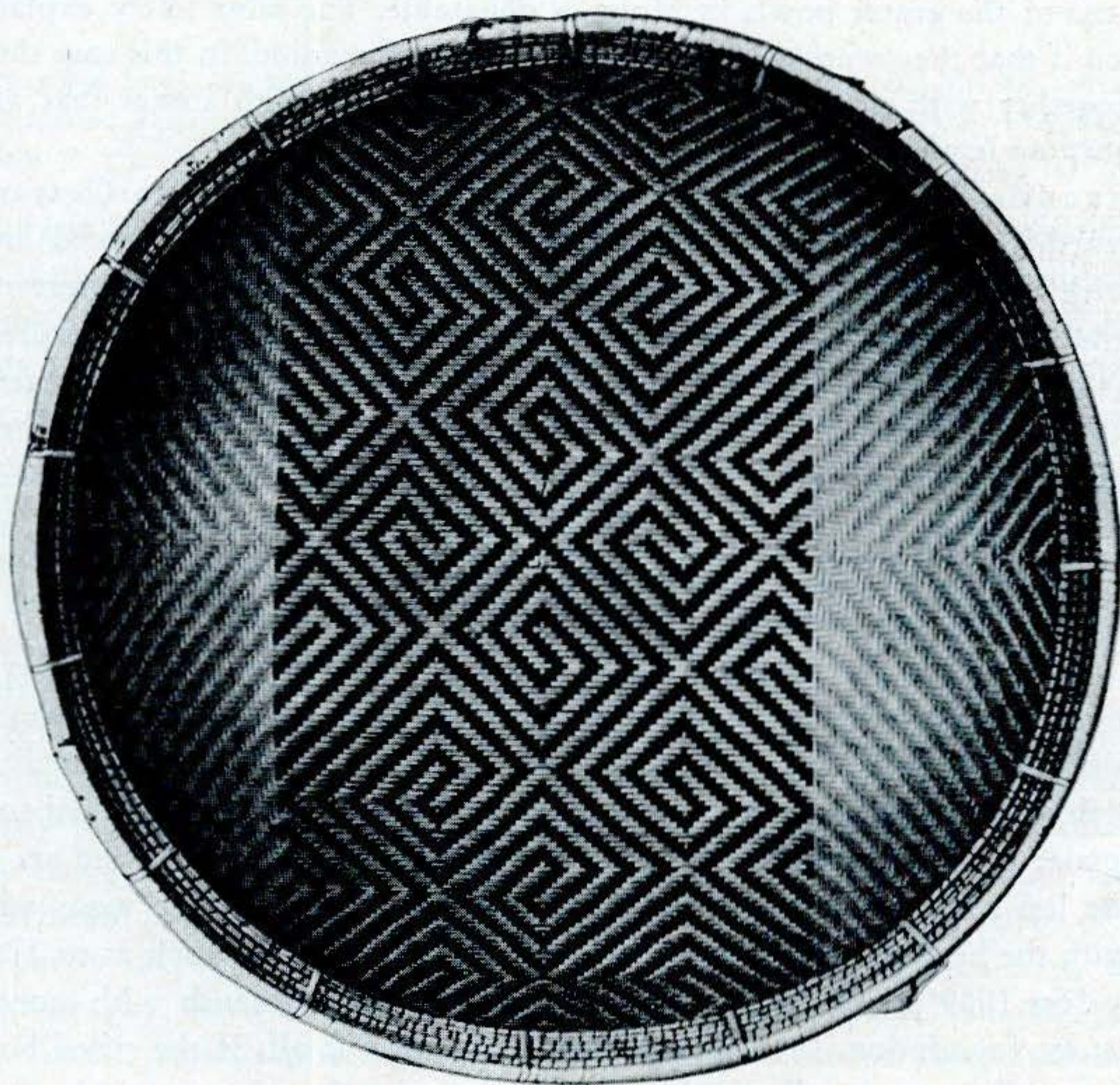


Fig. 5.

Basket. Deseana. G.E.M.: Coll. Melin, 25.6.160 Diam. 45 cm.

represented a more primitive form of life than the mound culture. These groups of Indians were also more dependent on hunting and fishing than the farming Indians of the mound culture. These isolated primitive groups in Mojos thus represent marginal cultures in a double sense. The Siriono mark an extreme in this respect (Holmberg 1950; Rydén 1941). Mojos, however, is a part of the Amazon basin and has the same conditions for the cultivation of manioc and maize as those parts of the Amazon area and the Orinoco basin where the baskets were used, so that it is reasonable to suppose that such baskets can have been in use also in Mojos, as is suggested by the decoration on the hemispherical tripod bowls. It should be noted also that we now find the primitive Siriono Indians in the area of the previous mound culture.

Another find characteristic of the later horizon in Mojos demonstrated by Nordenskiöld and also suggesting an earlier cultivation of manioc in the area, is the large earthenware grinders or graters mentioned above (Fig. 6). These bowls have only one known counterpart, namely in the Palikur area in Brazilian Guayana (G. E. M. 26.4.79 Coll. Nimuendajú). Here too, then, we find roughly the same geographical spread as when we compared the decoration on the hemispherical tripod bowls.

The graters of earthenware that Saviile (1910 Vol. 1 Plate XCVIII) found on the coast of Ecuador are so dissimilar that they must have been used for another purpose. We can therefore disregard this parallel.

The use of the grater bowls in Mojos is debatable. The most likely explanation in my opinion is that they were used in the preparation of manioc. In this case they would replace, together with mullers, the grater boards studded with stones that were used for this purpose in the area from which the baskets come.

Nimuendajú (1926 p. 17), discussing his finds from Brazilian Guayana, states that the earthenware bowls for the preparation of manioc were replaced among the Palikur with boards with stone splinters. That the earthenware bowls were ever used for the grinding of maize seems less than probable, although this is the interpretation of Nordenskiöld (1924 p. 127 ff., map 16). I have therefore consciously referred to these bowls as graters rather than grinders or used both terms. It is true that the bottoms of the bowls show strong traces of wear, as do the mullers that belong to them. Even so, it would have been extremely difficult to grind hard maize with these tools. The rifling is also from the beginning sometimes so deep that it would if anything have protected the grains and prevented the maize from being crushed.

The tool used for the preparation of maize in Mojos would seem rather to have been a wooden mortar with pestle or else the sort of tools used by the Chacobo in Mojos and described by Nordenskiöld (1922 Taf. XXII; 1924 map 16), namely a heavy wooden slab with lug-shaped handles high up on the sides that was rocked to and fro over the maize in a trough-like tree trunk. The same method but with the use of stones of more or less similar shape was practised in the highlands in the west, where it is possible with the help of finds to trace the method at least as far back as to Tiahuanaco times (Rydén 1959 p. 49). Maize is ground also in the highlands with stone mullers on a flat stone foundation. In Mojos there are no stones at all. If the rifled bowls with earthenware mullers were really used in Mojos to grind maize, they would be a substitute for the stone tools used for this purpose in the highlands in the west.



Fig. 6.

Earthenware rifled bowl. (a) and two mullers (b—c), one (b) worn out. S.E.M.: Coll. Nordenskiöld a) 13.30.550 Mound Velarde, Diam. 53 cm. b) 13.30.150 La Loma. Length 14 cm. c) 13.30.148 La Loma. Length 15 cm.

The grater bowls from Brazilian Guayana also come from a flood area that — like Mojos — is completely lacking in stone. Nimuendajú did not find any mullers accompanying the grater bowls from Guayana, contrary to what was the case in Mojos. As has already been mentioned, he states that the Palikur used the bowls for the preparation of manioc, before going over to boards. In the case of the bowls from Mojos, it is therefore conceivable that they had a double use, serving as grater bowls for manioc and — together with mullers — as grinders for maize. No grater boards are used in Mojos. The Chacobo Indians use a prickly palm-root (Nordenskiöld 1929 Fig. 1).

The present population of Mojos is going over more and more from maize and manioc to a meat diet. Exports of beef from the lowlands — nowadays increasingly in frozen form and by air — to the more populous highlands in the west have assumed steadily increasing importance for the food supply in Bolivia. That agriculture played a hitherto undreamed-of role for the previous Indian population in Mojos is clear from two recently published studies (Plafker 1963; Denevan 1963) on the discovery of «extensive fields that obviously had been cultivated as well as causeways and canals built to facilitate overland travelling». What we have here are thus works of the type that was partly observed and described by Nordenskiöld, but which now, thanks to aerial photography, have been discovered on a far greater scale than was previously imagined. Aerial photography has also shown the existence of cultivated areas that from the air resemble newly ploughed fields — parallel, raised narrow strips, separated by furrows of corresponding breadth.

Mojos «is probably the largest single area of seasonal inundation in the world» (Plafker 1963 p. 372) and it was the inundations that led to this previously unobserved form of cultivation in Mojos. Fields of this kind also suggest that they were used more for the cultivation of manioc than of maize. Rosen (1957 p. 63 ff.) has maintained that natives in inundation areas in Africa cultivate manioc on artificial mounds with a diameter of just over 2.5 m and in this way seeks to explain the corresponding mounds discovered by him and by Boman (1908 p. 279 ff.) in the Valle de Lerma in the northern Argentine.

It should also be pointed out that Mojos offers ideal conditions for the cultivation of bitter manioc, namely great humidity and warmth, together with the dry margins of a savanna climate, which are a necessary condition for the cultivation of sweet manioc (Sauer 1937 p. 292). We seem here in Mojos to find support also for Kidder's hypothesis that the cultivation of manioc preceded the cultivation of maize (Kidder 1937 p. 150; Lowie 1937 p. 165).

Our judgements of Indian culture in the tropical forest areas in the Amazon basin are based mainly on studies carried out by e. g. Koch-Grünberg, v. d. Steinen, Nordenskiöld, Krause, Rondon and Tessmann, to mention only a few. These studies were

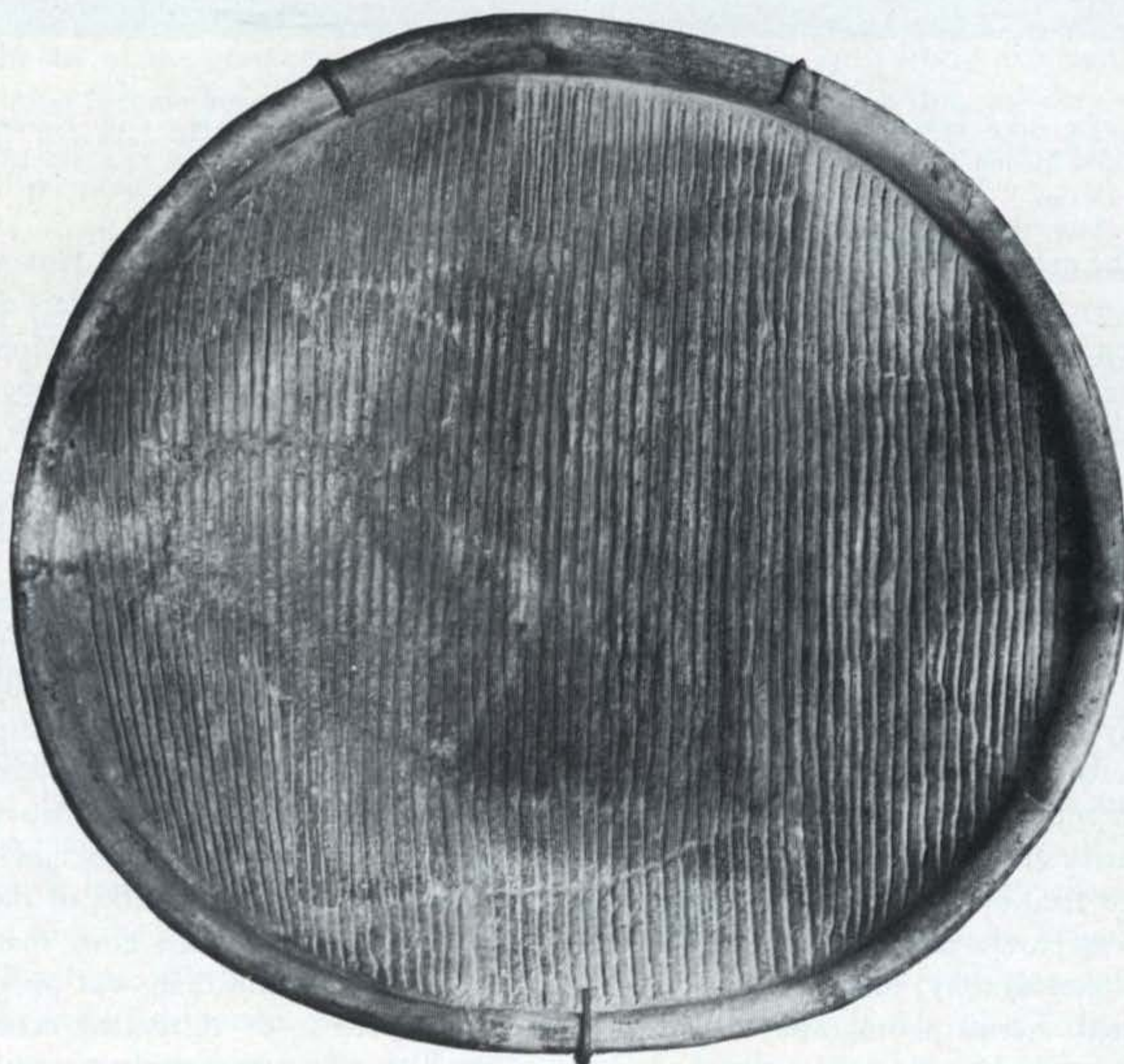


Fig. 7.

Earthenware rifled bowl. Palikur, Brazilian Guayana. G.E.M.: Coll. Nimuendajú, 26.4.79 Diam. 53 cm.

made relatively late and concern the Indians in remote and isolated areas of settlement around the sources of the Amazon, i. e. such groups as the Chacobo in Mojos.

The literature from the colonial period has little to tell us about the Indians who lived along the actual main stream of the Amazon and its larger tributaries and who died out when the area was occupied by the whites.

The German-Brazilian scholar Curt Nimuendajú has in the twenties carried out archaeological studies over large parts of the area around the Amazon with the support of Erland Nordenskiöld and the Ethnographical Museum, Gothenburg. Nimuendajú's results suggest that along the main stream we clearly had a population which to judge from its manufacture of ceramics, stone idols, etc. (Nordenskiöld 1930) stood on a higher cultural level than the Indians in the source areas (Nimuendajú: Manuscripts and Collections, an unpublished study compiled by S. Rydén, G. E. M.). This circumstance is emphasised also by the studies made in the Amazon area by Meggers and Evans (1957, 1958) and Palmatary (1960). The few utensils, ornaments etc. preserved in the museum collections from the Indians who once populated the area around the main stream of the Amazon differ also in their more careful execution from the objects collected at a later date and representing the Indian culture in the source areas. (Coll. da Silva Castro, S. E. M. 1861. 1.; Mörner 1959.) In that studies of the more primitive groups in isolated source areas (groups that can be described as marginal tribes within the tropical forest area) — studies moreover made mostly in recent times — have provided the basis for our judgement of Indian culture throughout the Amazon basin, we probably have a false and somewhat one-sided picture of the cultural level of the Indians in the tropical forests. Nordenskiöld's research in Mojos and the valuable supplementation now provided by the work of Plafker and Denevan serve to underline this fact and show that we must now reckon with higher and more developed forms of culture in the tropical regions of the Amazon. The type of agriculture now discovered in Mojos, and the mound and road constructions observed, suggest the existence of a relatively large population with a developed social organization, greatly superior to the present primitive tribes in the same area. The sort of society that now appears with the mound culture in Mojos resembles rather that which made possible the first irrigation systems in the coastal valleys of Peru.

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