H. R. VAN HEEKEREN

STUDIES ON THE ARCHAEOLOGY OF THE NETHERLANDS ANTILLES: III

PREHISTORICAL RESEARCH ON THE ISLANDS OF CURAÇAO, ARUBA AND BONAIRE IN 1960

The following is a brief preliminary report, arranged in chronological order, of a four-month programme of field investigations, carried out by H. R. VAN HEEKEREN and C. J. DU RY (curators of the Rijksmuseum voor Volkenkunde – National Museum of Ethnology – Leiden) on the islands of Curaçao, Bonaire and Aruba, from 4th January till 30th April, 1960.

The expedition was financed by the 'Stichting Wetenschappelijk Onderzoek Suriname – Nederlandse Antillen 'Wosuna'' (Netherlands Foundation for the Advancement of Research in Surinam and the Netherlands Antilles), Amsterdam, which fact is hereby acknowledged with gratitude. We are also indebted to Dr. P. H. POTT, Director of the Leiden Museum, for his approval and permission to absent ourselves for so long from regular work and duty in the museum.

It also gives us pleasure to pay tribute to Dr. D. P. GLAZEMA, Director of the 'Rijksdienst voor Oudheidkundig Bodemonderzoek' (Government Department for Archaeological Ground Exploration), Amersfoort, for so willingly providing us with brand-new archaeological equipment for our excavations. Again thanks to WOSUNA, we were allowed to make studies of a comparative nature in Trinidad, Venezuela and New York where Dr. J. A. BULLBROOK, Professor J. M. CRUXENT and Professor IRVING ROUSE, respectively, gave us all the aid requested and contributed largely to our knowledge of Caribbean archaeology. In Curaçao it was to our advantage that two Dutch scientists were also exploring there: Mr. H. E. COOMANS, who most kindly identified for us shell collections which were amassed during the Rooi Rincón and St. Jan excavations, and Mr. P. H. DE BUISONJÉ, who was studying the Quaternary geology of this area. When asked for help and advice, both these gentlemen co-operated wholeheartedly in the enterprise, and presented us with interesting archaeological specimens. Members of the 'Natuurwetenschappelijke Werkgroep Nederlandse Antillen' (Natural Science Study Group of the Netherlands Antilles) aided us in their spare time with the digging in the rock shelter of Rooi Rincón, and in various other ways. I wish to make particular mention of the following persons: Mr. and Mrs. M. VAN VELD-

HOVEN, Mr. and Mrs. J. G. DE JONG, Mr. B. DE JONG, Mr. and Mrs. W. BROK, Mr. and Mrs. P. VAN DER WERF, Mr. and Mrs. J. W. M. DIEMONT, Miss P. KOK and Miss C. DECKER, who acted as local guides, gave practical help, valuable information, gifts of specimens and generous hospitality, services which I am pleased to put on record.

Mr. JOOP DEMONG and Mr. SIMON ERZILIA, the two local men who dug for us at St. Jan, were ever-cheerful and faithful companions in the field, and made our association with them a pleasure.

We shall remember with delight our stay in Venezuela, which was one of the most interesting and exciting experiences we could have had, thanks to the friendship and enthusiastic support of Professor J. M. CRUXENT, who allowed us to study and photograph his vast amount of archaeological material from Venezuela for purposes of comparison. He also conducted us to Cumaná, the peninsula of Araya and the adjacent island of Cubagua, where he showed us, among other things, the classic pre-ceramic sites of Manicuaire and Punta Gorda; all that time we had the benefit of his intimate and profound knowledge of the archaeology of Venezuela.

I am also glad to have the opportunity of thanking Dr. PEDRO ROJA MORALES and other authorities of the 'Instituto Oceanográfico, Universidad de Oriente' at Cumaná, as well as Mr. MARCEL ROCHE, Director of the 'Instituto de Venezuela de Investigaciones Científicas, IVIC,' Caracas, for their courtesy and regal hospitality, for all the kindness they showed us, and for the many facilities and special privileges offered to us.

We are also sincerely indebted to His Excellency Dr. H. N. BOON, ambassador of the Netherlands at Caracas, for his personal support and encouragement of our work. Others to whom we owe a debt of gratitude are Father R. NOOYEN, for his valuable help and information in Bonaire and for permission to study and photograph his well-documented archaeological collection, and, last but not least, Mr. and Mrs. W. VAN DE BEEK, Aruba, for their warm friendliness in taking us into their house and for their generous assistance in other ways.

Finally, we wish to express our special appreciation to all authorities and officials in Curaçao, Bonaire and Aruba, who contributed to our work and provided us with transport which greatly facilitated investigations.

CURAÇAO

The story of previous prehistorical research on the three islands has been told before, and for brevity's sake it is sufficient here to refer to the paper by H. R. VAN HEEKEREN.¹

We devoted most of our time to investigations on the island of Curaçao, which is a rather neglected area from the archaeological point of view. There seem to have been at least three definite levels of cultural development before the coming of

¹ H. R. VAN HEEKEREN, 1960: Studies on the Archaeology of the Netherlands Antilles II. A survey of the non-ceramic artifacts of Aruba, Curaçao and Bonaire. *Nieuwe West-Indische Gids* 40, 1960, p. 103-120.

the Spaniards, but the questions of their age and sequence remain unanswered. It must never be forgotten that at the time of the conquest three types of inhabitants (Ciboney, Arawak and Carib), possessing three distinct cultures, were living side by side in the Antilles.

PALAEO-INDIAN LEVEL OF DEVELOPMENT

After some reconnoitring and extensive collecting trips all over the island, we began by searching for pre- or non-ceramic sites, which were then completely unknown in Curaçao, and, for that matter, on the other two islands.

A large rock shelter in the Rooi Rincón¹, on the north coast, west of Hato Airfield, was selected for our first operations and systematic excavation. It is located in a ledge of quaternary limestone with a overhanging roof, in the highest (50–60 metres) marine terrace in the sequence.

The arbitrarily chosen starting point of the excavation proved to lie 41 metres above present sea level. The site is within easy reach of a well where fresh water can be obtained all the year round. On the ceiling we found traces of a red paint, but no real rock paintings were observed.

The information gathered from the excavation can be summarized as follows: digging commenced on 13th January and continued for fourteen days; operation progressed sector by sector and layer by layer. Groundplans and profiles were made by ourselves with the help of a levelling instrument. We did most of the digging, too; a local crew of four men was employed for only four days. A trench nine metres long, and three metres wide was excavated from the innermost side of the shelter to far outside, and another trench 5 × 4 metres at right angles to the first trench. Outside the shelter a trench measuring 6 × 3 metres was made. Beneath the present surface we found a rather thin (25 cm thick) hard-packed layer of refuse deposits containing numerous marine shells, fish and turtle vertebrae, particles of charcoal and, quite unexpectedly, a series of crudely chipped stone tools. The rock shelter did not appear to have been occupied as living quarters for a long time. The lower

¹ In this locality, which was mentioned by WAGENAAR HUMMELINCK in his first paper on the Indian rock drawings (*W.I.Gids* 34, 1953, p. 25: C5), A. D. RINGMA found relics of old indian settlements in July, 1949 (cf. Plate I, from *W.I.Gids* 39, 1959).

stratum, in which we continued digging down to a depth of $1\frac{1}{2}$ metres, contained no archaeological finds, and we did not encounter a clearly defined bottom.

The stone tools were of two classes: disc-like flakes with a clearly defined bulb of percussion and sometimes with marginal retouches; and heavy, flat-bottomed, high-backed pebble tools, planoconvex in cross-section, all of a very rude 'palaeolithic' appearance, which, for want of a better name, we have called 'choppers' or heavy planoconvex 'scrapers.'

There was no sign of pottery and, to our surprise, shell artifacts were absent except for a shell disc bead in the upper layer. Beyond a doubt this is a site which, at some more or less remote period, was occupied for a short time by Palaeo-Indians, perhaps the first men to set foot on Curaçao. In all likelihood the people who left the tools were on a very low cultural plane, living from hand to mouth, depending on anything they could find for nourishment and relying chiefly on sea food taken from the shore and from the shallow sea. It would be interesting to know from what source they got their carbohydrate supply and starchy foods in this region of severe drought. In any case, during this pre-productive stage, population density must have been low.

It stands to reason that only a comparison with analogous sites on the continent of South America could throw light on the nature and origin of the artifacts. In this respect we had the good fortune to see Professor CRUXENT's collections at Caracas, after our investigations on Curaçao and Bonaire had been completed.

It appeared that the cave tools of Curaçao are similar in type, character and technique, though not necessarily in age, to those of the El Jobo Industry from the Pedragal region of the state of Falcón, northwestern Venezuela.¹ However the former included no projectile points, which is not surprising if it is

¹ J. M. CRUXENT, 1956: A lithic industry of Palaeo-Indian type in Venezuela. *American Antiquity* 22, p. 172-179. - 1958: Discovery of a Palaeo-Indian Lithic Industry. *Proc. Thirty-second Intern. Congress of Americanists*, Copenhagen, 1956.

More than 11,000 stone implements shaped out of sandy quartzite were collected from the surface of 45 different sites. No stratigraphic or palaeontological evidence of antiquity was obtained. The distinctive feature about this industry is the presence of bifacial leaf-shaped projectile points, but there are also numerous knives, scrapers and choppers.

realized that the type of tools manufactured was determined mainly by environment. It must be remembered that Curaçao is strictly an oceanic island, and in consequence devoid of game; missile weapons are here of little or no use. On balance we therefore feel that the Curaçao Chopper-Cum-Flake Industry may be looked upon as a peripheral development of the El Jobo Complex. In the present state of research it is necessary to be very cautious in dating the newly discovered stone industry until such time as the results of radiocarbon dating have been received.

Taking into consideration the peripheral isolation of the people who were responsible for the stone tools, it seems possible that they were pushed out from expanding food-producing groups to Curaçao, where they found new land and had to adapt themselves to quite novel conditions, and where their economy may have persisted for an indefinite time. If that is so, they may be regarded as a marginal people, representing an earlier stage. However, the overall picture presented by the marine shells found in the rock shelter prompts the significant deduction that the shells were taken from lagoons and from shallow sea.¹

Nowadays the north coast of Curaçao is bordered by deep water, and only a few lagoons exist, all far away from the actual rock shelter. This suggests to me, at any rate, that the sea level has gone down considerably since the cave dwellers lived in the island, and that it must then have been 6–7 metres higher than at present. Consequently, the very wide terrace was submerged, and more lagoons were present, providing shallow water and good grounds for fishing and shellfish gathering. If my view is correct, it would argue a considerable

¹ Shells found in the Rooi Rincón excavation; named and counted by Mr. H. E. COOMANS, with the aid of Mrs. LUCY COOMANS.

GASTROPODA: *Livona pica* (Linné) 916 ex.; *Astraea imbricata* (Gmelin) 8 ex.; *Strombus gigas* Linné 103 ex.; *Charonia tritonis nobilis* (Conrad) 1 ex.; *Murex brevifrons* Lamarck 139 ex.; *Purpura patula* (Linné) 33 ex.; *Melongena melongena* (Linné) 70 ex.; *Latirus* spec. 1 ex.; *Vasum capitellum* (Linné) 2 ex.; *Voluta musica* Linné 1 ex. LAMELLIBRANCHIA: *Brachidontes exustus* (Linné) 1 ex.; *Pinctada radiata* (Leach) 7 ex.; *Pinna carnea* Gmelin 1 ex.; *Pecten ziczac* (Linné) 32 ex.; *Lima scraba* (Born) 185 ex.; *Ostrea rhizophorae* Guild. 16 ex.; *Ostrea frons* Linné 4 ex.; *Chama macerophylla* Gmelin 1140 ex.; *Trigonicocarda media* (Linné) 3 ex.; *Arca zebra* (Swainson) 563 ex.; *Arca umbonata* Lamarck 44 ex.; *Anadara notabilis* (Röding) 256 ex.; *Barbatia candida* Helbling 6 ex.

antiquity, of some thousands of years, for the stone industry. But this conclusion should be treated with some reserve, because account must be taken of the fact that local tectonics might equally well have produced the same effects. We cannot therefore claim to have formulated a final solution of this problem until the results of positive carbon-14 dating are known. Taking all this into consideration, it is better at the moment to defer final judgment until the El Jobo Industry, at present only partially studied, and reported on in a few short papers, has been more fully explored. Further research on this subject is in the competent hands of Professor CRUXENT, and we are eagerly looking forward to more exact typological and stratigraphical data on this most interesting and rather mysterious industry, the first of its kind found in South America.

We may expect more sites containing relics of this industry to be discovered on the island of Curaçao, and, in fact, we have already found rock shelters further to the west with traces of the same culture. Our time, however, was limited, and no more excavations were carried out. While much is yet to be learned about this question, there are already several promising lines along which we may hope to proceed.

MARGINAL LEVEL OF DEVELOPMENT

Along the coast of eastern Venezuela (especially in the José area, west of Barcelona), the Peninsula of Araya and the adjacent islands of Margarita and Cubagua, many shallow and deep shell middens, showing long sequences of occupation, have been discovered during the last decade. Some of them have been excavated by CRUXENT and ROUSE. It is interesting to note that certain of these middens, e.g. at Punta Gorda on the island of Cubagua and at El Heneal on the coast of western Venezuela, are clearly associated with sea levels lower than at present.

The culture revealed by them is now known as Manicuaroid. Characteristic relics are shell gouges (made of the lower part of the spire of *Strombus* and edge-ground; assumed to have been used in the manufacture of dugout canoes), bone projectile points, biconical slingstones and worked and unworked silices or pieces of quartz. Pottery is usually lacking in such sites,

which have an antiquity ranging roughly from 5,000 to around 1,000 B.C.¹

One of our aims was to search for similar pre-ceramic sites in Curaçao, though only a little time could be devoted to this problem. The following description is therefore of necessity rather documentary and theoretical, since our knowledge is admittedly meagre.

Tribute should be paid to Mr. J. G. DE JONG for being the first to take us to a series of shell accumulations on the northern beach of St. Joris Bay, lying only a few metres above the present level of the sea. The amount of time available did not permit digging, and our activities were restricted to surface surveying only. The physical composition of the deposits gave no indication of their age, and particles of charcoal were not found. No potsherds were present, but the distinctive feature of these windblown sites is the occurrence of tiny, used pieces of black flint, irregular in outline, without secondary trimming but with a well-pronounced bulb of percussion.

Beyond doubt these are man-made and have been introduced into the middens by human agency. We deliberately searched around the middens for pieces of flint, but did not succeed in finding one example. However all middens, and we inspected five of them, contained silices.

We cannot fully grasp the significance of these artifacts, but it is interesting to note that similar silices were found in the middens along the coast of eastern Venezuela, in the island of Trinidad and in British Guiana, where they belong to the Pedro García, Ortoire, and Alaka complexes, respectively. Radiocarbon datings for these complexes place them at ca. 500 B.C.

The Venezuelan middens were left by Marginal peoples or, to use CRUXENT & ROUSE's terms, by Neo-Indians of the First Period. The similarity of these middens to those of Curaçao prompts the tentative suggestion that they were probably also left behind by peoples who, like the Ciboney of parts of Haiti and western Cuba, were still in a primitive state of culture at the time of Columbus, also that of fishing and collecting, and

¹ IRVING ROUSE 1960: *Development of culture in the northern Andes, Amazonia, and the Caribbean Area*. Paper prepared in advance for participants in the 1960 Summer Symposia Programme at Wartenstein, Austria.

lived in relative isolation in small groups, moving about frequently. In this connection the shell detritus on the north slopes of the Tafelberg, and shell accumulations at Kintjan, should also be subjected to further critical study.

These same peoples were perhaps also responsible for the petroglyphs in red on rock walls and ceilings in the second marine terrace near Hato and elsewhere in Curaçao. WAGENAAR HUMMELINCK has been compiling a record of all rock paintings in the three islands, but a methodical and practical system of classification has still to be worked out.¹ So far we ourselves have fought shy of critically studying this difficult problem. The subject is of an ethnographic and symbolic nature, and should have the joint attention of archaeologist, ethnographer and art historian. This might produce information leading to more precise chronological definition and systematic analysis of stylistic factors.

We have inspected and photographed paintings in red on the rock at St. Jan Bay, Santa Marta, Tafelberg (where we found a large piece of red haematite near them), and Hato. At the last site a petroglyph of a human face had also been carved in the rock wall. The paintings consisted mostly of curvilinear patterns, symbols of unknown meaning; sometimes however, naturalistic figures occur. A test pit sunk near the paintings at Hato revealed only a little refuse, once again containing used black silices. It appears certain that these sites, which showed unmistakable signs of previous digging, never served as living quarters.

A. D. RINGMA made trenches here in January 1950, and the remains of five human skeletons, from infant and adult burials, were exhumed.² Unfortunately the skeletons were badly decomposed, and TACOMA found that no measurements could be taken from them.

Future research on shell middens in the open, and of rock paintings, should provide more exact data, making it possible to replace this short account, which, after all is only provisional, by a more extensive and accurate exposé.

FISHING AND GARDENING LEVEL OF DEVELOPMENT

This phase can, to some extent, be compared with ROUSE and CRUXENT'S Circum-Caribbean phase but, in contradiction to

¹ P. WAGENAAR HUMMELINCK, 1953: *Rotstekeningen van Curaçao, Aruba en Bonaire* (Linear Rock Designs of Curaçao, Aruba and Bonaire). *West-Indische Gids* 34, p. 173-209, 36 figs. (Issued separately in: *Uitgaven Natuurwetenschappelijke Werkgroep Nederlandse Antillen* 2). - 1957: II. *W.I.Gids* 37, p. 93-126, 49 figs. (Uitg. Werkgroep Ned. Ant. 6). - 1961: III. *Nieuwe W. I. Gids* 41, p. 83-126, 67 figs. (Uitg. Werkgroep Ned. Ant. 13).

² P. WAGENAAR HUMMELINCK, 1959: *Indiaanse skeletvondsten op Aruba en Curaçao* (Indian Skeletal Discoveries in Aruba and Curaçao). *W. I. Gids* 39, p. 77-94, 14 figs. - J. TACOMA, 1959: *Indian Skeletal Remains from Aruba*. *W. I. Gids* 39, p. 95-112, 15 figs. (Uitg. Werkgroep Ned. Ant. 9).

them we are not dealing with Caribs but with Arawaks. On the islands of Curaçao, Aruba and Bonaire, ancient settlements of American Indians who cultivated edible crops can easily be recognized by scattered potsherds and fractured shells covering the surface.

The sites are on the lee side of Curaçao, where wave action is at a minimum. Something like six localities of this kind can already be put on the map of the island, but it is certain that there are more.

One of the best known is Knip Plantation, near the west point of Curaçao, where Father A. J. VAN KOOLWIJK collected and dug trenches about eighty years ago. This site is still worth visiting for collecting purposes. It is, however, not well suited to methodical excavation because of the extreme hardness of the soil.

Another classic site, prolific in surface finds, is St. Jan. This has also been known since Van Koolwijk's days, and in 1923 Professor J. P. B. DE JOSSELIN DE JONG undertook exploration-work there. The actual spot is not far from St. Jan Bay, near the south coast.

Newly discovered sites are the one on both sides of the road leading from Caracas Bay to Montagne, shown to us by Mr. VAN VELDHoven, and that of Little Santa Marta, discovered by Brother ARNOLDO. Mr. J. G. DE JONG, who has found there a small fine shell pendant carved as a conventionalized frog of the Valencia phase, conducted us to this latter settlement; the shallow deposit lies directly on diabase, and has been disturbed by repeated ploughing.

We made extensive collections of the eroded material at all four sites, but St. Jan looked to us to be the most favourable for more detailed study and more systematic excavation.

Contact was made with the owner, Mr. W. E. SCHOTBORGH, who graciously gave us permission to excavate on his property and rendered us all the aid we asked for.

The first step taken was to lay out a rectangle of 9×5 metres (St. Jan I) and to strip it out of vegetation, which consisted of cacti and thorn scrub. Excavation began on 1st February, and two local men, who have greatly contributed to the results of the excavation, were employed for the digging-work.

The artifact-bearing deposit, which was composed of a light-brown soil, was only 30 cm thick in the eastern part of

the trench, becoming gradually shallower to the west, where the layer was a mere 7 cm in depth, resting on virgin reddish diabase; refuse, however, was abundant. Besides numerous broken shells and fish vertebrae, the bulk of the finds consisted of potsherds, of which more than 4,000 examples were amassed, ninety percent of them being sherds of simple utilitarian ware, the remainder bearing traces of painting such as black-on-plain, black-on-white, polychrome and appliqué. The finds included the beautifully painted hollow leg of a small tripod bowl, containing rattling pellets of the style known on the continent of Venezuela as *tierra de los Indios*. Some fragments of polished stone celts were also found, and charcoal samples for time analysis were taken from the lower stratum.

After bringing to a close our trial excavation at St. Jan I, on 7th February, we carried out exploratory boring and shifted some eighty metres to the east. The new site became the main theatre of operations, and was called St. Jan II. In all, eighty square metres were excavated during the following forty-one days, with the same local men doing the digging for us. Work progressed sector by sector and layer by layer.

The refuse deposit of stratified shell layers was much thicker, ranging from 40 cm to 60 cm in depth.¹ Samples of charcoal were taken at different places and from different horizons, in order to ascertain time sequence of occupation.

In the upper layers, banks of *Brachidontes recurvus* occur, and in other places banks of *Isognomon alata*. Beneath these banks mixtures of many sorts of shells were found, *Gastropoda* as well as *Lamellibranchia*. Not all the shells were those of edible animals. *Cyphoma gibbosa*, *Charonia tritonis nobilis*, *Conus granulatus* and *Pecten nodosus* had been used as ornaments, and were pierced with one or more holes. One of the most frequently

¹ Shells found in the St. Jan II excavation; named by Mr. H. E. COOMANS.

GASTROPODA: *Livona pica*; *Astraea imbricata*; *Nerita peloronta*; *Nerita virginea* (L.); *Strombus gigas*; *Strombus gallus*; *Polinices lacteus* (Guild.); *Trona zebra* (L.); *Luria cinerea* (Gmelin); *Cyphoma gibbosa* (L.); *Cassis flammea* (L.); *Cymatium muricinum* (Röding); *Charonia tritonis nobilis*; *Murex brevifrons*; *Pisania pusio* (Linné); *Melongena melongena*; *Vasum capitellum*; *Conus ranunculus*; *Conus granulatus* Linné; *Conus spec.*; *Terebra taurinum*. LAMELLIBRANCHIA: *Glycymeris decussata* (Linné); *Isognomon alata*; *Crassostrea rhizophorae*; *Ostrea cristata* Born; *Pecten nodosus* Linné; *Spondylus americanus*; *Lima scraba*; *Brachidontes recurvus*; *Chione cancellata*; *Codakia orbicularis*; *Chama macerophylla*. AMPHINEURA: *Acanthopleura granulata*.

found shells was that of *Melongena melongena*, which probably has died out in Curaçao and Aruba but is still living at Lac in Bonaire; in the lowest stratum of the excavation, only parts of *Strombus gigas* were found. The shell refuse contained numerous vertebrae of fish and turtles, less frequently bird's bones, and only a few lizard's bones.

Remains of mammals were scarce. Dr. D. A. HOOIJER, Rijksmuseum van Natuurlijke Historie, Leiden, has kindly identified the following species: *Dasyprocta* spec., aguti (right and left mandibular ramus); *Agouti paca* (L.), paca (left mandibular ramus with incisor, artificial hole in angular portion, possibly used as a charm or talisman); *Mazama simplicicornis* (Illiger), brocket (an antler and the distal part of a metatarsal); *Odocoileus gymnotis* (Wiegmann), white-tailed deer (an incomplete metatarsal, like that found in the De Josselin de Jong collection from St. Jan A.¹)

Some human skeletal remains, e.g. an upper jaw with teeth, were exhumed in the lowest stratum amidst refuse.

Postholes were discovered, indicating house structures, but it was not possible to get to know the shape and size of the houses.

The site, which in fact appeared to be a large refuse heap, was prolific in archaeological finds. Once again potsherds, varying in size from small scraps to large fragments which will make possible partial or even complete restoration of the vessel, represent the largest item in the refuse. Considerable time and effort will be required to bring order into the huge collection, and to analyze, restore and catalogue the vast amount of pottery. The same applies to evaluation of the zoological evidence, carbon-14 dating, and soil analyses. At present, therefore, we can merely list the most frequently found and most important types of objects.

More than ninety per cent of the potsherds were undecorated; they are sherds of simple hand-modelled utilitarian ware, shell-tempered and built up by the coiling process. The upper portion of this kind of pottery is often provided with one to five rim corrugations, which are frequently fingerprinted. On the surface of the finer ware, a slip has been applied.

Since the colours have been preserved, painting was probably done before baking. Polychrome, black-on-white, black-on-plain, and black-on-red colouring, rows of red balls, appliqué on the vessel walls as well as on the lugs, and painted horizontal

¹ D. A. HOOIJER, 1963: Mammalian remains from an Indian site on Curaçao. *Studies on the fauna of Curaçao and other Caribbean islands* 14, p. 119-122. - Cf. HOOIJER, 1960: Mammalian remains from Indian sites on Aruba. *Studies fauna Curaçao* 10, p. 154-157.

handles, are characteristic of this pottery. Punctate and niched designs, spiral and volute motifs, are relatively rare.

The paintings consist, generally speaking, of parallel lines. Base parts of large vessels and urns sometimes seem to have fabric printings, which are, in actual fact, the marks of knotless network impressed into a soft clay applied over the surface of the vessel wall.

Some modelled heads occur, grotesquely human in form and at one time attached to vessels as lugs. Considerable variation is sometimes seen, in the form of handles. Hollow rims are manifold. Painting is sometimes found, on the inside as well as the outside of bowls. Other indications of material culture obtained from the digging are clay *topia*, and fragments of ground trapezoid celts of igneous rock. Many of them were ground only on the bit, with the rest of the surface left rough. They are oval in cross-section or have the appearance of a flattened ellipse, and are short and broad with truncated narrow ends.

A further characteristic type of stone work, of which several examples were found, is the waisted hammer, and thin edge-ground pieces of sandstone which could have served as knives. The axes, among them several miniatures ones, all have double-bevelled bits.

There are shell pendants of many shapes and a great number of small shell disc beads. Most of the latter are pierced in the middle, but others have two holes on one surface converging into a single hole on the opposite face. Beads of the latter type made of earthenware were found at St. Jan, and of stone in Venezuela, indicating the Valencia phase.

The artifacts identified with this stage include portions of griddles used in the preparation of cassava cakes and broken parts of a slab type of *metate* (without leg supports), oval in outline with a slightly concave smooth surface, and *manos*, cylindrical in shape.

A striking find was that of a clay pipe for smoking. In addition a large curved axe made from the shield of a turtle deserves mention.

Only a relatively small portion of the site at St. Jan was excavated by us, and the greater part remains unexplored. Nevertheless, much evidence has already been forthcoming, strengthening and sometimes modifying former ideas and

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The site, which in fact appeared to be a large refuse heap, was prolific in archaeological finds. Once again potsherds, varying in size from small scraps to large fragments which will make possible partial or even complete restoration of the vessel, represent the largest item in the refuse. Considerable time and effort will be required to bring order into the huge collection, and to analyze, restore and catalogue the vast amount of pottery. The same applies to evaluation of the zoological evidence, carbon-14 dating, and soil analyses. At present, therefore, we can merely list the most frequently found and most important types of objects.

More than ninety per cent of the potsherds were undecorated; they are sherds of simple hand-modelled utilitarian ware, shell-tempered and built up by the coiling process. The upper portion of this kind of pottery is often provided with one to five rim corrugations, which are frequently fingerprinted. On the surface of the finer ware, a slip has been applied.

Since the colours have been preserved, painting was probably done before baking. Polychrome, black-on-white, black-on-plain, and black-on-red colouring, rows of red balls, appliqué on the vessel walls as well as on the lugs, and painted horizontal

¹ D. A. HOOIJER, 1963: Mammalian remains from an Indian site on Curaçao. *Studies on the fauna of Curaçao and other Caribbean islands* 14, p. 119-122. - Cf. HOOIJER, 1960: Mammalian remains from Indian sites on Aruba. *Studies fauna Curaçao* 10, p. 154-157.

handles, are characteristic of this pottery. Punctate and niched designs, spiral and volute motifs, are relatively rare.

The paintings consist, generally speaking, of parallel lines. Base parts of large vessels and urns sometimes seem to have fabric printings, which are, in actual fact, the marks of knotless network impressed into a soft clay applied over the surface of the vessel wall.

Some modelled heads occur, grotesquely human in form and at one time attached to vessels as lugs. Considerable variation is sometimes seen, in the form of handles. Hollow rims are manifold. Painting is sometimes found, on the inside as well as the outside of bowls. Other indications of material culture obtained from the digging are clay *topia*, and fragments of ground trapezoid celts of igneous rock. Many of them were ground only on the bit, with the rest of the surface left rough. They are oval in cross-section or have the appearance of a flattened ellipse, and are short and broad with truncated narrow ends.

A further characteristic type of stone work, of which several examples were found, is the waisted hammer, and thin edge-ground pieces of sandstone which could have served as knives. The axes, among them several miniatures ones, all have double-bevelled bits.

There are shell pendants of many shapes and a great number of small shell disc beads. Most of the latter are pierced in the middle, but others have two holes on one surface converging into a single hole on the opposite face. Beads of the latter type made of earthenware were found at St. Jan, and of stone in Venezuela, indicating the Valencia phase.

The artifacts identified with this stage include portions of griddles used in the preparation of cassava cakes and broken parts of a slab type of *metate* (without leg supports), oval in outline with a slightly concave smooth surface, and *manos*, cylindrical in shape.

A striking find was that of a clay pipe for smoking. In addition a large curved axe made from the shield of a turtle deserves mention.

Only a relatively small portion of the site at St. Jan was excavated by us, and the greater part remains unexplored. Nevertheless, much evidence has already been forthcoming, strengthening and sometimes modifying former ideas and

conclusions based on the study of collections at the Leiden Museum.¹

Our conclusions from data obtained from the St. Jan excavations can be tentatively summarized as follows. The overall picture of the life of the Caquetíos, who presumably spoke Arawakan languages and to whom it is reasonable to ascribe the finds at St. Jan's village and at analogous sites, is that of a sedentary community fully exploiting its favourable maritime environment. The women went out gathering shellfish, the men carried on coastal fishing and fowling, as is evidenced by the numerous remains of shells, crabs, parrotfish, lipfish, turtles, birds and a few lizards, found in the process of excavation.

For agriculture they had to rely on crops that fell into two categories: maize, as indicated by the presence of *metates* and *manos*, and bitter cassava (whose poison was removed by washing, grating, squeezing, boiling and toasting), for which our evidence is the finding of portions of griddles for baking manioc cakes. This points to cultural interaction between the eastern and western centres of South America.

The economy was one of fishing and farming with no animal husbandry. The only definite information regarding accommodation came from some postholes, suggesting the use of pile-houses. No ceremonial structures were found, but the discovery of human bones in the refuse seems to indicate (endo) cannibalism or sacrifice, the former being also known from the Caquetíos on the mainland of Venezuela.

We know relatively little concerning the burial customs. At Knip, VAN KOOLWIJK found a skull from a secondary burial lying on a dish and covered by three other dishes. Professor DE JOSSELIN DE JONG exhumed an extended human skeleton directly buried in the ground at St. Jan. Finally, A. D. RINGMA found a series of human skeletons in a rock shelter at Hato. Although it is rumoured that urn burial was practised in Curaçao, we have no definite evidence of it.

The villages are all close to the south coast, where there are

¹ C. J. DU RY, 1960: Studies on the Archaeology of the Netherlands Antilles I. Notes on the Pottery of Aruba, Curaçao and Bonaire. *Nieuwe West-Indische Gids* 40, p. 81-102, 2 figs., pl. 1-22. - H. R. VAN HEEKEREN, 1960: Studies Archaeol. Neth. Ant. II. A Survey of the Non-ceramic Artifacts of Aruba, Curaçao and Bonaire. *Nieuwe W. I. Gids* 40, p. 103-120, pl. 22-26. (Uitg. Werkgroep Ned. Ant. 10).

good canoe-launching stations and ample grounds for fishing and shellfish gathering. From the presence of a clay pipe it may be inferred that the people were familiar with tobacco smoking, and it is supposed that they also consumed alcoholic drinks for ritual purposes or for some other reason, as is common practice among all vegetable-growing folk in South America. Pottery was a woman's task. The people showed great artistic sensibility in its manufacture, generally indicative of the Fourth Period (1000 A.D. to 1500 A.D.), and containing elements of the Third Period of the Cruxent-Rouse Chronology.¹ When the food supply became more abundant, there must have been a considerable increase of population in Curaçao, and, for that matter, in Aruba and Bonaire. At least six village sites are to be found on Curaçao.

There was no recognizable evidence of warfare; stone celts and waisted hammerstones can, after all, be used, not only as weapons but also as tools. Except for some bone projectile points, missile weapons are unknown. There is ample evidence that the homeland of the invaders was in northwest Venezuela.

BONAIRE

Little can be said about our activities on the islands of Bonaire and Aruba, since they were chiefly directed towards orientation for future work. Reconnaissance trips were organized, surface collections amassed, charcoal collected for radiocarbon dating, and colour photographs made of rock paintings and archaeological sites on both islands. Finally, some brief test excavations were carried out.

Nevertheless, in spite of the short time available, i.e. twelve days on Bonaire and three weeks on Aruba, a very substantial amount of archaeological data was obtained. One of the things which struck us was the fact that, contrary to expectation, the classic sites where VAN KOOLWIJK collected eighty years ago are still prolific in surface finds. Apart from this, we obtained important collections from amateurs, both in Bonaire and in Aruba, containing entire painted vessels, bowls and pots, and human skeletal remains and skulls from the urn fields at Seroe

¹ J. M. CRUXENT & IRVING ROUSE, 1959. *An Archaeological Chronology of Venezuela*. Vols. I & II. *Social Science Monographs VI*, Pan American Union, Washington.

Noka and Savaneta in Aruba. These are now in process of being studied at the Institute of Anthropology in Utrecht.

Hence, considerable additional evidence became available with which to substantiate and modify the conclusions we had previously arrived at in the course of our study of the archaeological material in the Leiden Museum. Once more it became clear that archaeologically a distinction must be made between Curaçao and Bonaire on the one hand, and Aruba on the other. This tallies with the fact that Aruba is geographically more favorably situated for the transmission of mainland cultures than the other two islands.

On the latter islands it is still possible to make extensive excavations, but on Aruba the situation is growing precarious. Largescale sand quarrying has been taking place day after day for many years in the very heart of the famous prehistoric settlement containing urn fields at Seroe Noka. It is no exaggeration to state that approximately every fortnight an urn containing a human skeleton or a skull is exhumed. Usually these are demolished, or at best fall whole into incompetent hands. Important finds have found their way unlabeled and uncatalogued into private collections in the islands, where they are kept as curios.

But for the moment let us concentrate on Bonaire, before turning our attention to Aruba.

MARGINAL LEVEL OF DEVELOPMENT

While DU RY continued excavation at St. Jan on Curaçao, the present author paid a twelve-day visit to Bonaire, the most eastern of the three Dutch islands off the Venezuelan coast and largely unexplored territory. In his days VAN KOOLWIJK made some collections which are now in the Museum voor Volkenkunde at Leiden. More recently Father BRENNEKER, Father NOOYEN, Brother ARNOLDO, and lastly Messrs. DE BUISONJÉ and COOMANS, have made surface collections. Most of these were very generously presented to us by the finders.

I had to content myself with reconnaissance trips over the entire island in an effort to obtain more information about non-ceramic shell middens, which are very localized and difficult to detect on Bonaire. Moreover, it is very easy to fall into error in dealing with such material, since shellfish gathering is still practised today. Nevertheless, some shallow accumulations of shells on a plateau near Lagoen on the east coast gives light

indications of the presence there of temporary refuges of non-ceramic Indians who came by boats of some kind, conformed to their environment, and adapted themselves fully to a sea and shore economy. As a matter of fact, only one small shell gouge was found at Lagoen, associated with broken *Strombus* shells.

As stated before, shell gouges are key types of the material culture of Indians on a marginal level of development. Another shell gouge was found near the entrance of Spelonk Cave, with its numerous rock paintings, again suggesting that these paintings on the rock wall were executed by nomadic, non-ceramic Indians. The finest paintings, in red or in black, are those in Spelonk Cave and on the ceilings of rock shelters at Onima. Apart from curvilinear lines and concentric circles there are designs at Spelonk of a snake, a boat and two human creatures. Dotted lines are characteristic of the paintings in both Spelonk and Onima; sun emblems are typical of Onima.

FISHING AND GARDENING LEVEL OF DEVELOPMENT

As regards remains left by settled villagers, the sites of Put Bronswinkel, Wanapa and Esperanza are the best known. Surface collections were made by us at Wanapa and the newly discovered site of Esperanza, 700 metres northeast of the Roman Catholic church of Kralendijk. Esperanza lies on private land, but the owner, Mrs. PETRONELIA NICOLAAS, graciously gave permission to excavate. Two local men were employed for the digging. Two test trenches, measuring 3×3 and 4×4 metres were excavated.

The refuse deposits were very shallow (15–20 cm only) but very rich in finds. More than 3,000 potsherds were obtained, of which 8% were painted or ornamented with appliqué work. The painting was polychrome, black-on-plain, and black-on-white. The following elements are diagnostic: coffee-bean eyes, a crudely modelled anthropomorphic adorno as a lug, hollow legs of tripod vessels, rod-and-strap handles, lugs with coffee-bean eyes or with human faces, elaborately painted horizontal handles, punctated, hollow and corrugated fingerprinted rims. Among the decorations, we again see rows of red and black balls.

Most of the pottery is simple utilitarian ware, coarse in texture, with neck corrugations. As in Curaçao, the presence of simple slab *metates* without leg supports and *manos*, and griddle sherds, possibly indicates that maize and cassava were staple crops at

the time. Apart from pottery there were ground trapezoidal stone celts, shell celts, waisted cylindrical hammerstones, pierced shell beads, pierced entire shells, and cylindrical incised clay stamps. Colour, range of types, and designs are suggestive of the Dabajuroid and other styles of CRUXENT & ROUSE's Fourth Period, with some relics of the Third Period. The stone axes are again of the short, broad type with truncated narrow end. In VAN KOOLWIJK's collections, however, a large petaloid axe from Bonaire was noticed, and in Father NOOYEN's collection were two ground stone axes with a shallow encircling groove on the neck part.¹ Perhaps these axes were imports from the Greater Antilles and the Upper Amazon, respectively.

Shells, and turtle and fish bones are frequent, but mammal remains are, as might be expected, absent.

If the finds from the excavations of Esperanza and St. Jan in Curaçao are compared, considerable similarity will be noticed, even in the details. It is inconceivable that such a degree of similarity could exist without close maritime contact. The people who left these remains must therefore have been excellent seafarers, who set out in large canoes on inter-island voyages. Although dangerous currents and strong winds had to be faced, the sea was no serious barrier to intercourse between the two islands, since these were not wide apart, one being visible from the other in clear weather conditions.

ARUBA

PALAEO-INDIAN LEVEL OF DEVELOPMENT

After our sojourn in Trinidad and Venezuela where, as stated above, we made studies of a comparative nature, we had three weeks left for an archaeological survey of the island of Aruba.

The information obtained regarding the cultural characteristics of the Palaeo-Indians was slight. Only two pebble tools were found on the surface, in the neighbourhood of Quadirikiri Cave on the north coast. Typologically, they may be of the same class as artifacts found in the Rooi Rincón excavation in Curaçao. This tells us no more than that Curaçao and Aruba probably had similar stone industries, and this, so far, is all the information we have relating to Palaeo-Indians.

¹ BRENEKER, 1947: *Bonaire. Indianenbeitels*. 8 pp.

MARGINAL LEVEL OF DEVELOPMENT

In Aruba, rock paintings occur not only on the walls and ceilings of caves and rock shelters such as Fontein, Quadirikiri and Seroe Canashito, but also in cavities in the huge diorite blocks and boulders which are so characteristic of the landscape of this island. The finest pictures in red and white (and, more rarely, in black) are those discovered on the walls of two overhanging diorite blocks at Arikok. They are in a good state of preservation and have been painted with a white and red pigment. The wall paintings consist mainly of parallel lines and concentric circles, but some interesting anthropomorphic and zoomorphic figures also occur. A search around the surface of these sites produced several shell gouges, a number of tiny used silices, and some undecorated potsherds. Furthermore, a test excavation was carried out in the shallow deposits in the cavity containing rock paintings at Arikok. One shell gouge, some silices and undecorated potsherds, and a fragment of a ground stone axe were found on that occasion.

Although the identity of the artistic people who made the rock paintings remains to be established, it was emphasized earlier in this paper that, in our view, they were in all likelihood simple food gatherers, who subsisted mainly on sea food and used shell gouges made from the lower point of the spire of the conch and small silices as part of their equipment. The finds at Arikok may not support this opinion very impressively, but nevertheless it must be admitted that there is a growing body of evidence which seems to corroborate it. Similar discoveries of shell gouges, for instance, were made at Ajó, where curvilinear motifs in white and red paste also occur in a small cavity in a huge diorite block. A ground celt and some potsherds hinted at later invaders having inhabited the area, who probably venerated the paintings left behind by their predecessors.¹

FISHING AND GARDENING LEVEL OF DEVELOPMENT

In what follows an attempt will be made to give a brief survey of the most important finds the classic localities of Tanki Flip, Santa Cruz, Seroe Noka and Savaneta, left behind by sedentary people who practised a fishing-farming economy. All these sites

¹ WAGENAAR HUMMELINCK, in his papers on Indian rock drawings, already drew attention to the fact that at Arikok, Ajó and other Aruba localities, two or more rock paintings of a different type and colour have been carried out on top of each other.

are shallow, but cover large areas. The material collected on the sites is fairly uniform. Accordingly, for the sake of brevity, it will be treated as a whole. The ceramic complex shows similarities with that of the well-known sites on Curaçao and Bonaire. On the other hand, though here again we are relying on surface finds, it is obvious that substantial and significant differences exist. Let us first glance at the similarities, and next pay attention to the differences.

In Aruba, potsherds again form the most abundant material. Most of this pottery is simple utilitarian ware with or without neck corrugations with fingerprints. On the finer ware, painting and appliqué are predominant among the types of decoration. Painting is again sometimes found on the inside and outside of bowls and vessels; we see the same motifs and similar lugs, handles and rims, cylindrical clay stamps with deeply cut geometrical designs, coffee-bean eyes, rod-and-strap handles, solid and hollow rims, and legs, annular bases, combinations of appliqué and painting, and motifs in black-on-plain, black-on-red and polychrome.

Further similarities are trapezoidal, ground stone celts, shell celts, edge-ground pieces of sandstone, waisted hammerstones, large and small shell pendants of cut and pierced shells and large, thick, stone discs. We observed again, in close proximity with each other, simple *metates* without leg support and *manos*, suggesting seed plants, and parts of griddles pointing to root crops. Shell as a substitute for stone does not play such a large role as I had expected in any of the three islands. The proportion of shell celts is relatively small. Shell three-pointers with ground bases, round or square, are frequent in Curaçao and Bonaire as well as in Aruba.

Perhaps the most impressive differences are those relating to burial practices. Urn burial is little if at all known in Curaçao and Bonaire, but on Aruba rich urn burial grounds are to be found at Savaneta and Seroe Noka, half a metre beneath the present surface of the ground. Inhumation in a contracted position in a large pear-shaped urn covered by an inverted jar is common, and is found side by side with jars containing one or more human skulls with or without some long bones. We are here confronted with the custom of secondary burial, single or multiple. The skeletons brought to light were of both adults and children. It seems that funerary and religious rites were practised in Aruba, and that a greater degree of ceremonialism existed there,

than in the other islands, pointing to direct connection with the Valencia district on the mainland of Venezuela.

Other outstanding items not found in Curaçao and Bonaire are peculiarly modelled plastic zoomorphic rim adornos with eyes of the doughnut type and simple flat animal heads used as lugs, and an occasional human figurine of clay; the animal heads seem to represent mythological conceptions rather than real animals.

Worthy of note too is the presence of large shell discs which are sometimes perforated in the middle, and large and small eggshaped pebbles with longitudinal, shallow, encircling grooves. Their purpose is problematic, but perhaps they served as sling-stones or as net sinkers. On the earthenware, motifs of rows of red and black balls, and modelled clay human heads as lugs, as found in Curaçao and Bonaire, are absent.

In addition to sherds we also had the good fortune to obtain some entire vessels and an urn from Seroe Noka. The finest of these is a large, shapely, black-on-white painted open bowl with appliqué work and with perforated annular base, typical of the Dabajuroid style; unfortunately the surface is rather worn and much of the painting has vanished. Another complete specimen is a small pedestal dish of polished red earthenware adorned with black linear drawings.

It is obvious that in Aruba influences have come from more than one direction. The material cultural elements here discussed are Valencoid and Dabajuroid of the Fourth Period, with further influences from the Third Period, e.g. anthropomorphic face designs with coffee-bean eyes and arching appliqué brows which are sometimes punctated, and zoomorphic head-lugs.

HISTORICAL AND ETHNOGRAPHICAL BACKGROUND

The archaeological sites ascribed to the 'Fishing and Gardening Level of Development' have been dated 1000-1500 A.D. This culture was still flourishing when the first Spanish colonizing seafarers came into contact with the Indians of the area under discussion.

It might therefore be expected, that valuable information could be gained from the journals of the early conquerors about the daily life of the Indians at that time; this in view of the present fragmentary state of archaeological knowledge, would have been of great interest. Unfortunately, however, sources of

such information appear to be scarce, and the few records available are vague, prone to exaggeration, and sometimes controversial. Be this as it may, they cannot be entirely disregarded, and they seem to offer at least a few meagre additional data.

Credit should be given to ALFRED KIDDER II¹ for being the first to collect all available accounts and to place them against a historical background. The data that follow are extracted from his paper.

There is but little information regarding the island of Curaçao. VESPUCCI, it seems, visited it in the year 1497, or more likely in 1499, and called it the 'Islas de los Gigantes,' on account of the great stature of the Indians there, a fact certainly not confirmed by later invaders. We can confidently say that this is a clear instance of exaggeration. It is also stated that the Indians were armed with bows and arrows and knobbed clubs, went naked, and lived in huts, all of which sounds more credible. Accounts of the Caquetíos of the Coro Area are to be found in the records of NICOLAAS FEDERMANN; they are described as tall and pleasing-looking people, who lived in wooden houses on piles, and carried on trade among themselves and with other tribes, especially in salt. They used bows and unpoisoned arrows and heavy wooden swords called *macanas*.

OVIEDO Y VALDES gives some information on the Caquetíos of the Falcón district, which shows the closest archaeological analogies with the island of Aruba. The following passage, dealing with the practice of endocannibalism, is of more than passing interest. When a *cacique* died, his body was slowly roasted, the bones were dried and ground up, made into a porridge and eaten. On the occasion of the death of a *diao* (an especially powerful *cacique*) the body was placed in a hammock suspended over a low fire and thus preserved by smoke and heat, so that nothing remained but skin and bones. The mummy was then placed in a new hammock and left in the house until it fell apart. The bones were then ground up and eaten as a porridge, or put into a wine made of maize. The latter only if the bones were those of a paramount chief.

The same author records that the Caquetíos planted tobacco, which they smoked as cigars and used to foretell the future.

Of the Indians of the Caracas area it is reported that they cultivated maize, sweet potatoes, beans, tubers, fruit and coca.

Round Lake Valencia the people wore few or no clothes, and more than once it is recorded that the men wore penis gourds and the women a short apron; their wooden houses, on piles and thatched, were well built. The people adorned themselves with ornaments in nose, lips and ears. Hammocks were in general use.

Apart from the Caquetíos, other Indian tribes lived in the area at that time. One tribe in the State of Lara was called the Ayomanes; they were dwarfs. Another tribe was that of the Jirajaras. Of both tribes it is said

¹ ALFRED KIDDER II 1944: Archaeology of Northwestern Venezuela. *Papers of the Peabody Museum*, Vol. XXV, p. 9-20.

that they were warlike cannibals who were constantly fighting their neighbours.

Such in brief is the little that has come to light from journals of the first white colonists in northwestern Venezuela.

Study of the archaeology of Curaçao, Aruba and Bonaire has only been taken up again in recent years, and offers promise for future research. An increasing number of details have become known, and have led us to establish a threefold division. Each of the divisions represents a cultural development, but no definite opinion can be expressed as to whether it represents a period.

It is recognized that our suggestions are based mainly on archaeological grounds, and are therefore rather arbitrary.

EXPLANATION OF PLATES 2-4.

The specimens illustrated in the plates and figures are all in the Rijksmuseum voor Volkenkunde at Leiden. Where the measurements are not given, they may be computed by comparison with the scale index (*in cm*). The photographs were taken by Mr. C. ZWANENBURG, and for the fine drawings I am indebted to Mr. J. VAN DER POST, both of the Rijksmuseum voor Volkenkunde, Leiden.

PLATE 2 - St. Jan excavation, Curaçao.

1. Rimsherd with painted decoration on all faces; black-on-white. Mus. No. 3800-101; greatest thickness: 10.9 mm.
2. Sherd with painted linear decoration on the outer face; black-on-white. Mus. No. 3800-2053; gr. thickness: 6.6 mm.
3. Fragment of handle with painted linear decoration on the outer face; black-on-red. Mus. No. 3800-314; gr. thickness: 6.0 mm.
4. Rimsherd with painted linear decoration on the outer face; black-on-red. Mus. No. 3800-1810; gr. thickness: 7.8 mm.
5. Rimsherd with painted linear decoration on all faces; red-on-red. Mus. No. 3800-1981; gr. thickness: 6.0 mm.
6. Rimsherd with painted linear decoration on the outer face; red and black-on-red. Mus. No. 3800-2039; gr. thickness: 6.9 mm.
7. Rimsherd with painted linear decoration on the outer face; black-on-red. Mus. No. 3800-53; gr. thickness: 3.8 mm.
8. Fragment of handle with painted linear decoration on the outer face; black-on-white. Mus. No. 3800-182; gr. thickness: 10.2 mm.
9. Rimsherd with painted linear decoration and round blobs on the outer face; black-on-red. Mus. No. 3800-159; gr. thickness: 8.4 mm.
10. Sherd with painted linear and diablo decoration; black-on-white. Mus. No. 3800-2079; gr. thickness: 8.4 mm.
11. Sherd with spiral motif on the outer face; black-on-white. Mus. No. 3800-145; gr. thickness: 6.9 mm.
12. Rimsherd with linear decoration; red and black-on-white. Mus. No. 3800-1866; gr. thickness: 8.6 mm.

PLATE 3 - St. Jan excavation, Curaçao.

1. Rimsherd with cross-line decoration on the outer face; black-on-red, Mus. No. 3800-1791; gr. thickness: 7.4 mm.
2. Rimsherd with outflaring rim and linear decoration; black-on-red, Mus. No. 3800-1858; gr. thickness: 8.0 mm.
3. Annular base with linear decoration; black-on-red, Mus. No. 3800-200; gr. thickness: 9.4 mm.
4. Sherd with linear decoration on the outer face; black-on-red, Mus. No. 3800-153; gr. thickness: 6.0 mm.
5. Fragment of handle with spiral decoration; black-on-red, Mus. No. 3800-295; gr. thickness: 10.1 mm.
6. Rimsherd with linear decoration and round blobs on the outer face; red and black-on-red. On the inner face, crude with stripes; red and black alternately on red, Mus. No. 3800-1867; gr. thickness: 10.0 mm.
7. Fragment of handle with linear decoration and appliqué; black-on-white on all faces, Mus. No. 3800-318; gr. thickness: 5.6 mm.
8. Bottom-sherd with linear decoration on the outer face; red and black-on-white, Mus. No. 3800-2045; gr. thickness: 6 mm.
9. Upper part of a bowl with linear decoration and appliqué; black-on-white, Mus. No. 3800-166; gr. thickness: 4.9 mm.
10. Upper part of a small vessel with linear decoration and knoblug; black-on-white, Mus. No. 3800-2081; gr. thickness: 6 mm.

PLATE 4 - St. Jan excavation, Curaçao.

1. Sherd with linear and appliqué decoration; black-on-white, Mus. No. 3800-2040; gr. thickness: 11 mm.
2. Hollow leg of an open bowl with linear decoration; black-on-red, Mus. No. 3800-312.
3. Sherd with appliqué/coffee-bean eye (part of a human face), Mus. No. 3800-119; gr. thickness: 5 mm.
4. Sherd with appliqué (snake ornament), Mus. No. 3800-202; gr. thickness: 6 mm.
5. Foot lug, Mus. No. 3800-1987.
6. Animal lug, Mus. No. 3800-302.
7. Double-headed lug with linear decoration: red-on-red, Mus. No. 3800-124.

PLATE I. — Near Rooi Rincón excavation, CURAÇAO, with A. D. Ringma († 16. XI. 1957) at the foot of the steep limestone cliff where he found relics of old Indian settlements in July, 1949. (Photograph by P. Wagenaar Hummelinck, August, 1949).

PLATE 2. - Sherds from St. Jan excavation, CURAÇAO. See: 'Explanation of Plates 2-4'.

27

PLATE 3. - Sherds from St. Jan excavation, CURAÇAO. See: 'Explanation of Plates 2-4.'

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PLATE 4. - Sherds and lugs from St. Jan excavation, CURAÇAO. See:
'Explanation of Plates 2-4.'

PLATE 5a. - Rooi Rincón excavation, CURAÇAO. Large flake tool (Mus. No. 3800-1).

PLATE 5b. - Rooi Rincón excavation, CURAÇAO. Left: Unifacially chipped stone implement of the 'proto-hand axe' type (Mus. No. 3800-5). Right: Flake tool with marginal retouches (3800-11).

PLATE 6a. – St. Jan excavation, CURAÇAO. Clay pipe (Mus. No. 3800-165).

PLATE 6b. – St. Jan excavation, CURAÇAO. Curved axe with sharp cutting edge, made from a turtle shell (restored) (Mus. No. 3800-117).

PLATE 7a. - St. Jan excavation, CURAÇAO. Left: Effigy lug (Mus. No. 3800-210). Right: Cylindrical stamp with engraved human face (3800-136).

PLATE 7b. - St. Jan excavation, CURAÇAO. Left: Hammerstone (Mus. No. 3800-111). Middle: Strangled stone cutting tool (3800-115). Right: Stone celt (3800-113).

PLATE 8. — St. Jan excavation, CURAÇAO. Left: Shell celt (Mus. No. 3800-2332). Middle: Shell celt (3800-2333). Right: Shell celt (3800-2320).

PLATE 9. — St. Jan excavation, CURAÇAO. Left: Shell gouge (Mus. No. 3800-2533). First row from top downward: Shell disc (3800-2321); shell disc (3800-2323); shell disc (3800-2325). Second row from top downward: Perforated shell disc (3800-2322); perforated shell disc (3800-2331); perforated shell disc (3800-2534). Right: Shell spoon (3800-2319).

PLATE 10. – Seroe Noka, ARUBA. Shallow footed bowl. Straight-line decoration, black-on-red (Mus. No. Brl. 123-2). Total height: 61 mm; diameter bowl: 180 mm; height foot: 25 mm; diameter foot: 76 mm.

PLATE II. – Seroe Noka, ARUBA. Undecorated vessel with bulging body on foot (Mus. No. Brl. 123-3). Total height: 222 mm; diameter mouth: 187 mm; diameter foot: 112 mm.

PLATE 12. – Seroe Noka, ARUBA. Open bowl with appliqué and with painted decoration on perforated foot (Mus. No. Brl. 123-1). Total height: 320 mm; diameter mouth: 352 mm; height foot: 81 mm; diameter foot: 55 mm; thickness rim: 9 mm.