THE
GOLD COAST REVIEW

Vol. V.—No. 1.

July-December

PRINTED BY
THE GOVERNMENT PRINTER, ACCRA, GOLD COAST.

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1931.

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PREFACE.

IT IS conceivable that the elaborate outline suggested for the guidance of those who might wish to send in contributions, which appeared in the first two numbers of the GOLD COAST REVIEW, *may have been responsible for the small number of articles hitherto received for publication. In order to remove the impression that only scientific articles are required and to make the* REVIEW *more popular with a larger class of writer, I wish to say that I shall be glad to receive for publication in the* REVIEW *any short accounts on any of the following subjects:— Animals and animal life: wild, domesticated and domestic; Bird and bird life; Trees, plants, shrubs, flowers, their usefulness as medicine, etc.; Fishes and Fishing Industry; Lagoons; Rivers; Forests; Mountains and hill ranges; Groves; Customs and Usages; Customary laws; Institutions and the various constitutions in the Gold Coast; Monographs on fetishes; Castles of the Coast; Interesting African personalities.*

THE EDITOR.

THE ANANSESEM IN GOLD COAST SCHOOLS.

I.—Their Place And Value In The School Curriculum.

The narration and acting of Anansesem (Spider Stories) as one of the varied occupations in which Infant children engage has become during the past four years an almost universal practice in Gold Coast Schools. It is essentially an exercise in language training, but much more may be claimed for it. It has been the response, very largely spontaneous, of teachers to emphatic pronouncements by educationists as to the importance of the vernacular and implies the realisation at least that the *speaking* of one's native tongue improves by cultivation. At one time it was considered that an Infant pupil "knew" his mother tongue when he came to school; he straightway began to learn English speaking, reading and writing. The principal result was a characteristic Afro-English idiom. There is little "pidgin," in its proper meaning, in current Gold Coast English; its idiomatic peculiarities are those of the languages from which it is translated.

Teachers have now a simpler task. Pupils learn to read and write words and sentences with the meaning of which they are thoroughly familiar. The vernacular is definitely the medium of instruction in reading and writing, i.e. in the mastery of the visual representation of articulate speech. Progress in reading and writing is distincly more rapid and more secure.

The next step was to introduce the idea of language training in the mother tongue, i.e. the vernacular as a subject of instruction, as well as the medium of instruction in reading and writing. This was to teachers a new idea; to illiterate parents it is still incomprehensible, and to them training in vernacular speaking, directed by Europeans, appears to be a waste of time. They say so, and find a motive:

children might learn so much about English and other subjects that *matter*, that they would grow up to a state of intellectual equality with Europeans, and become fit to rule the destinies of their own country ; consequently a large proportion of their time is wasted at school with vernacular speaking, which they *know*, as well as with other frivolities. One can discover this idea in the minds of illiterate chiefs, though it is not directly expressed. For people with these views the telling of Anansesem in schools is a crowning frivolity.

If illiterates have regarded Anansesem as waste of children's school time, teachers and literates have considered them worthy of contempt ; they have been inclined to be ashamed of them. Denationalisation has in fact made considerable progress. In certain Infant School libraries may be found " The Adventures of Dilly Duckling " from which with apologies to the authoress for verbal inaccuracy the following is quoted from memory :—

" He wasn't the least bit flustered
He got a bag and put in it
Sandwiches (plenty of mustard),
And ran off to sea, that minute."

This is printed in English and sponsored by an English Press. Many sophisticated teachers who despise Anansesem would treat it, for these reasons, with serious respect. One wonders, but will never know, what an African child who, before coming to school has absorbed the full-blooded adventures of Ananse and his competitors, makes of " Dilly Duckling."

Anansesem in schools have met with opposition for another reason. The telling of them in daylight is taboo, not perhaps in the serious African meaning of the word ; at any rate it is " not done." If one tells Anansesem in daylight one gets a certain hip disease which makes one's waist like Ananse's. This is not black superstition. It is superstition of the kind prevalent in Europe ; telling Anansesem in daylight is as dangerous as salt-spilling, mirror-breaking or walking under ladders. Would English Board School Teachers introduce any of these practices

(useless and wasteful, two of them, just as natives consider Anansesem in schools to be) into their schools at the behest of Education Authorities, for any conceivable good reason? Behind the Anansesem superstition is sound sense; an adult who has time to tell and hear Anansesem by daylight is an idle person. In most parts of the country the head of a snake which has been killed is buried. This is "superstition" and practical sense; the head may still be venomous and the people don't wear boots.

Anansesem constitutes the only original literature of the Akan peoples. They are plastic material for speech practice in infant schools, in a way that translated Bible stories or moral stories are not. Other than these, there is no ready-made material for language practice. A teacher converted to a realisation of the necessity for training in vernacular speaking needs no conversion to the use of Anansesem. They are the obvious instrument.

The foregoing is largely an attempt to assert what, after Mr. A. V. Murray ("The psychological case for the Vernacular") may be called the psychological value of the Anansesem. Have they a cultural value? "The soul of a people is enshrined in its language," says Mr. Murray "is the phrase that darkens counsel." Might one not hope to find traces of such an elusive entity as a people's "soul" in its folk-lore, however puerile. One has heard that St. George killed a dragon and that St. Patrick drove away snakes. This is all that many people know about these patron Saints. Common knowledge of such bald legends contributes to a feeling of national consciousness. Ananse captured alive a hive of bees, a leopard and a snake and did many wondrous deeds besides. "Hurrah for Harry, England and St. George" was an inspiring war cry. What, for its hearers, was the precise connotation of "St. George"?

Mr. E. J. P. Brown in his *Gold Coast and Asianti Readers* compares the tasks performed by Ananse to the Labours of Hercules. Why not? Hercules got his "soul" from Aeschyus and Euripides and without them, or before them, was as puerile and ridiculous as Ananse. This is not to suggest that the Anansesem

might, like pre-Homeric legend, be the beginning of a national Literature.

"The founders of vernacular literature in Europe were all people who not only spoke the vernacular but were also masters of another language with a literature that already existed." Mr. Murray persuades one by citation of precedents that this can be the only way. But one might expect some of the stories to obtain a certain dignity, through allusive reference, in a literature of the future. Ntikuma (Ananse's son) is to be seen in the heavens as we have seen for centuries Jupiter or Mars. Ananse was never more grossly human or contemptible than, on one occasion, was Mars.

The Anansesem are cousin-german to the Brer Rabbit stories of the American negro. "Brer Rabbit and the Tar Baby" derives obviously from the same original story as one of the best known and most popular of Ananse stories concerning Ananse and a rubber-smeared doll. But it is surprising to find parallel stories in Hindu Folk-Lore. "Da w'amoan" (stay in your pit), a proverbial expression derived from a judgment of Ananse's, is the theme of the tale of the "Tiger and the Brahmin," a well-known Hindu story. It seems impossible to suppose they have a common ancestry and the Anansesem (it is printed in the "Twi Kenkaŋ Nhoma") is almost certainly a genuine original story—not one brought in by Europeans.

In at least one senior boarding school of the Presbyterian Church the telling of Anansesem on Saturday evenings is a prescribed recreation. The writer had the privilege of attending some of these recitals. At them pupils were acquiring in really lively and practical fashion the arts of rhetoric and mental concentration in public, in the stimulating presence of the most formidable of critics—their equals. Pupils of the same age and mental growth (Upper Standard Classes) may still be heard declaiming, as "Recitation" during regular school hours such pieces as Shelley's "Ode to the Skylark" and Milton's "Sonnet on his blindness." The experience is disheartening.

Finally, to put the claims of Anansesem on their least exalted level of utility,—they *please* infant children. The Anansesem lesson is padding for the day's framework of disciplined mental effort. And they thus provide for many an untrained " teacher " an experience he would not otherwise know, that of teaching to attentive hearers a subject of which he is master ; for such a teacher this experience is a psychological adventure, in that his mind is occupied with the mental reactions of his pupils, not pre-occupied with the difficulty of his subject. Totally untrained and unqualified teachers, of whom there is still such a large proportion in infant classes of schools in the Colony, do not really *know* the very elementary class-work subjects they teach to Infant children. This kind of teacher would rather read text-books *at* Standard IV than teach the elements, which he has not really assimilated, to infant classes. The writer has seen an infant teacher performing a simple paper-folding operation, in front of his class, by guess-work, whilst a number of his pupils with an innate geometrical sense performed the same operation with precision. I need not qualify the assertion that some infant pupils have greater mental capacity, independent of mental content, than some 17-year-old " teachers." But in the handling of Anansesem the teacher obtains credit from his pupils for omniscience. In short they help him to learn to teach.

II.—THE NATURE OF THE STORIES.

Anansesem means, in word equivalents, Spider Stories. The origin of the name is explained in one of the best known of the fables themselves. It is told in edited form in the *Gold Coast and Asianti Reader*, by Mr. E. J. P. Brown. Ananse was rewarded by Ɔŋyankopɔŋ (God) for the performance of certain seemingly impossible tasks, consisting in the capture alive of various dangerous creatures, with the right to call the collection of fables previously called " Nyamesem " or " Nyankosem " by the name of Anansesem. At the hands, or on the lips, of teachers and pupils in " bush " Infant Schools Ananse has

already acquired much more extensive rights. One has heard described as Anansesem such perennial European stories as "Mercury and the Woodman," "The Boy who called Wolf" and "George Washington and his Little Hatchet." This last is not without humour; if George Washington never told a lie, one of his biographers did. For most sophisticated and literally-minded teachers an Anansesem is "a story which is not true."

To revert to Mr. Brown's version of the story concerning the origin of Anansesem. The story, as he tells it is complete and neatly rounded off in such manner as to justify his finding in it an analogy with the Labours of Hercules.

He suggests that Ananse should be represented in Art as was Hercules, but without club or leopard skin. If one is conscious of a slight feeling of absurdity in taking Ananse seriously, one is reassured by the fact that an enlightened and educated Fanti has already done so. Sophisticated teachers do not.

There is however something very inadequate about the parallel of Ananse with Hercules. The *wily* Ulysses or the *pious* Aeneas would form a more suggestive comparison. Ananse's essential quality was "nimdee" (subtlety), which seems etymologically to mean "knowing a thing or two," as was also that of Ulysses; and Ulysses occasionally, though not so frequently as the Ananse of what we may assume to be later stories, provided illustration of "Se obi anitew bebrebe a, ɔdaŋ kwasɛa" (if one is too clever, he becomes a fool). At present Ananse is represented in Art, i.e. in Infant School illustrations, as spider or man according to taste or convenience.

It would seem from one's experience that the number of good original Anansesem is by no means unlimited. It would not however be difficult to collect a hundred such stories, original and distinct in plot. Probably many which are told amongst adults would fail to pass a censor with a modern European standard of decency, and will consequently never be heard in schools. (This is not to imply that many of the stories are coarse; the Ananse saga as a

whole are probably less so than any primitive folk-lore or mythology with which we are acquainted). There are besides many stories, of which a few selected specimens are popular in schools, which appeal only to adult experience.

To this class belongs stories concerning "Ɔbeabi ŋene ba" (A certain woman and her child) or "akorafo banu" (Two fellow-wives). They are generally told by little girls who seem to pay more attention to the form of the telling than do boys, and in their original form may represent the women's contribution to Akan folklore. "Ɔbea bi ŋe ne ba" is invariably the prelude to a tragedy told in a manner comparable with that of some of the more dismal Celtic prose poems which in Europe find favour with many. The "akorafo" stories would seem to be undoubtedly the work, originally, of women. They are all variations of one plot leading to the moral "Sɛ wopɛ wo yoŋko (kora) ti atwa a, wotwa wo de" ("If you wish your neighbour's (or fellow-wife's) head to be cut off you cut your own") and deprecating rivalry. It is amusing but unconvincing to suppose that such a story as one of these might be ascribed to a much-married polygamist whose object was peace in the home. Some teachers think "It may *be* so"—a phrase implying much stronger probability than "It *may* be so" of English usage. But others (i.e. male teachers) are unwilling to allow women credit for Anansesem which, now that they are recognised in schools, are beginning to acquire, in their eyes, the status of literature. Here is an opportunity for feminists. The number of girls who obtain a complete elementary education in Gold Coast Schools is still comparatively small; but such of them as do receive it, do so under conditions, at boarding schools supervised by Europeans, which favour study of the humanities. Will women be the pioneers of a vernacular literature?

Three kinds of stories make up the bulk of Anansesem; I would label them Moral Stories, Just-so Stories and Women's Stories, to which last reference has been made above.

III.—MORAL STORIES.

By "Moral Stories" is meant stories which illustrate maxims or proverbs. The morals most commonly drawn are :—

1. "Sɛ wopɛ woyoŋko ti atwa a, wo twa wode" (If you wish for your neighbour's head to be cut off you cut off your own).
2. "Sɛ woamma wo yonko atwa nkroŋ a, worentwa du" (If you do not allow your neighbour to get nine you won't get ten).
3. "Ade a wompɛ sɛ wɔde yɛ wo no, mfa nyɛ wo yoŋko" (Whatever you don't like people to do to you, do not do it to your neighbour) . . . . all negative versions of the Golden Rule.

The following is a Moral Story. Ananse once obtained a town for himself, thus :—

One day Ananse went to Ɔŋyankopɔŋ and said to him that if he would give him a grain of corn he would get him something worth while for it. Ɔŋyankopɔŋ gave the grain to him and he went away with it. And as he was walking through the bush he saw some women carrying loads to market. And Ananse begged one of the women to let him leave his grain of corn in the basin she bore on her head, because he wanted to "go into the bush" (Kɔ dua so) and return. And in the basin also was a cock (trussed up of course for transport). And Ananse knew that the cock would eat the grain of corn.

The cock of course did so and Ananse on his return demanded and obtained the cock in "exchange" for the corn it had eaten. His next venture was the exchange of the dead cock, which he himself had killed, for a sheep which he accused of killing it. He then exchanged the live sheep for a dead woman—this was not a forced bargain ; a live sheep had more intrinsic value than a dead woman, but Ananse had acquired experience in the value of damaged property. He brought the dead woman by night

to the nearest town on his way and obtained permission for "his wife" to sleep in some women's quarters. Because the woman smelt offensively the other women flogged her and "in the morning Ananse's wife was dead."

Then Ananse said that the women had killed his wife and the people begged his pardon and said he could take two of the women instead. But Ananse did not agree. Then the people said Ananse could have all of the women. But still Ananse did not agree. And when the people said Ananse could have half the town, he did not agree. Then the people gave Ananse the whole town and Ananse went back and told Ɔŋyankopɔŋ and Ɔŋyankopɔŋ made him king of the town.

I have never heard a moral drawn to this story. But "caveat emptor" is a basic principle of the English Law of Sale, though duress or blackmail is barred, and the millionaire who had started "life" with half-a-crown in a great city was cited in the days of Good Queen Victoria as an exemplar.

Ananse reaped the reward of "nimdee" and unremitting attention to business. The plot at any rate is to be found in the folk-lore of any country.

There are few stories of this kind wherein "nimdee" brings Ananse profit and fortune. Were we constructing Ananse's biography we might assign this adventure and that of winning title to the Anansesem to his youth, before his son Ntikuma, an unbearable prig, grew up to refute and confound him at every turn. In later life we should find Ananse a perpetual illustration of "Sɛ obi ani tew bebrebe a, ɔdaŋ kwasea" (If one is too clever, he becomes a fool).

The place of Ɔŋyankopɔŋ in Ananse's cosmos presents a practical problem in schools. Ɔŋyankopɔŋ had a pre-Christian connotation which it still has for the heathen and still maintains in the Anansesem. It may have meant originally what "Zeus" meant for the Epicurean, the chief of a theocracy which took no interest in the affairs of men. In Anansesem it may have meant originally what "Jehovah" meant in the old Testament, a very human deity. Its free

use on the lips of infant children telling these stories gives their European hearers an uneasy feeling of irreverence, to use no stronger word, of which the children themselves are quite unconscious. It is difficult to believe that the Ɔŋyankopɔŋ of Bible stories is completely dissociated in their minds from the Ɔŋyankopɔŋ of the Anansesem. The substitution of "Ananse Kokuroko" (Mighty Spider) which would seem to have originated with Missionaries, has not had final success. Children learn Anansesem before they come to school, largely from heathen parents. Mr. E. J. P. Brown derives the Fanti form of Ɔŋyankopɔŋ from words meaning "Great Friend." One is informed that the derivation popular with native pastors is that of Ɔnyame from Ɔnya me—"he holds (supports) me" or "he holds my destiny" (i.e. controls it). These are, one would think, definitely Christian conceptions of God. Mr. de Graft Johnson thinks the name "might conceivably be traced to 'Nimrod' or 'Nim' under whose guidance the Cuthim undertook the building of the pyramidal tower." He would further derive Osei from "Osiris" of ancient Egypt. In *Towards nationhood in West Africa* he says, "The whole subject needs careful study; this makes it all the more amusing when present-day foreign writers descant upon our religion and customs as though they were of yesterday's growth." In view of this, one has no excuse for further indiscreet irrelevance.

It seems unnecessary to illustrate the Moral Stories as such. The three common morals already mentioned will fit almost any drama with a humanly happy ending, generally constituted in these stories by the discomfiture of the greedy and treacherous Ananse. Good original Anansesem are never built up to a moral after the laborious manner of Aesop.

IV.—"JUST-SO" STORIES.

It is assumed that Kipling obtained from Indian Folklore the inspiration for his *Just-so Stories*. He might equally well have obtained it from the Ananse Saga.

The following are some of the matters of cosmic interest which are solved by the Anansesem :—

How the Tortoise got his Shell.
Why the Cat says " M ' ani awu " (I am ashamed).
Why the Lizard moves his head up and down.
Why the Wasp (Hornet) has a small waist.
Why the Driver Ant has a bad smell.
Why one's reflected image in a bottle is ugly.
Why there are both white men and black men in the world.
Why the Clockbird is red (at least in the mating season).
Why Death is everywhere.
Why Ananse is everywhere (This seems like a parody of the previous story).
Why the Dog now lives with man.
Why the Butterfly spreads its wings and the Cuckoo says " Cuckoo."
Why the snake turns up his belly when one kills him.

There are others innumerable. The " Just-so " in these stories is an essential part, and issues naturally from the facts. With " morals " it is otherwise ; either the moral which the story is best able to bear is duly appended (any melodrama has for moral, " Sɛ wopɛ wo yonko ti atwa a, wotwa wo de " which surely is one of the " only three plots ") ; or—and I believe this refers only to " apocryphal " stories,—a dull artificial story is built precisely up to the required moral in the laborious Aesopian fashion of the early Basel Missionaries. It is not, I think, unfair to the animistic heathen to say that his duty towards his neighbour was rooted in " Sɛ wopɛ wo yɔŋko ti atwa a, wotwa wo de " and his duty towards his gods in propitation for offences unwittingly incurred. Stories whose moral teaching rises to the height of the Golden Rule are not genuine or original. Miss Susan Bryant in the preface to her *Stories to tell to the Children* has the courage to deprecate an undue proportion of moral stories ; the jam comes before the pill, and the pill is not taken. Children have " their own way of dealing with " the morals presented to them by well-intentioned elders. We may recognise the educative,

even aesthetic, value of Anansesem, and frankly acknowledge that they have no value as moral instruction. (Who dares to derive a moral from the story of the theft of Esau's blessing by Jacob, with Rebecca as accomplice—a favourite with infant children ? Ananse might have been the " hero ").

To revert to the Just-so Stories. African children certainly *like* these. European parents like " Just-so " stories and " Alice." Most of us, understanding as little as we do of psychology, are distressed to find that many, if not most, European children do not. " Alice " and " Best-beloved " do not like to be patronised and made fun of. But the Just-so Stories of the Ananse saga are appreciated both by parents and children. One hardly dares to say now-a-days that the adult African illiterate has the mind of a child ; let us say the African child has the mind of a man ; he does not, like the European child, live in a different world from the " grown-ups." When the illiterate African woman bears on her head a kerosine tin of water (less picturesque but more practical than a calabash), her child precedes or follows her with a cigarette tin. He is of the economic machinery, and his earliest years are years of discretion.

Presumably the cosmic explanations of the Anansesem satisfy African illiterates. Why should they not ? The Old Testament explanation of the rainbow has satisfied millions. The Anansesem explain, for example, why the lizard moves his head up and down and why the cat says " M ' ani awu." Enlightened people, who think such a belief as that in the Santa Claus fable good for children, *don't know*.

One would repeat : African children like these stories, which introduce to them the concept of universal causality, to which, by their thought processes, others than Africans frequently display themselves strangers.

Why there are White as well as Black people in the world is explained as follows :—

> " At the beginning there were two men and their wives who ' lived somewhere.' And Ɔŋyankopɔŋ told them that there was a certain

fine pool to wash in and showed them the path to it. And one man and his wife went and washed in the pool and their skins became white. But the other man and his wife were going to have a meal and said they would go after they had finished it. (In expressively simple Afro-English 'make we chop before'). And when they came to the pool they found that the first man and his wife had used nearly all the water. So they stood in the pool and tried to take up the water with their hands. But the water was soon all finished. That is why the palms and soles of a black man are white."

I have not heard this story told in schools, though it is known to many, presumably most, teachers. It is no more derogatory to the African than "Shem's" story as it is found in the Old Testament, which latter obviously offends (cf. J. W. de Graft Johnson in *Towards Nationhood in West Africa passim* and, in particular, Chapter XIX).

"How the Tortoise got his Shell" is told in Barker and Sinclair's *West African Folk Tales*—an Ewe version apparently. ("Klo" and "Kuklovi" are the Ewe equivalents of "Akykyere" (Tortoise) and "Akokɔba" (Chicken). One Twi version is the following :—

"One day Chicken asked Ɔŋyankopɔŋ to give him a mattock to make palm wine. And Ɔŋyankopɔŋ refused, so Chicken went to a refuse heap and found a piece of knife and with it he cut down fifty palms. Not long afterwards Ɔŋyankopɔŋ wished to buy some palm-wine and he sent Buffalo to Chicken for it. And Chicken said 'I don't sell my wine for money, but for fighting.' So Buffalo fought with Chicken and Chicken conquered him and took off his horns and sent him back to Ɔŋyankopɔŋ in disgrace.

Then Ɔŋyankopɔŋ sent Elephant but Chicken conquered him also. And many other powerful beasts were sent, but none succeeded. At last Tortoise came and asked Ɔŋyankopɔŋ if he might go. But Ɔŋyankopɔŋ said he would not allow

it because even Elephant had failed. So Tortoise went secretly without permission, and defeated Chicken and brought some of the wine in a large pot. But the people when they heard he was coming, were afraid of an animal so terrible, since he had done what Elephant could not do, and closed all the doors of their houses. At last Tortoise saw a small hole under one door and tried to pass under it. When he was doing so, the pot broke and part of it stuck to his back."

The narrator concludes :—" Ɛne akykyere akyi abo abo no." (It is the shell on Tortoise's back).

JUST-SO !

One might expect " Chicken Rampant " meeting all-comers to hit a child's appreciation. It does. It is needless to point the contrast with " Dilly Duckling."

When one kills a snake he turns up his belly towards his destroyer. This is a reproach and signifies " I have eaten nothing of yours." The story is as follows :—

" Once when Ananse was taking a walk in the bush he saw a long ' putu '* of yam, but at first he did not see anyone in it. But afterwards he saw Snake lying on top of the putu. And Ananse asked him ' Whose putu is this ' ? ' It is mine ' Snake replied. And Ananse said that if Snake would give him half of the yams to eat he would allow him to bite him to death after he had eaten them. And Snake agreed. (Ananse not infrequently made a bargain of this kind ; it was always promptly accepted ; it is not evident whether this was due to his succulence or to his unpopularity).

" And when Ananse had eaten all the yams which Snake gave him, he sent a message to Snake telling him that he had finished and that he might ' come ' (to claim his ' pound of flesh '). But when Snake came Ananse was repairing the roof of his house. So Snake sat down at the door to wait for him. And he saw that the

*A wooden framework in which yams are stocked to ventilate them and keep them from rotting.

last of the yams was boiling in the room. But Ananse had a long pointed stick with which he took pieces of yam out of the pot below him and ate them all. And Snake's back was turned to the fire so that he did not see this. And when Ananse had finished, he came down from the roof to have his last meal. And he 'was surprised' to find that someone had taken the yam out of the pot. So he called all his children in order that he might 'ask their heads' (Sɛ ɔbebisa wɔŋ ti)—(the idea is trial by ordeal). Then he sharpened his cutlass and told his eldest son, Ntikuma, to lay his head on a block of wood and said 'Cutlass if this is the one who ate the yam, cut him in two for me.' But when he struck Ntikuma he cleverly turned the back of the cutlass so that Ntikuma was not hurt.

And Ananse did the same with all his children but none were hurt. And Snake who was witness to all this thought 'the people' would blame him for stealing the yam. So he asked Ananse to make trial of him also and laid his head on the block. And Ananse used the sharp side of the blade and cut Snake into two pieces. And Snake at once turned up his belly to Ananse meaning 'I have eaten nothing of yours and you have slain me for nothing.'"

An innocent snake! This is comparable with a German author's recent "Apology for Judas Iscariot." For similar reasons lizard moves his head up and down. He can no longer speak ("but at first it was not so"). Because Ananse rendered him dumb by pouring boiling water into his mouth whilst he was asleep. When lizard nods his head he is thinking to himself:—"Yes! I should have known better than to try to outwit Ananse."

Cat takes lizard's place in another version of the same story though he was not rendered dumb. Ananse's vengeance was so humiliating to him that he can never sit still but is always wandering about and saying "M 'ani awu, m' ani awu"—"I am ashamed, I am ashamed."

Butterfly is spreading his wings in bored fashion whenever you ask him "Where is Ananse"? He really does it to hide his confusion. And cuckoo hides himself away so that you can't ask him the question, but if you succeed in doing so he always puts you off with the same silly answer "Cuckoo" as if he wasn't able to say anything else. The reason is that once upon a time all the beasts, intending to make a feast of Ananse, for their pleasure and his sins, left him securely enclosed in a basket, in charge of cuckoo and butterfly, whilst they went in a body to Accra (!) to purchase condiments for the feast. His custodians unwisely trusted him with his freedom and some pepper. Ananse had nothing to learn from such modern English heroes as "Bulldog Drummond" about pepper, and had no scruples about breaking his parole.

It may be noticed that in European opinion also the Cuckoo is foolish and the Butterfly irresponsible.

There is a well-known story about a great Hindu philosopher who when asked what it was which supported the earth stated confidently that it rested upon the back of a huge elephant. He was asked "upon what then does the huge elephant rest"? "Upon the back of a huge Tortoise." "And upon what does the huge Tortoise rest"? The great philosopher's knowledge had limits. He confessed that he did not know. An Anansesem explain the origin of bottles in similar unsatisfying fashion. An ugly old witch was magically enclosed in a corked bottle and thrown into the sea as a punishment for her evil doings. "And some white men were passing over the sea in a steamer and found the bottle. So they looked at it well and saw how it was made, and when they went home to their own country they made plenty of bottles in the same way, and brought them again. That is why, when you looked at a bottle, your face is ugly; it is not yourself that you see but the ugly old witch."

The first bottle, like Topsy, "just growed"—in West Africa.

V.—WOMEN'S STORIES.

There are a great number of " Akorafo " stories or, perhaps it should be said, many versions of a few stories. One " Kora " obtains through her child some miraculous good fortune, usually in the very concrete form of a pot of gold. The other " Kora " refuses a share which is offered her, and sends her own child to repeat the other's performance and obtain a similar fortune. The child displays bad manners and lack of faith and is rewarded with a pot of snakes and other ugly reptiles which destroy her mother.

Or again a woman's child, after her death, is at the mercy of her step-mother (her mother's late " Kora ") and is badly treated. With the assistance of a witch or fairy godmother (the stories call her " aberewa bi "—an old woman) she brings her mother to life again. When the other child's mother dies the tables are turned. The new orphan fails, through her incredulity and impatience, to restore her mother to life and remains her step-mother's victim. Details vary in the innumerable versions of this story and are somewhat tedious. But it seems to be very popular with children of both sexes. Polygamy and a very facile resurrection make possible parallel contrasts which illustrate, not the Golden Rule, but rather :—

" Sɛ wopɛ wo yoŋko ti atwa a, wotwa wo de."

No attempt will be made to reproduce a typical " ɔbea bi né ne ba " story. The plot is of the simplest and the story depends for its effect on the refrains. One very practical common sense "moral" derived is that a child should always walk in front of his mother through the bush. A bad mother forgets all about a child following her! In this type of story in particular the form is preserved by the necessity for preserving the refrains which are the essential part of the story. In cases I have found that neither teacher nor pupils understood references in a refrain to localise (not for them " local ") " Abosom," and have taken this to indicate that this kind of refrain, and story, does not suggest for itself topical adaptation. For

the Anansesem in general are by no means respectfully handled by school children or presumably, by adults. There have never, apparently, existed specialist Story-Tellers, such as the Homeric bards or Saxon minstrels, professional or to preserve, in the absence of writing, a literal text. The ballad had not been evolved. Neither song nor story appears to have had any patronage. To David or to Homer there were, in the course of uninfluenced evolution, thousands of years to go.

It is a matter for frequent comment, or jest, that children are, "Sticklers" for the literal text of a story. African children, in schools at least, certainly are not. They are always willing to accept variations, even when these are not improvements. This may be due to the "disrespect" shown to the stories, no doubt unconsciously, by most sophisticated teachers, or, if it is characteristic of illiterate adults, as well as children, as I believe it is, to a habit of polite acceptance of the other man's version a revelation of the "Ubuntu" which Mr. Murray describes as the universal characteristic of the African. Whatever may be the reason for it, the fact itself makes the relation of the stories all the more useful as a speech exercise for infants. There is nothing of the nature of "Recitation" about it. When subsequently, in lower standard classes, material for easy written composition in the vernacular is required, the Anansesem can provide it in abundance; the child's phrasing will always be original. The writer has found Anansesem most satisfactory matter for test in English Composition in Standards IV and V for this reason. (English stories from class reading books are almost invariably told in remembered phrases patched together by more original contributions which betray them). But, for him at least, their usefulness in this respect is passing; English versions have begun to be prepared, and Barker and Sinclair's book is on many teachers' desks. It is not improbable that just as the present generation give Ananse credit for "George Washington and his Little Hatchet" we may find Europeans credited in the next with the Ananse Saga.

VI.—CONCLUSION.

I have endeavoured to show in this short and formless essay what the Anansesem told by school children are about and what they are good for. In the past few years the "atmosphere" (*pace* Mr. A. V. Murray) of very many "bush" Infant Schools in the Colony has changed in swift and certain fashion from "dull" to "set fair" (the metaphor is inevitably confused for there is less "pressure"). Much is due to Educationists and European Specialists in Infant Education, but the "bush" teacher on his own with his Anansesem has played no inconsiderable part. The announcement of "Ananse" is greeted in a "bush" infant classroom with gleaming rows of eyes and teeth. The inspector is forgotten. Himself, feeling, it may be, that it is his duty to obtain a precisely definite opinion on the matter, in the course of the three hours he has time to spend in such an Infant School, decides to add the *cliche* "The tone and discipline of the school are good." Then, if ever, is the time, for him to do so. The "atmosphere" is, for the nonce, an "Ananse" not an "Inspection," one.

CUTTLE FISH BONE MOULD CASTING AS PRACTISED ON THE GOLD COAST.

The following account of taking casts of metal work by the use of a cuttle fish bone is compiled from details supplied by J. T. Aryee, Head Goldsmith of Obuasi, Ashanti. The notes were taken down by the writer during the process of producing metal objects by this method, from the commencement of making the mould and pattern to the finishing and chasing of the cast. The various stages are illustrated by photographs of a series of objects, the production of which was carried out by Aryee. The thanks of the writer are therefore due to Aryee the Goldsmith for his trouble and patience in providing the material for this article.

Cuttle Fish Bone.

The Cuttle fish bone (Plate I) employed for this purpose is in reality the internal calcified shell of one of the members of the family Sepiidae; in England Sepia officinalis; but beyond stating that the specimens obtained from the shores of the Gold Coast belong to the same genus, the identity of the species in the absence of the animal is uncertain. It may be stated here that this same genus supplies the sepia ink which was used as a writing material in ancient times, and at the present day the ink bags of cuttle fish are manufactured into sepia by artists' colourmen.

Use.

As far as the writer is aware, this method on the Gold Coast is solely confined to the making of Gold and Silver ornaments for personal adornment.

History.

It is regretted that no historical evidence could be produced for this account. Beyond a passing reference in the Encyclopædia Britannica. under the heading "Cuttle Fish," that the "bone" was used

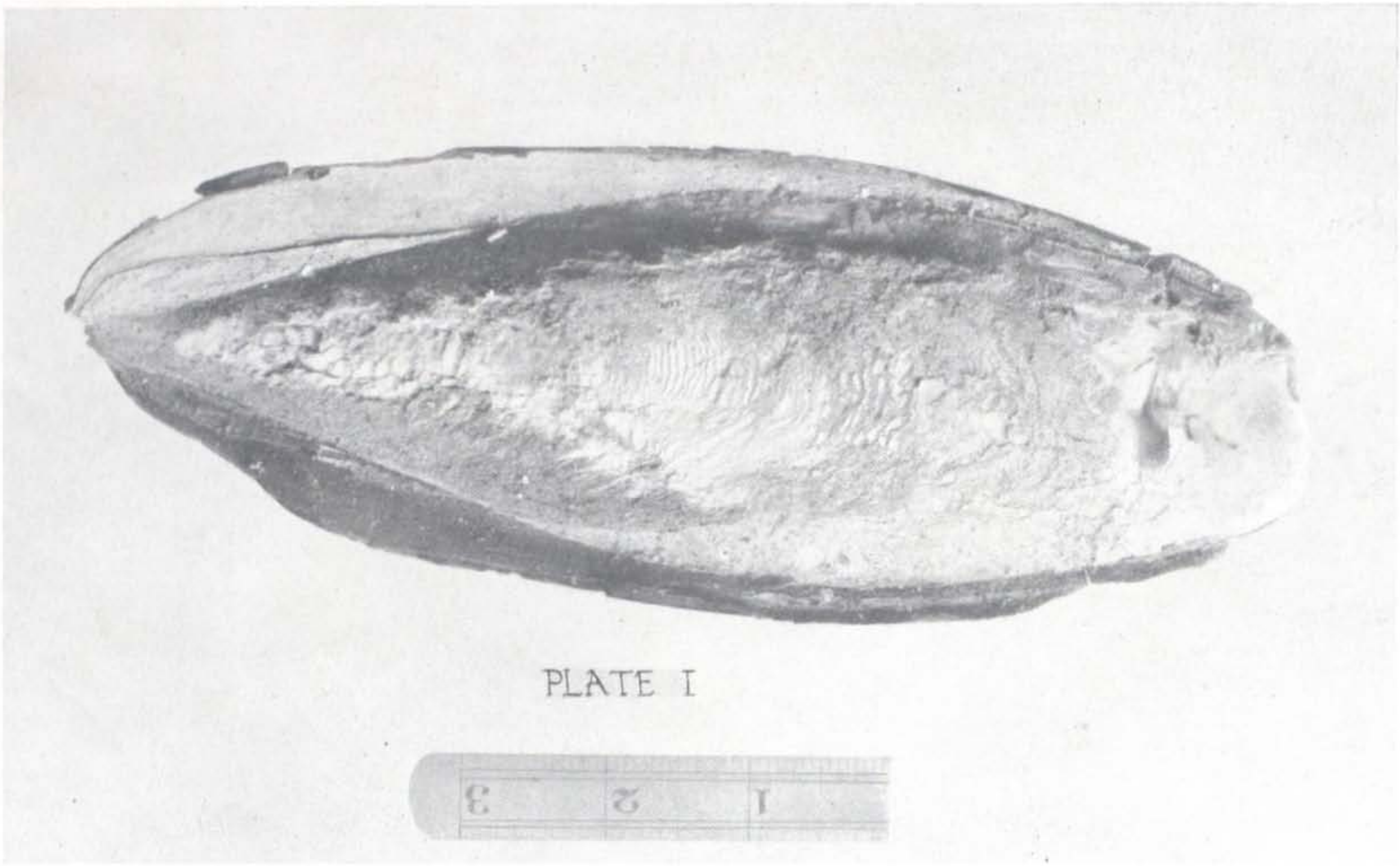
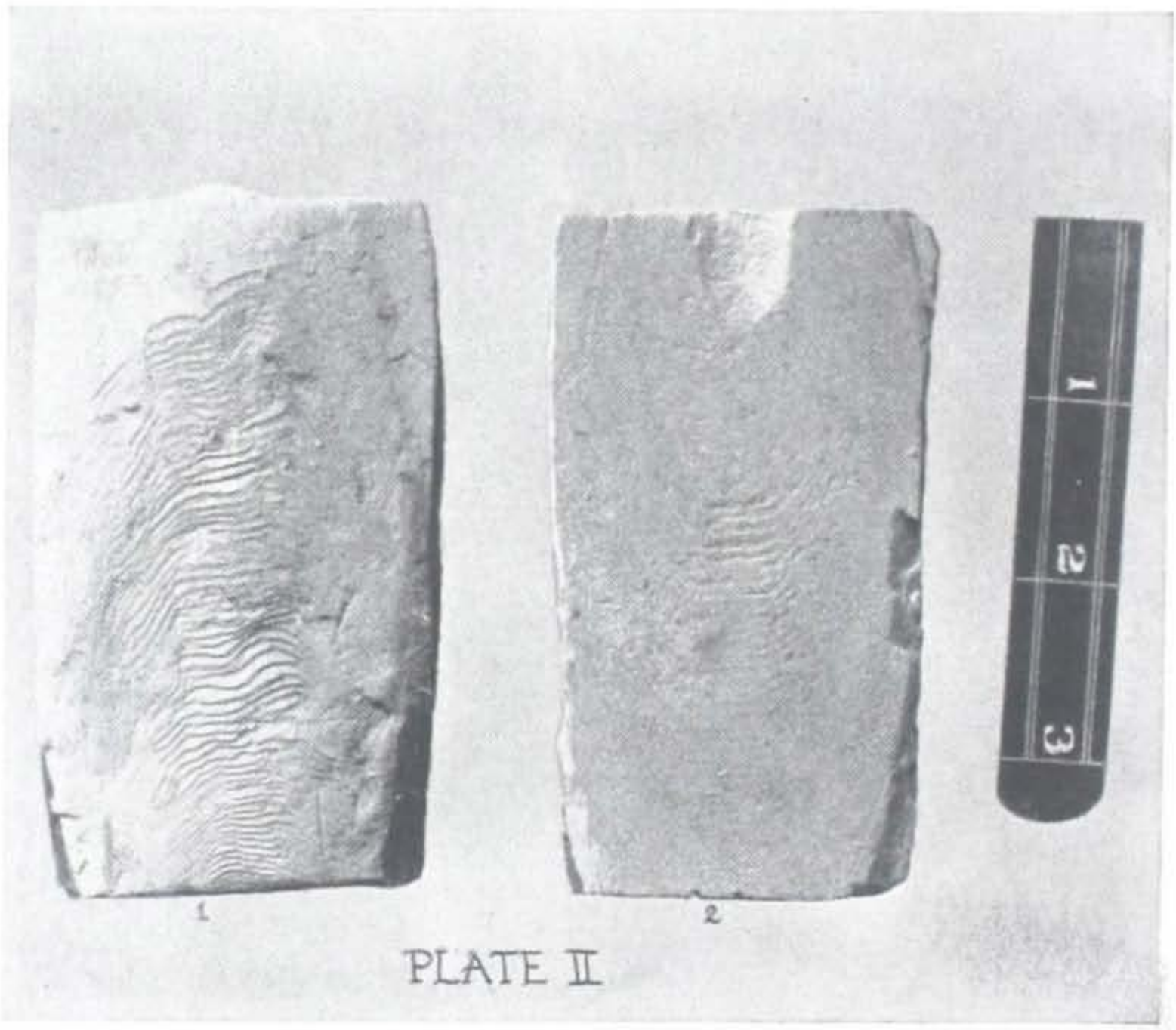


PLATE I

Cuttle Fish "Bone" used for taking casts in metal.



CUTTLE FISH "BONE."

(1) Cut and trimmed with scissors. (2) Scraped with a knife; smoothed and "pour" cut.

for taking casts in metalwork, the writer has failed to trace the history of the process. In England, three persons are known to the writer who work by this method, and they were unable to supply the required information. Its use appears to be confined to small objects and in such cases where a reproduction in metal is required without damaging the pattern; for instance in the repair of works of art in metal. Its defect lies in the fact that the cast is solid and therefore there is an uneconomical excess of metal employed.

Beyond stating that his father had taught him and again his father before him, how to cast by this method, Aryee was unable to give any evidence which would throw any light on its arrival in the Gold Coast. But as Aryee is a Ga from Accra, though working in Ashanti, gives priority of its use to Accra and, as the cuttle fish is marine, it seems more than probable that this process of casting was introduced into the Colony *via* the sea.

Making the Mould.

The internal shells of the cuttle fish (Plate I) are gathered from the shore, having been thrown up by the tide, and are sold to the goldsmiths who place them in the sun to dry.

At this stage they are soft, and can be easily marked with the finger nail. A "bone," to use the popular term, is selected, cut and trimmed with scissors, resulting in the form illustrated by Fig. I, Plate II. One side is then scraped flat with an ordinary table knife, then smoothed by being rubbed on the flat surface of some hard wood; thus giving an even finish. This forms one half of the mould (Fig. 2, Plate II). Another "cuttle bone" is again taken and treated in a similar manner to form the other half of the mould. The two halves having been trimmed and rubbed smooth are "faced up" by being rubbed together, thus ensuring a close fit and an even surface. Each half of the mould is then put on a charcoal fire for a short time to dry thoroughly. The fire has a tendency to harden the "bone" slightly. The pattern or template (Figs. 3 and 4, Plate VII) in this case made of lead or some lead alloy is placed on the smooth surface of one of the halves of the mould and is pressed or forced into the

cuttle fish " bone ". It should be realised that this is done solely by pressure. For this purpose, Aryee used the head of a small hammer. As the " bone " is soft the pattern requires continual brushing with a stiff brush to remove the powdered " bone " adhering to it. By alternate pressing and brushing, a clean and sharp impression of the object to be cast is formed in the " bone ". The other half of the mould is left plain.

The vent or channel for the flow of metal is next cut in both halves of the mould from one end to the impression. In the case of two castings being made in the same mould the vent channel is continued as a " gate " to the second impression (Plate III). It is interesting to note that in this case the " vent " hole also functioned as a " pour ". It is probable that a separate " vent " for the escape of gas is not necessary owing to the porosity and absorbent nature of the " bone " and the smallness of the object to be cast. Aryee did say, however, that he sometimes used two holes namely a " vent " and a " pour ", but was unable to give a technical reason. An inspection of Plate III showing the two halves of the mould will make it obvious that one side of the cast will be flat.

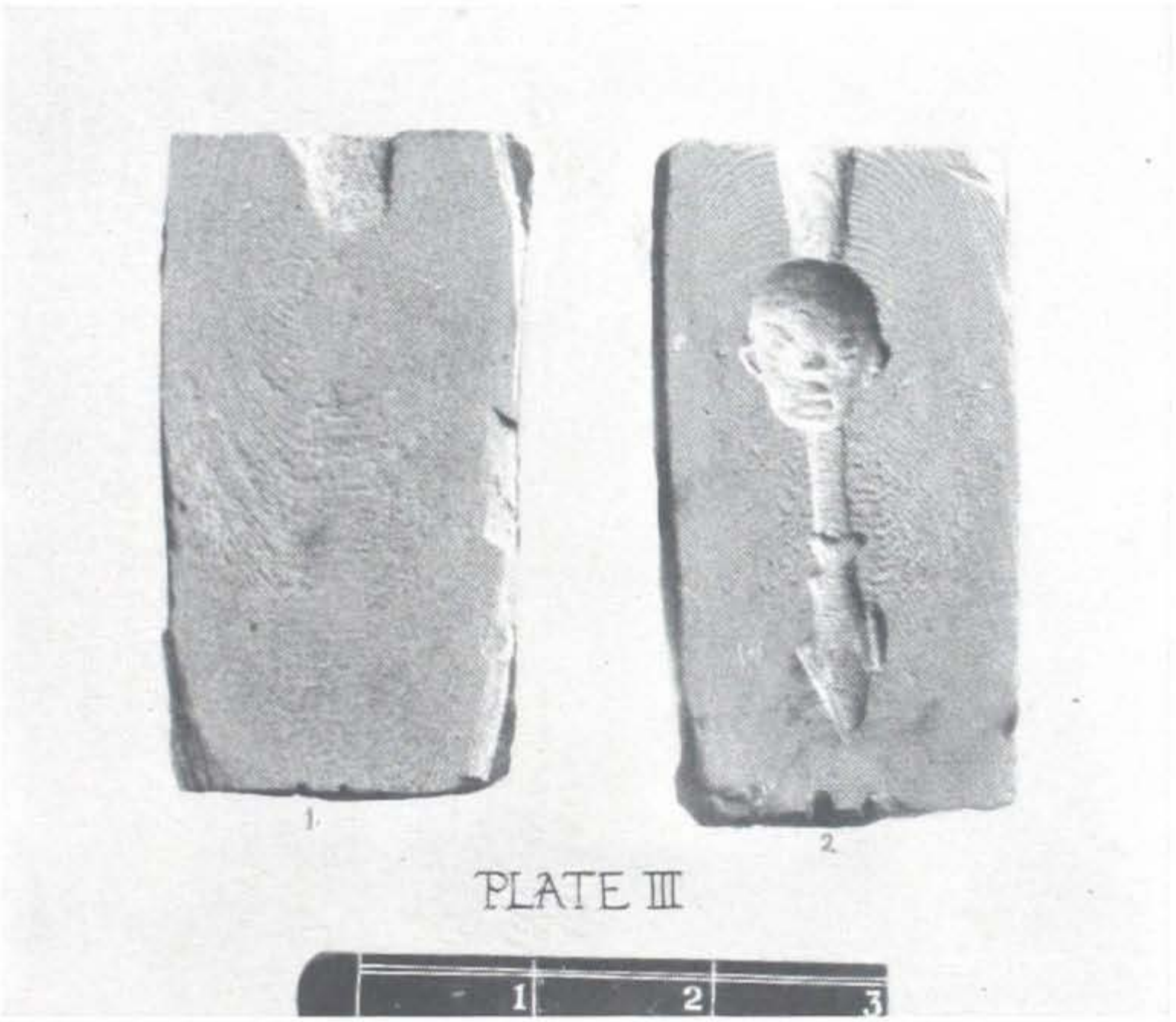
When the mould is complete and the " vent " or " pour " cut, it is dried over the fire. The two halves of the mould are then placed together and tied round with string. The edges on the two sides and the bottom of the mould are luted with clay, and the mould is ready for casting. Fig 2, Plate IV: this illustration shows the two halves tied together, the clay luting and the " pour " at the top.

The Crucible.

The crucible (Fig. 1, Plate IV), for melting the metal was made from local clay by Aryee. The mouth is triangular in shape, giving three lips for pouring. The base of the crucible is cone shaped to facilitate standing in the fire, and to assist the collection of the metal. From the appearance of the crucible it is not unlikely that it is copied from a European pattern.

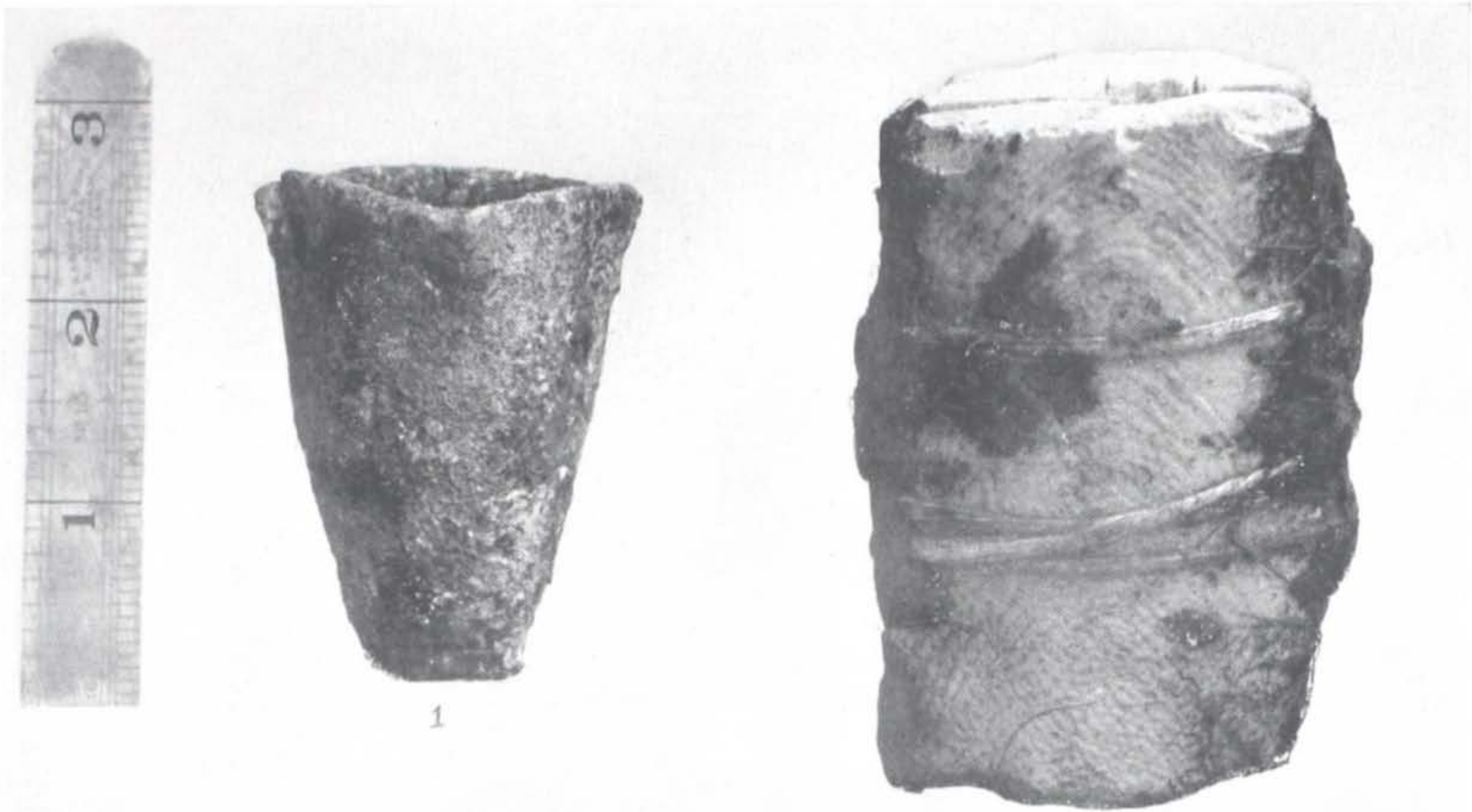
Casting.

When the cast is to be made in gold or silver, some borax is added to the crucible, but in the case of lead



CUTTLE FISH "BONE" MOULD.

(1) Top half smoothed and faced up. "Pour" cut. (2) Bottom half-showing impressions, "pour" and "gate."



1 2

PLATE IV

(1) Crucible made of local clay. (2) Mould. Luted with clay and tied with string. Ready for casting.

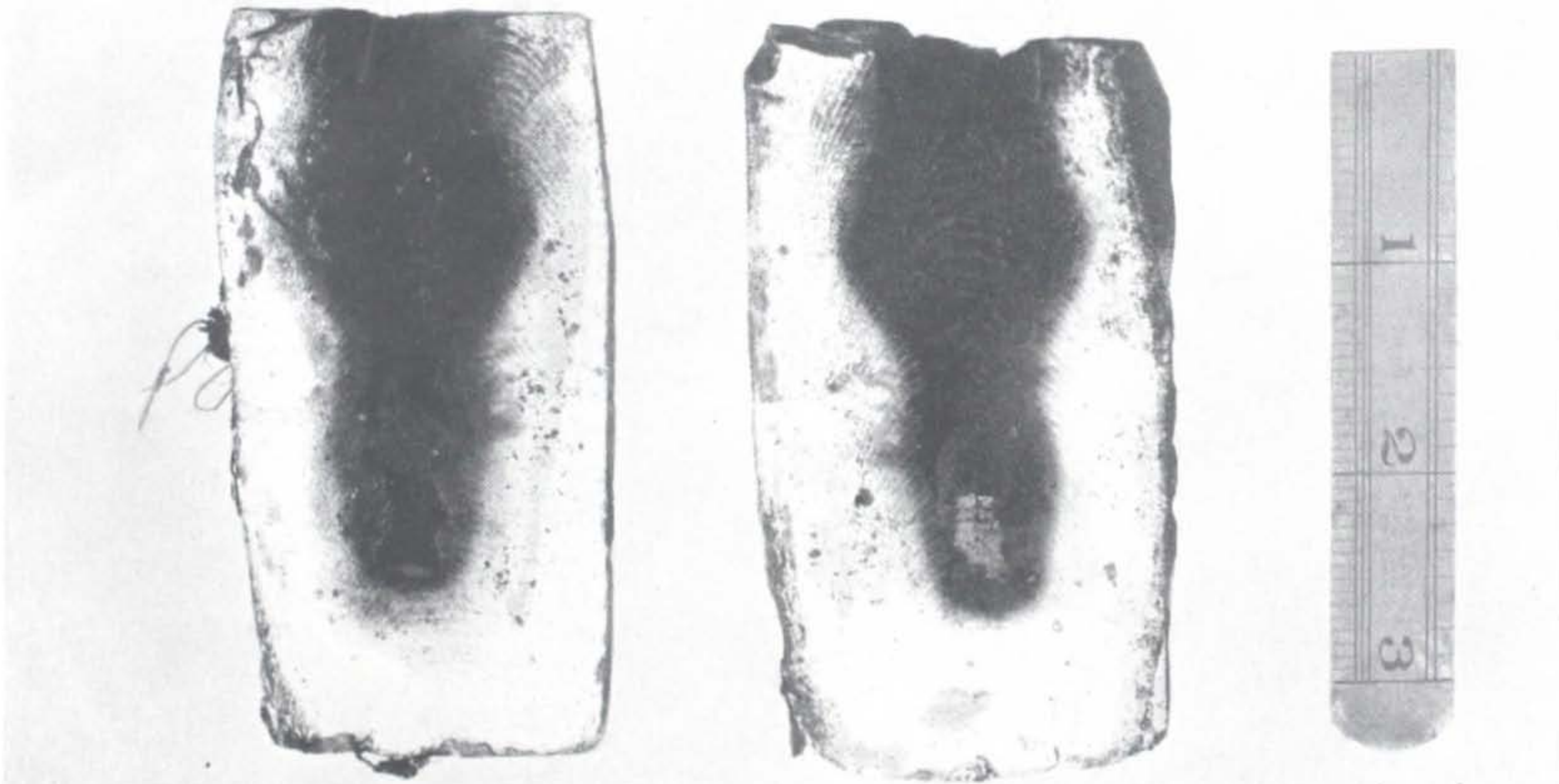
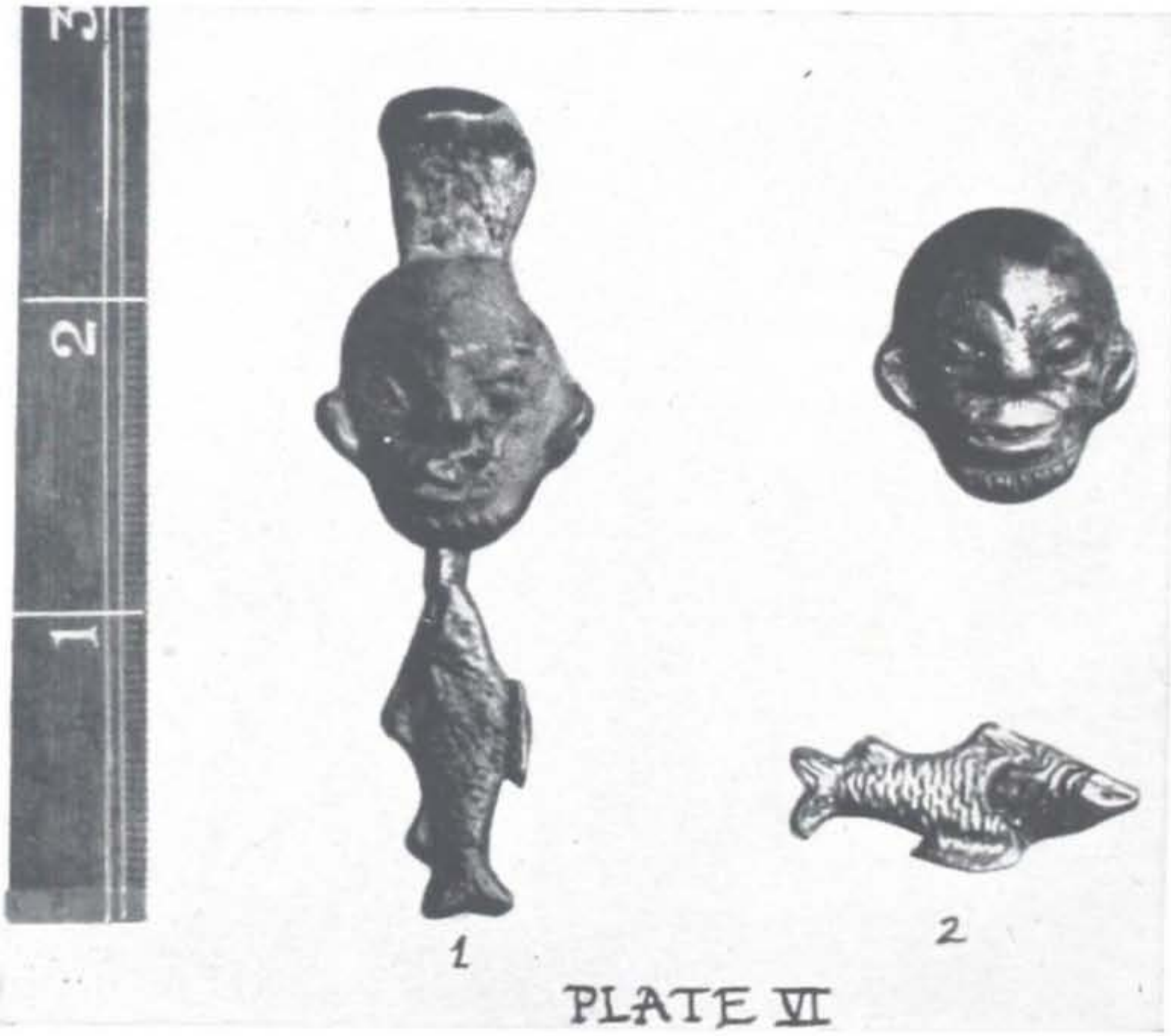


PLATE V

Two halves of mould after casting.



(1) Cast immediately after cooling, showing "pour" and "gate."
(2) Casts after treatment with lime juice, salt, sand and alum. Chased and varnished.

no borax is added. As in other cases where technical details are concerned Aryee was unable to give any reason why he used borax. It appears that Aryee's father told him to employ borax, and in his own words " before (previously) we did not use it, but now we get it from England." In the present case, a silver alloy was used to make the cast, which took about twenty minutes to melt.

Pouring.

When the metal is molten, the mould is held by a pair of pliers and the metal allowed to run into the " pour " or " vent ". In a very short time the metal became solid, when the mould was immediately opened and with one tap the cast was allowed to fall into water (Fig. I, Plate VI). There is no delay, and no attempt to allow the mould to cool slowly. After casting, the mould is of no further use, and therefore for each cast a new mould has to be made (Plate V).

Finishing.

The cast is then heated in a bowl containing a mixture of salt, the juice of the lime, sea sand, alum and water. At the same time the mixture was kept constantly swirling round in the bowl. The action of the salt and lime juice would probably form hydrochloric acid which would dissolve any tarnish on the cast. The sand would exert a scouring action which would tend to remove any coating formed during the process of casting. The action of the alum, whatever it may be, is not known to the writer; and it appears to be a more or less recent introduction, for Aryee states that " First we always used salt but never alum ". The result of heating and scouring in the above mixture was to produce a bright clean surface on the cast which was then finished off by being dressed with a file, chased with a knife or some suitable tool, and polished by brushing with a hard brush. (Fig. 2, Plate VI).

This finishing process follows the idiosyncrasies of the worker and hence no two objects are alike.

Making of Pattern or Model.

Models, templates or patterns are made in the following manner :—The desired object is first drawn

on paper (Fig. 1, Plate VII). The sketch is then transferred to some stiffer substance such as cardboard or sheet tin by pricking through the paper with a pin. In the present instance, cardboard was used by Aryee (Fig. 2, Plate VII). The card or tin is then cut to shape with scissors following the outline of the pin-pricks. The card or tin pattern is then pressed into the cuttle " bone " in a way similar to that employed when conducting an ordinary cast. The nose and features in high relief (prominences) are effected by cutting inside the impression of the card in the mould. The cast is then poured in lead or lead alloy in the ordinary way. (Figs. 3 and 4, Plate VII). The pattern is then chased or finished; but the boiling in the lime juice-salt-sand mixture and the burnishing is omitted. For jewellery work, a number of different patterns are kept on hand.

The Furnace.

Here again, European influence has helped to modify the original type of furnace. Previously the furnace was constructed of clay with a round pot, burnt locally, as a base. To-day, the base is made of cast iron and obtained from England, probably Birmingham. It is supplied with two iron handles (Plate VIII). With this iron base as a foundation, the furnace is built up with clay, a pit, situated towards the front, being formed in the process. The pit may be best described as having the shape of a funnel with an elliptical mouth, the ellipse being elongated across the front of the furnace. The interior of the pit narrows in depth until it contracts to form a tube or duct which leads to an orifice at the exterior near the bottom of the base. It is at this orifice, easily discerned in the illustration, Plate VIII, that the nozzle of the bellows is applied to create a blast. The bellows are now-a-days European in origin and design. The capacity of the furnace is limited to three of the crucibles figured in Plate IV, which stand about $2\frac{1}{2}$ inches in height. The fuel burnt is charcoal, which is made locally, in Ashanti from the timber of the Eshan [*sic*], and the Kakadukro [*sic*] trees. The space at the back of the furnace is utilised for keeping crucibles and tongs, etc., handy.

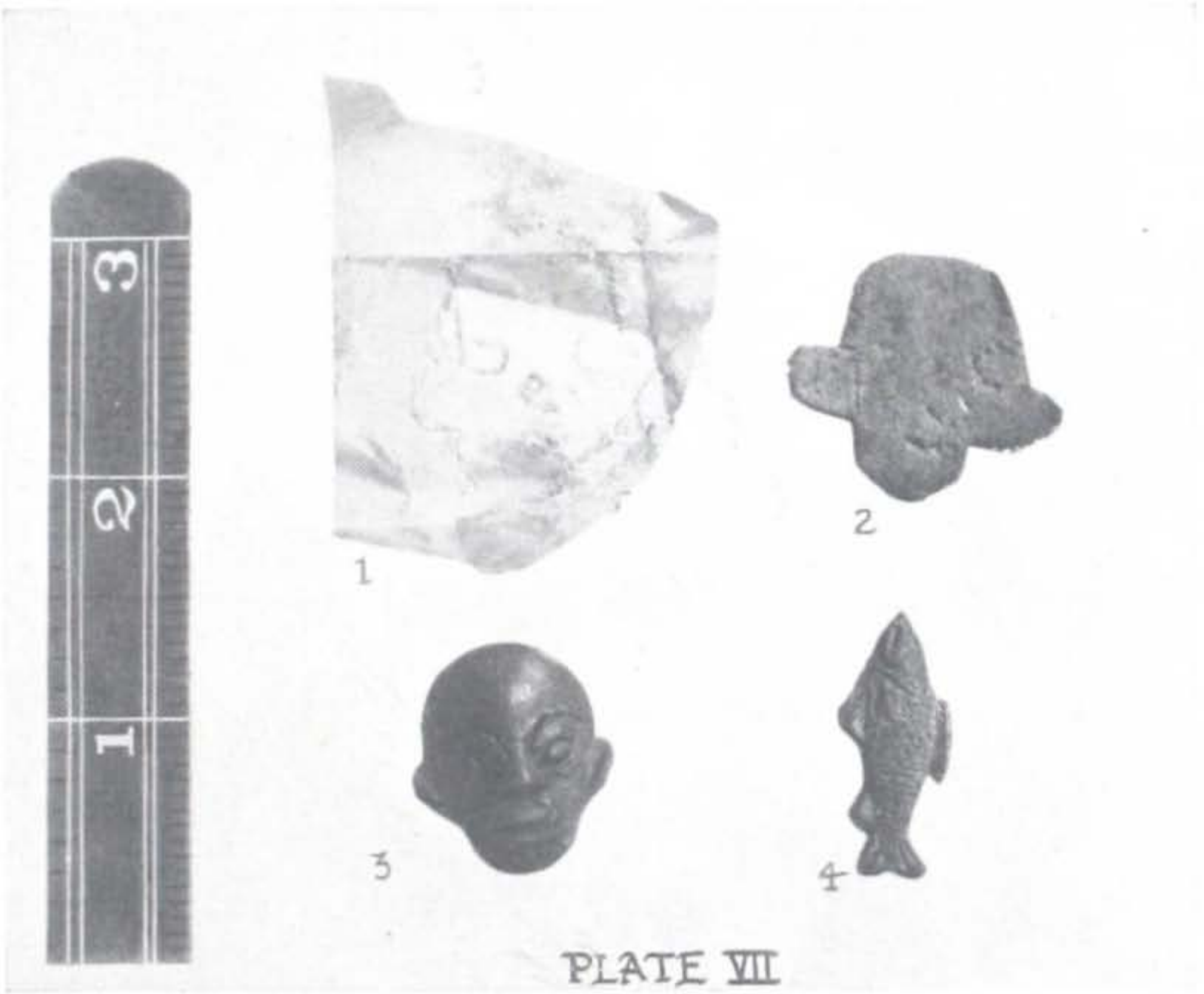


PLATE VII

MAKING OF PATTERN OR TEMPLATE.

(1) Sketch drawn on paper. (2) Sketch transferred to cardboard by pinpricks. (3 and 4) Patterns cast in lead or lead alloy.

PLATE VIII

Furnace, showing fire pit, bellows hole, crucibles and tongs.

The following incident will be interesting to anthropologists, though it has no material connection with the process of casting; yet in the present instance it was of definite importance. The first two attempts to photograph the furnace resulted in failure owing to the unsuitability of the light. It was therefore decided to remove the furnace from its immediate surroundings and transfer it some half mile distant, where it was hoped conditions would be more favourable. However, Aryee, the goldsmith protested that it would be impossible to carry out this plan until the spirit of the furnace had been properly propitiated. For this purpose, rum was demanded, but not being immediately procurable, gin was substituted, a change which however did not affect the issue. Aryee thereupon offered this libation of gin to the spirit of the furnace and addressed it in Ga as follows:—

GA WIEMO.

Minkpaofai dsee ake mi wó bo hiegblé si mi Nuntsọ mitao ni efe bó mnifóni nohewọlẹ ebá hã bó dã tọ komé, nohewọlẹ okẹ lẹ ayá.

ENGLISH WORDS.

I beg you not to say I am deceiving you, but only my Master wants to take a photograph of you, so he has brought you a bottle of rum, so you may go with him.

Goldsmith Altar, also a Ga, wrote down the words and also made the English translation.

The gin was sprinkled both on the furnace and round about the house.

The photograph, this time being a success, was accepted as a matter of course by Aryee, which after the trouble he had taken, was nothing more than he expected.

NOTES.

My grateful thanks are due to Mr. G. S. Duns of the Ashanti Goldfields Corporation for the trouble he took in photographing the furnace.

The other illustrations, Plate I-VII, are reproduced from photographs by Mr. S. Pitcher, F.R.P.S., of Gloucester.

The series of objects made by Aryee, Plates I-VII, have been presented to the Pitt-Rivers Museum, Oxford.

THE ARCHÆOLOGY OF THE NSUTA MANGANESE MINE.

In the stress and turmoil involved in treating and transporting annually some half million tons of Manganese Ore to other parts of the globe, it is very encouraging to find that there are some members of the staff of the African Manganese Company at Nsuta who are able to spare a little time and are sufficiently appreciative to look out for and to save valuable pre-historical data which would otherwise be destroyed. The thanks of the writer are due to Messrs C. R. Millar, D. A. Thompson and N. E. Bore of the African Manganese Company for their good offices in preserving a number of objects of archæological interest which but for their efforts would have eventually found their way to the ore treatment plant and would have been smashed to atoms or dumped as so much "dirt," to use a somewhat crude expression.

The Manganese deposit at Nsuta near Tarkwa presents another of those hill sites of human habitation showing traces of an earlier race which are found in other parts of the Colony and Ashanti, and in this respect it is distinctly comparable with Monkey Hill, Obuasi whose archæological features have already been described.(1) The ubiquitous Nyame Akuma or "God Axe," pottery coarse and decorated, evidences of an iron smelting industry and hammer stones, found on the top of the hills in both localities, exhibit affinities, though with certain variations, which are accounted for by distance and lead to the deduction that the inhabitants in both instances possessed racial and cultural connections.

That the long low ridge of Nsuta was chosen as a site of human settlement is not surprising, when its strategic possibilities are understood. On three sides, north, east and west, it is flanked by formidable

(1) Wild, R. P.—"Vestiges of a pre-Ashanti Race." *The Gold Coast Review*, Vol. V, No. 1. The Government of the Gold Coast.

swamps, whilst to the south, where it merges into the Dagwin series of crests, its narrow width and its sharply rising sides would allow of the defence being concentrated into a small area. All the advantages of position would be with the occupants, an important consideration during the period when the Nyame Akuma was in everyday use.

With few exceptions, the discovery of archæological remains has up to the present been confined to the two areas comprising Hills D and E, which are situated at the north-eastern extremity of the property worked by the African Manganese Company. It is not that other places in the vicinity must be regarded as barren or that Hills D and E are more prolific in an archæological sense, but that the removal of the dense forest and mining operations, which have hitherto been concentrated on these two points, are responsible for uncovering and bringing to light many hidden objects of archæological value. It is highly probable that in due course as the mining of the manganese ore extends to those parts which are as yet unworked, a similar state of affairs will be found to exist; in support of which the occurrence in a stream near the new Nsuta village of an outcrop of grinding stones with long narrow grooves may be mentioned. It is quite within the realms of possibility that the occupiers of Hills D and E came down from their heights and frequented this spot, both for the purpose of obtaining water and of fashioning their implements of stone; the latter being an occupation which required both time and patience. And herein lies a marked contrast between the ancient and the present, the leisurely methods of the pre-Akan and the up-to-date practice of modern mining.

Affairs move quickly at Nsuta; the landscape changes perceptibly week by week; what was a recognized feature of the district is rapidly effaced and removed by the relentless urge of the steam shovel, which digs into the overburden that caps the ridge and covers its slopes to a depth of several feet. It is in this overburden of capping of detrital matter, that so many of these objects of human industry have been

discovered and, aided by the steam shovel, have been unearthed.

It might have been expected that the type of deposit and the depths at which the buried relics have been found would give some indication of their relative age. This may be true of many archæological sites, but the case of Nsuta presents an exception which in the present state of our knowledge cannot be determinded. When it is pointed out that the pot (Plate VI) was recovered from a depth of from 4 to 5 feet, and the Nyame Akuma which are figured on Plate III were procured by Mr. C. R. Millar of the African Manganese Company at depths varying from 3 to 9 feet, it will be realised that the problem of their age involves many difficulties. There is no strong reason for believing that these objects have been deliberately placed in the ground at these depths; all indications are to the contrary. It is more in keeping with the situation that they were dropped at haphazard, merely lost, and became subsequently buried by natural agencies. So far at the spots where they have been obtained, there appears to be no evidence of graves or pits, though it may be that these artificial excavations did once exist and have been entirely obliterated.

The effect of the weather, especially as in this case, in tropical countries on the exposed surface, when the protective canopy of forest was removed some few years ago, cannot be entirely ignored. It is axiomatic that there is a definite tendency for stones and such like material to sink relatively to the surrounding soil owing to the action of percolating water, especially where the ground is loosely knit and porous.

The nature of the formation itself does not appear to help. Here there is an overburden in places rubbly, in others mixed with diverse amounts of clayey material, containing ferruginous matter and manganiferous nodules in varying percentages; whilst in parts laterite predominates. It is at this point that geology, an invaluable adjunct to archaeology, should step in and render assistance, but for this purpose the situation is not sufficiently advanced for the experts to pronounce an opinion, the necessary investigation not yet being

complete. Still, it may be ventured, in spite of the absence of a definite geological pronouncement, that the formation of the manganese nodules in the overburden might provide a clue, because eight out of the ten Nyame Akuma reproduced in Plate III are stained with manganese oxide and so corroded that the facets are very indistinct. If it is correct, and this is submitted subject to the possibility that it may be contradicted by the best geological opinion, that the present condition of the manganese in the overburden is due to the decomposition of some ancient manganese bearing strata, accompanied by the subsequent solution and precipitation of the manganese as oxide in the form of nodules, could the development of this overburden have taken place contemporaneously with the occupation of Nsuta ridge by ancient man?

Further, if it is possible that iron oxide and silica have been formed and deposited simultaneously, could these circumstances forming a residual deposit, assisted by gravity if feasible, account for the depth at which the Nyame Akuma and other objects are found? But, as mentioned previously, this awaits the confirmation or otherwise of the expert.

Another hypothesis, which may have some truth in it, would require the breaking down and the translation by atmospheric agencies and gravity to a slightly lower level of the old surface on which these relics had lain. Even if there were a movement towards the sides of the ridge, a gradually extending accumulation of debris would form at the requisite angle of repose, which in consequence of the nature of the material involved, that is, precipitates from manganese, iron and probably silica bearing solutions, would consolidate and resist subsequent denudation. Whatever the process whereby these ancient objects attained their present depth, the known facts do not permit any estimate of time being made or for that matter even guessed at.

A passing reference has already been made to the grooved stones near Nsuta village, where the pre-Akan aborigine ground and sharpened his roughed out implements. It may be briefly stated here that Nsuta is not exceptional in this respect, for there is no lack of these in the Colony and Ashanti. The preliminary stages of

the manufacture of stone axes were executed by a process of flaking, whereby the selected piece of stone was roughly shaped by a series of well directed blows. Such an embrayo specimen may be seen in Fig. 1, Plate IV, which was found on Nsuta ridge by Mr. D. A. Thompson. Its subsequent treatment would be effected by grinding, either by hand on one of the grooved out-crops, or—and here Nsuta is responsible for supplying a new departure—with the aid of what the writer, in lieu of a more apt term, has designated a " hand hone " (Plates I and II).

These very interesting survivals of the Nyame Akuma industry were first noticed on the top of the Nsuta ridge by Mr. C. R. Miller who, recognising their importance, took the necessary steps for their preservation. So far as the writer is aware, they have not been reported from any other locality in the Gold Coast and Ashanti, and therefore they should add something to our sparse knowledge of the Gold Coast aborigine. The " hand hones ", four of which are illustrated, appear to be broken, but there is enough of them left to deduce their import. All of them are marked with the characteristic grooving, some on both surfaces, whilst one is ground quite smooth on the side and also exhibits staining by manganese oxide (Plate I right hand specimen). Two of the specimens (Plate II) exhibit a series of pits, which it is suggested were deliberately made for the grip of the fingers. A practical demonstration, with a " hand hone " in one hand and a stone axe or " Nyame Akuma " in the other, easily proved their value as a means of resharpening a blunted cutting edge. Two of the " hones" were found on the top of the Nsuta ridge, whilst the other two were brought in by " boys " who made the unconfirmed statement that they had obtained them from the vicinity of the new Nsuta mine village, which in relation to the ridge is low lying.

These facts tend to prove that the old inhabitants of the locality were prone to carry these " hones " about with them, which is further strengthened when it is realised that geologically speaking the stone of which they are composed is most probably " Tarkwaian ", the series adjacent to and in places overlying

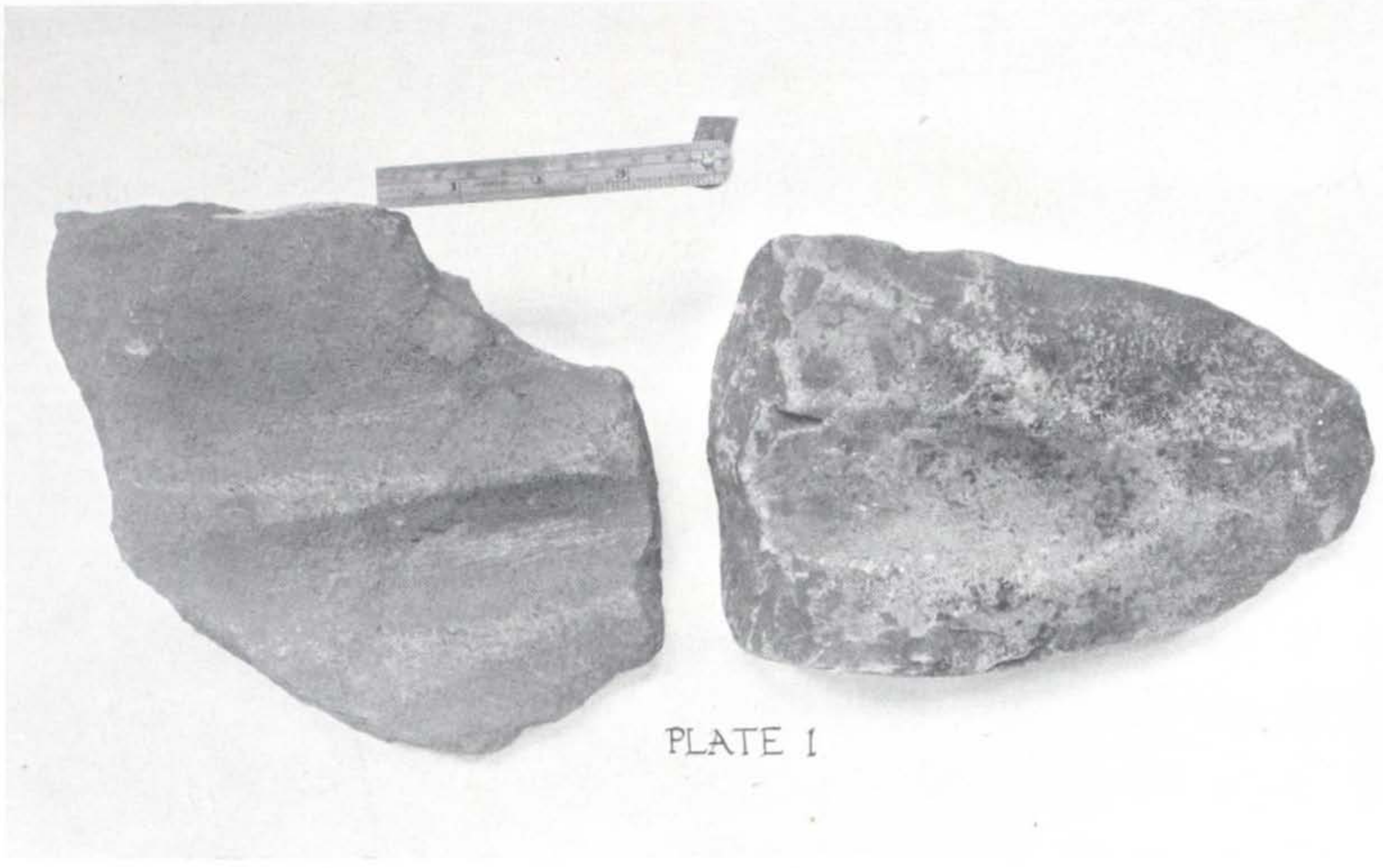
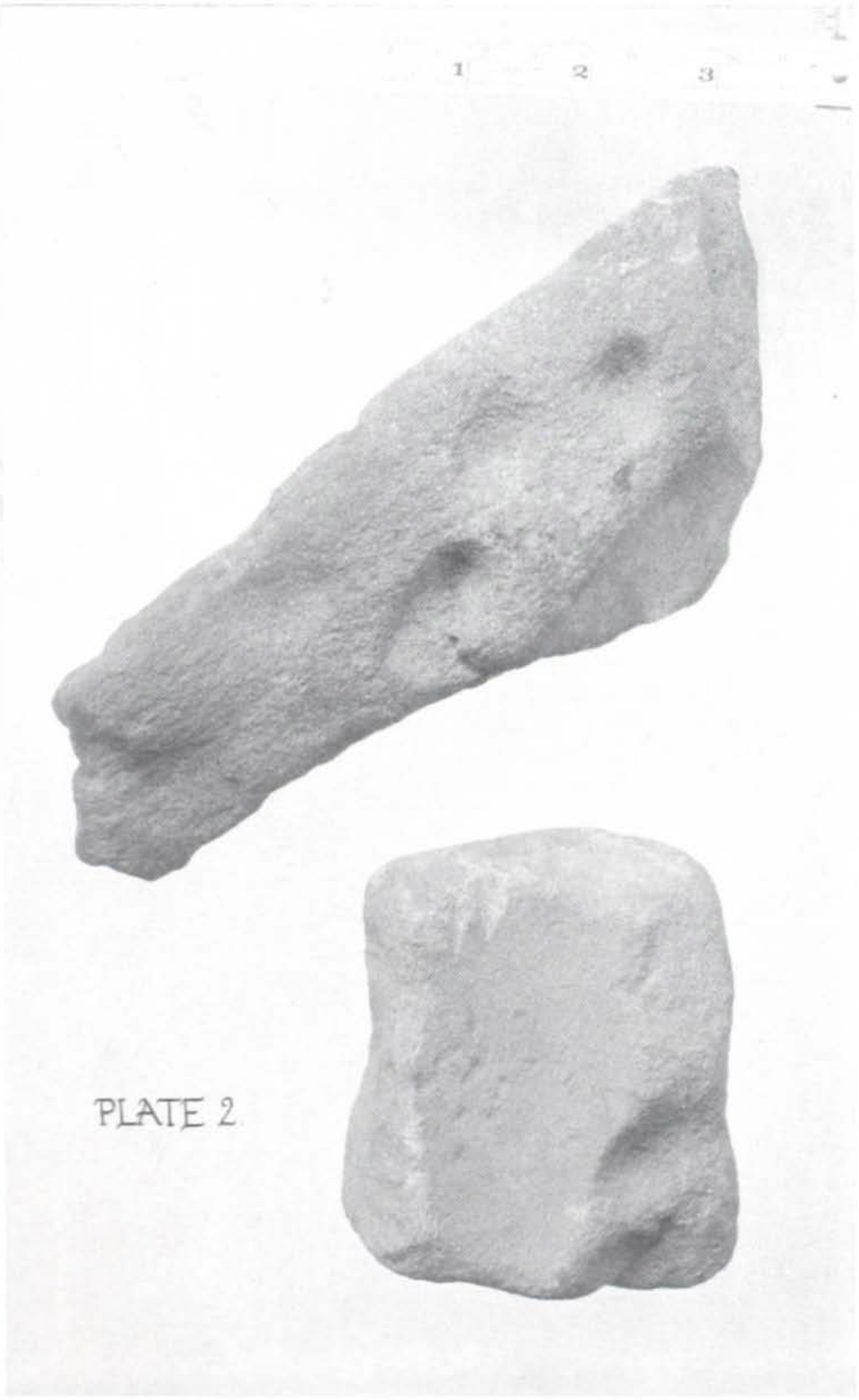


PLATE I

"Hand Hones" or "Portable Grinding Stones." Nsuta Manganese Mine, Gold Coast.



"Hand Hones" or "Portable Grinding Stones." Nsuta Manganese Mine, Gold Coast.

the Nsuta strata which are "Birrimian". Again the discovery of an unfinished or unground implement (Fig. I, Plate IV) on Nsuta ridge increases the probability that the finishing and polishing of the Nyame Akuma took place on this site.

If it is objected that the term "hand hone" errs rather on the side of exaggeration, it is possible no exception will be taken to some such phrase as "portable grinding stones" to define these hitherto undescribed objects. I am indebted to Mr. Balfour, F.R.S., of the Pitt-Rivers Museum, for the following statement:—"Small grinding stones of a similar general type to these occur rather widely, sporadically—e.g. Denmark, New Zealand, etc." Before leaving the subject of hand hones, it should be pointed out that some persons might possibly assign another use to the "finger pits". They may be of the opinion that the depressions should be referred to the pointing of iron objects such as spear and arrow heads, in other words that the stones could not only be used for grinding stone axes but also could be equally well adapted as "hand anvils." This may be so, for traces of ancient iron smelting have been discovered in the neighbourhood, but the state of our present knowledge precludes further argument on this point.

NYAME AKUMA OR GOD AXES.

(*Plates III and IV*).

Of the fourteen examples of " Nyame Akuma " or " God Axes " figured in Plates III and IV, thirteen are facetted and have curved cutting edges whilst one is in the rough state, i.e. unground and therefore unfinished. Apart from this unfinished specimen, which for present purposes need not be taken into account, this predominance of facetting is very striking and herein lies an important difference from the type of implement discovered on Monkey Hill Obuasi, at which locality a plain unfacetted form is very abundant and the facetted one is conspicuous by its rarity. This supports the writer's contention, commented on on a previous occasion,(2) that the facetted type of Nyame Akuma becomes scarce as the coastal region is left behind, and gradually gives place to the unfacetted variety so common further north. Further, at Monkey Hill not only do " curved " but " straight " cutting edges occur in about equal proportions.

Another dissimilarity in shape which serves to distinguish a Nsuta from an Obuasi stone axe is shown in the greater tendency of the Obuasi examples to decrease in width or taper towards the butt, whereas those of Nsuta have parallel or nearly parallel sides.

It may be mentioned here that so far no cylindrical and no " stubby " or " Kumasi " type (a name suggested by their common occurrence in the Kumasi district) of Nyame Akuma has been discovered at Nsuta. The facetting, the curvature of the cutting edge and the parallelism of the sides possessed by these Nsuta specimens constitute a family likeness which can only be explained by conditions of isolation and lack of communication. It may be that they were all fashioned by the same individual. Therefore it is not

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(2) Wild, R. P.—"Stone Artefacts of the Gold Coast and Ashanti." *The Gold Coast Review*, Vol. III, No. 2, 1927. The Government of the Gold Coast.

PLATE 3.

"Nyame Akuma" or "God Axes" from a depth of 3-9 feet. Nsuta Manganese Mine, Gold Coast.

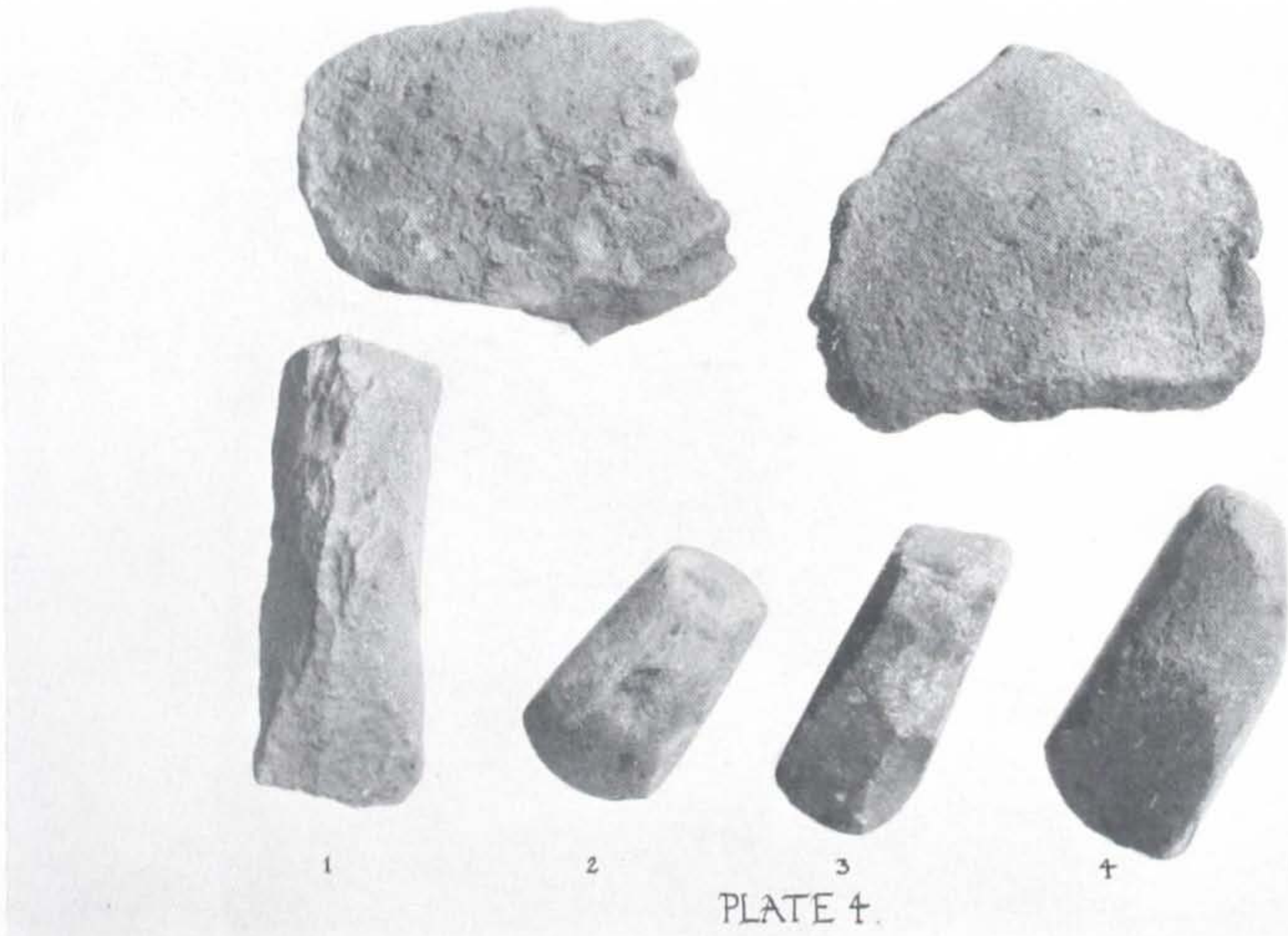


PLATE 4.

"Nyame Akuma" and fragments of Ancient Pottery (various depths). Nsuta Manganese Mine, Gold Coast.

surprising that the locality of Monkey Hill, Obuasi, nearly one hundred miles distant, should produce some variation.

Individually, the group of axes illustrated on Plate III do not show any very important variations except that five of them are hafted; which consists of a notch being cut in the stone to enable a firmer hold of the stick or handle being taken. It is presumed that in the case of these short implements they would be inserted into a cleft or pierced stick when in actual use. Their lengths run from 2 inches down to 1 $\frac{11}{16}$ inches, the width of the cutting edges all of which are curved, varies from 1 $\frac{5}{16}$ inches to 1 $\frac{15}{16}$ inches, whilst the largest dimensions of the facets is $\frac{5}{16}$ inch, which in nearly every instance are too indistinct to measure and therefore are scarsely discernible in the reproduction. Their appearance suggests that they have been buried in the ground for some long period and have undergone a certain amount of corrosion, which is not inconceivable, when the conditions to which they have been subjected are realised. It is here again repeated that eight of them are stained with manganese oxide. All the butts are broken or damaged, a not unlikely occurrence as the small celts have probably had to submit to a good deal of wear and tear. They were collected from depths of 3 to 9 feet by Mr. C. R. Millar of the African Manganese Company, forming part of his personal collection, and the writer is greatly indebted to him for permission to publish these facts and to photograph the specimens.

On Plate IV are reproduced four more examples from Nsuta, and some fragments of pottery found nearly in the same place, which will be described later. All four were obtained on the top of the ridge at various depths from the surface downwards.

Fig. 1, Plate IV, which has already had a passing reference, represents an implement in the unfinished state, which was collected by Mr. D. A. Thompson and presented to the writer. Its length is 3 inches and the width of the unsharpened cutting edge is 1 $\frac{1}{8}$ inches. The butt is flat and gives no indication that the length was originally more; it may have been, as these

implements were usually made longer. If this were so, it may be assumed that the stone broke whilst being flaked. The sides are parallel. These crude specimens are always interesting, as they provide evidence which indicates the way in which the Nyame Akuma was developed from the rough piece of rock to the ground and completed tool.

Fig. 2, Plate IV, is a typical Nsuta example with facets too indistinct to measure, the sides are nearly parallel, the butt broken, length $1\frac{3}{4}$ inches and the curved cutting edge has a width of one inch.

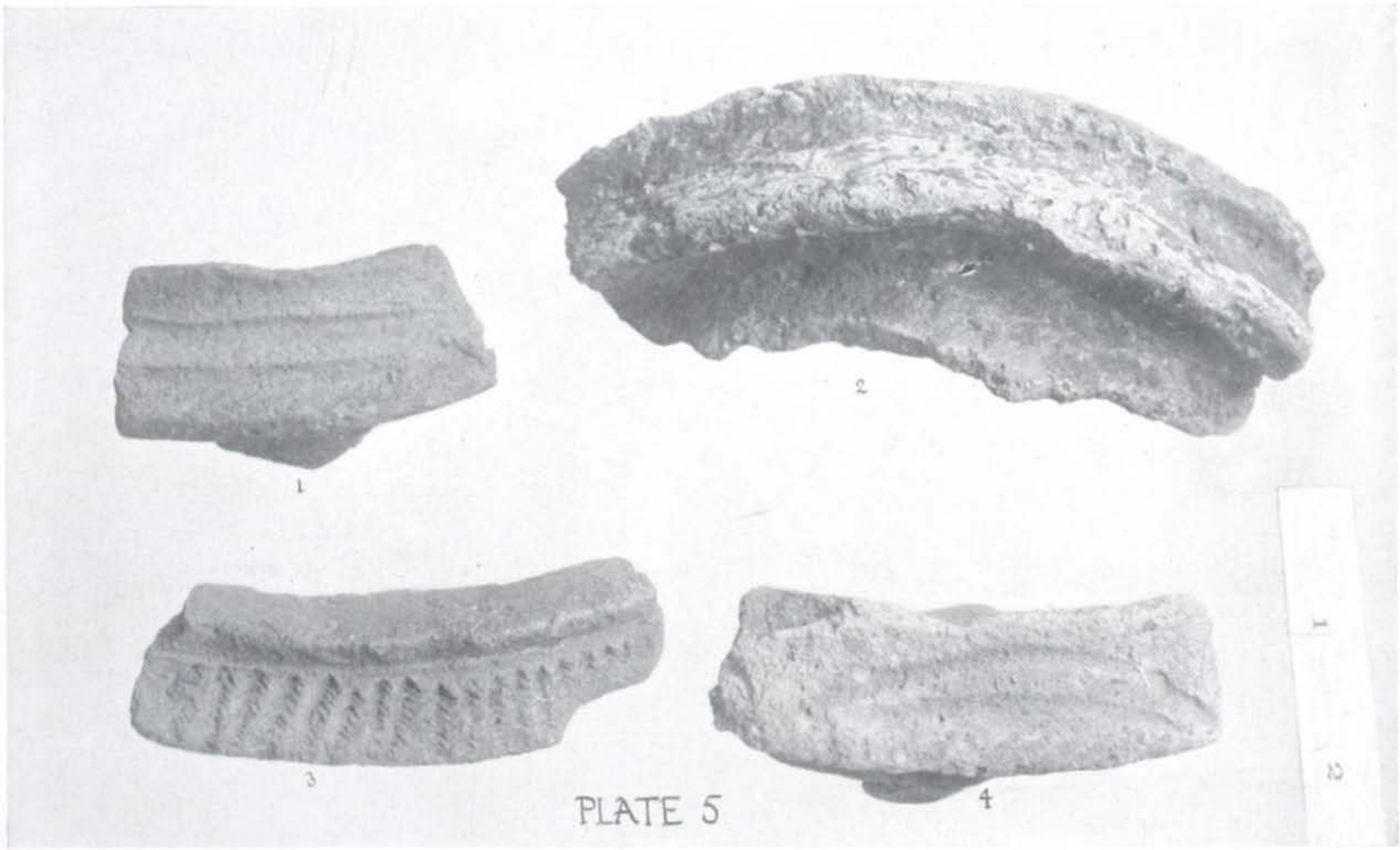
Fig. 3, Plate IV is another specimen of the Nsuta type. It possesses eight facets, two opposite facets broader than the others, and about $\frac{5}{8}$ inch in width whilst the other facets are $\frac{1}{4}$ inch. These broad facets eventually merge to form the bevelled cutting edge. The sides are parallel and the butt is broken. The length is $2\frac{1}{8}$ inches and the curved cutting edge is $\frac{7}{8}$ inch across.

Fig. 4, Plate IV is again typical of Nsuta with facets indistinct but fourteen in number, each about $\frac{1}{4}$ inch wide, sides parallel, length $2\frac{3}{8}$ inches, width of cutting edge $1\frac{1}{8}$ inches, cutting edge curved, butt broken.

Pottery (Plates IV and V).

In association with the stone axes numerous fragments of pottery have been turned up from time to time at Nsuta. This pottery is the usual coarse, thick, well baked kind of pot which has been attributed to the aboriginal peoples of the Gold Coast; the artificers of the Nyame Akuma.

The pieces illustrated which were discovered at a depth from 4 to 5 feet on top of Nsuta ridge, are covered with incrustation indicating a prolonged period of burial and are deep brown in colour. In some cases manganese staining may be observed. The potsherds may be distinguished from modern examples by the heavily reinforced and projecting rims which, especially in the case of Fig. 2, Plate V, are deeply undercut. Further dissimilarities may be noted, in the crudity of design, the material used and the decoration. The



Fragments of Rims of Ancient Pot from various depths. Nsuta Manganese Mine, Gold Coast.

modern pot is generally constructed of finer clay, has drawn-out rims and usually lacks ornamentation. The present day potter further disclaims all knowledge of the primitive patterns which were employed by the makers of the Nsuta ware. A short description of the specimens figured will serve to bring out these points.

The two fragments reproduced in Plate IV are probably pieces which originally formed the body of a pot or pots. Their curvature and plainness rather suggest this idea, because nearly all the decoration which has up to the present been collected has been confined to the rims and shoulders. Their coarseness is very marked, the colour dark brown, and the thickness of both is $\frac{5}{8}$ inch. For this part of the pot this measurement rather exceeds the average dimensions. Signs of corrosion and incrustation are evident.

Fig. 1, Plate V shows a portion of a rim, the reinforcement is well brought out as some of the neck remains. The ornamentation includes two plain horizontal grooves with some indistinct cord pattern. This rim is also undercut.

Fig. 2, Plate V possesses great interest from many points of view. Its very heavy reinforcement, deep undercutting, absence of decoration and crudity distinguish it. The pittings and markings brought out in the photograph are due to corrosion, an indication of age. The hand specimen is manganese stained and incrusted. Like the others, it is deep brown in colour and is obviously part of a rim.

Fig. 3, Plate V, another portion of a rim, has similar characteristics to No. 1, but in this case the ornamentation assumes the form of a vertical " herring bone " type.

Fig. 4, Plate V, differs from the other three rims by its possessing two curved and nearly parallel grooves. Further, there are vestiges of the same impressed cord pattern which occur in No. 1, but in this case internment has been responsible for their almost complete obliteration.

The six examples of primitive pottery described above have another feature in common and that is the

coarser grains of quartz which are embedded in the matrix. This may be due either to the employment of an impure clay by the potters or, as Mr. Balfour, F.R.S., of the Pitt-Rivers Museum, points out, was probably mixed with the clay in order to obviate unequal stresses being set up in firing in a bushwood fire, and to prevent the pots cracking while baking where the heat is unequally distributed. For a more detailed account of this type of pottery, reference should be made to Captain R. S. Rattray's "Religion and Art in Ashanti[3]", where an appendix by Captain Joyce of the British Museum will be found.

THE NSUTA POT—(*Plate VI*).

Fortunately, owing to the promptitude of Mr. N. E. Bore of the African Manganese Company, a complete pot was saved from the bucket of the steam shovel and the courtesy of Mr. D. A. Thompson has made it possible to reproduce and describe this example.

The actual site of this discovery was that part of Nsuta ridge locally termed the north crest of Hill D; whose height is given as from 390-400 feet O.D. On that day, July 21st 1929, the steam shovel was actively engaged in removing the loamy and rubbly detrital material comprising the overburden, when the pot was exposed to view some 4 to 5 feet below the surface. An examination of the spot did not disclose any associated remains, neither were there any signs of a previous interment or excavation. The adjacent overburden appeared to be entirely undisturbed. Of course, care must be taken to refrain from over-confidence when a steam shovel is requisitioned as an aid to archaeology; 1½ to 2 cubic yards at one gulp will soon obliterate all traces of a former disturbance. Yet, but for its assistance an important link with the past would have been destroyed, and therefore we must not be too ungrateful. Except for a few chips, the pot is perfect; its colour on the surface is brown and where broken, shows a brick red. As in other cases the time it has spent in the overburden has brought about corrosion

(3) Rattray, R. S.—"Religion and Art in Ashanti." Oxford at the Clarendon Press, 1927.

PLATE 6

Ancient Pot from a depth of 4-5 feet. Nsuta Manganese Mine, Gold Coast.

and the deposition of a crust. The rim is roughly circular and slightly everted. The base is rounded which may have been necessitated by the triangular arrangement of the hearth stones or supports. Approximately the dimensions are as follows :—

Outside diameter of rim	...	$3\frac{9}{16}$ inches.
Thickness of rim ...	...	$\frac{5}{16}$ inch.
Outside depth of pot	...	$2\frac{7}{8}$ inches.
Inside depth of pot ...	...	$2\frac{1}{2}$ inches.
Outside periphery of rim	...	$11\frac{1}{2}$ inches.
Outside periphery at shoulder		$11\frac{1}{4}$ inches.

These measurements vary slightly according to the place at which they are taken owing to the crudeness of the shape.

There is no undercutting of the rim, and the heavy reinforcement, such a marked feature of the other rims, is absent. The decoration is entirely confined to two incised grooves which merge into one groove on the outside between the rim and the shoulders, and one incised groove on the inside of the pot. The photograph brings out these points very clearly.

Speculation in regard to the provenance of this pot is of interest; certain features, namely, its crudity, thickness, colour, appearance, and the circumstances under which it was found, all agree in assigning it to the Nyame Akuma period. On the other hand, its shape and size suggest that it has affinities with the type of pot which is sometimes interred at the present day with deceased persons, and contain provisions for the last journey. It is possible that the Akan may have adopted this practice from his predecessor, in which case, here is an instance of survival; or it may be so wide spread that its origin must be sought for in the pre-history of both races.

The absence of skeletal remains need not upset the theory of the funerary use of this particular example. It has been noted by many observers that the pre-history of the Gold Coast and Ashanti is remarkable for the non-existence of any human bones. Probably this may be accounted for by the intense chemical decomposition and weathering under tropical conditions which the land surface has undergone.

The extensive laterisation of the country is a case in point. At Nsuta the stone axes and fragments of pottery show corrosion and therefore it is not in the least astonishing that the less resistant organic material should have been entirely removed.

The two incised grooves are rather significant as they call to mind the primitive method of " ringing " a pot in order to prevent the " spirit " from escaping. The writer does not recollect having observed this peculiarity before in pots of this type and used for the purpose of burial, but that is no criterion that it does not exist.

On the whole, the balance of the evidence strongly favours the view that this pot was made by the predecessors of the Akan people, in other words the artificers of the " Nyame Akuma."

The Pottery of Obuasi(4) and Nsuta :—On broad lines it may be stated that the heavy reinforcement and undercutting of the rims, the decorative motives such as the " herring bone " and " impressed cord " patterns, the coarse texture and the thickness of the finished article prove that these Nsuta potters were contemporaneous and had a common origin with the Obuasi craftsmen.

There are, however, certain minor characteristics of the Nsuta finds which, as in the Nyame Akuma allow for individual influence to effect the style. The pottery is thicker; the material used was finer, probably due to the quality of the clay employed, the reinforcement of the rims, certainly in some cases, was heavier and more importantly, the ornamentation as far as the present facts will permit, was not so elaborate, and in some cases reduced in amount. The arguments brought forward to account for the local peculiarities of the Nyame Akuma may with equal force be applied here, namely, distance, lack of communication and isolation. Further, in all cases of craftsmanship the personality of the artist is impressed on his work.

Pottery Fragment with Decorated Lug (Plate VII) :— The piece of decorated pottery reproduced in

(4) Wild, R. P.—" Vestiges of a pre-Ashanti Race." *The Gold Coast Review*, Vol. V, No. 1. The Government of the Gold Coast.

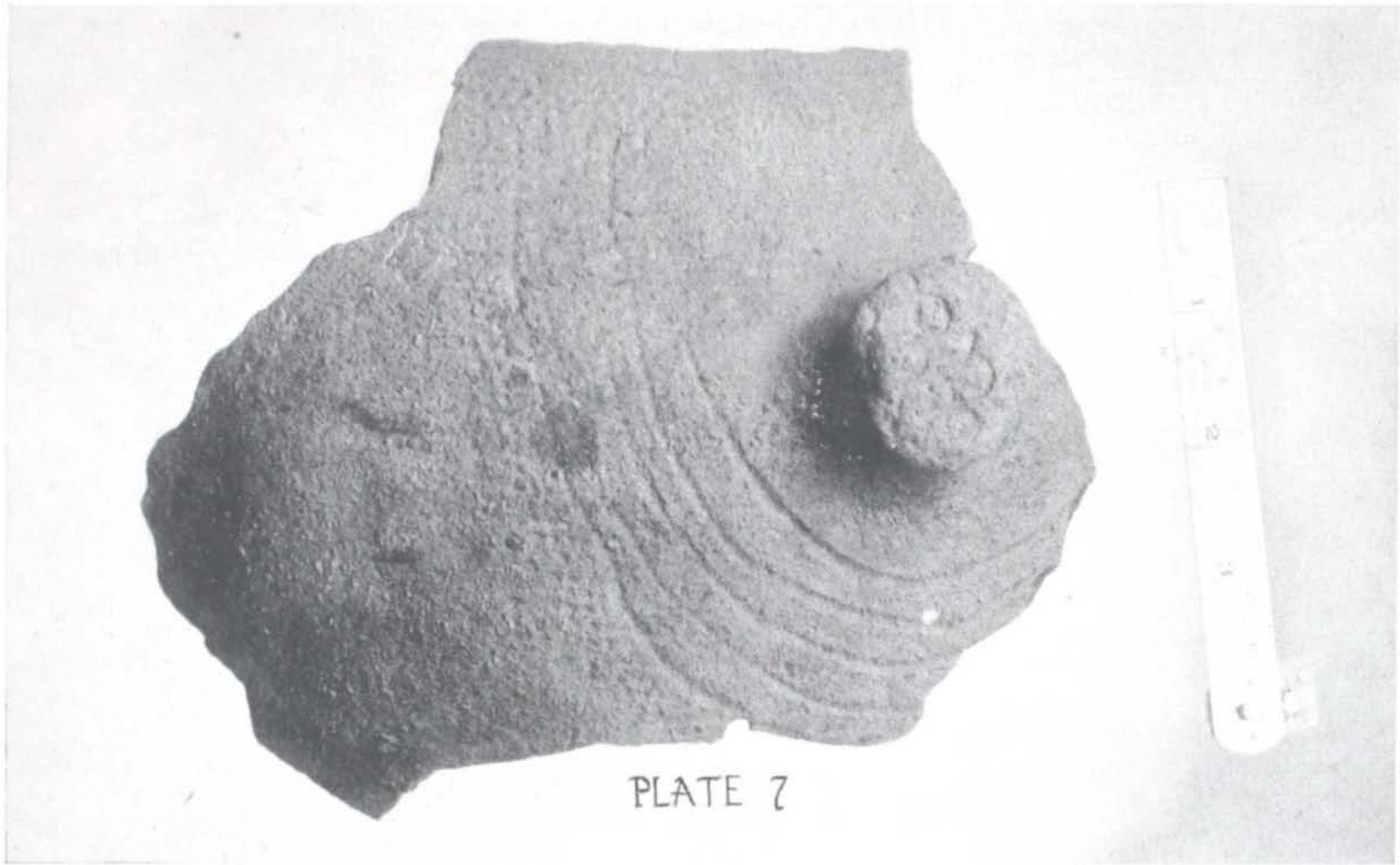


PLATE 7

Fragment of Pot with decorated Lug. Nsuta Manganese Mine, Gold Coast.

Plate VII presents a problem in many ways. In the light of the present state of our knowledge, it does not fit in with the scheme of things as it is totally unlike anything else found at Nsuta. It was found on top of the ridge and given to the writer by Mr. D. A. Thompson, but the evidence is insufficient to decide whether it had been buried or otherwise. The rough surface suggests exposure, while the slight manganese stain rather points to some period in contact with the earth. It may be that its burial was not in any case deep, and when the forest was removed, the covering of soil was easily washed away, and thus it was exposed to the action of the weather. Its rude ornamentation and coarse texture associate it with the other Nsuta ware; while its grey colour and thinness, on the contrary, support the view that it is akin to modern work. But what increases the perplexity is the lug or knob which appears to be peculiar to neither the present day nor to the older period.

The lug, which is impressed with a medley of crude circles, probably had a companion on the opposite side of the pot, which may have been used as a means of suspension by a cord. In some early pots from other countries these lugs are pierced with holes in order that the cord might be threaded. They mark a stage in the evolution of potmaking, as their extension and the enlargement of the hole would eventually lead to the production of a handle.

The details may be set out as follows :— Coarse texture, due to an admixture of much quartz grit, colour grey. The thickest place, excluding the lug, is $\frac{3}{8}$ inch, which thins off to a bare $\frac{3}{16}$ inch. It is more brittle than the other fragments of pot and has a harder surface. Five irregularly curved grooves tend to encircle the lug and the other ornamentation consists of a series of dots which are more or less symetrically spaced.

It is difficult to account for this object and whatever deductions may be drawn from its peculiarities they can at the most be purely tentative. It might represent a transition stage between the ancient and the modern; the Akan invaders assimilating the methods of the older inhabitants. The two peoples may have

lived amicably side by side or more probably the conquerors enslaved the others. Whichever it was the indigenous culture would have its effect and influence the newcomers.

The lug, however, is an obstacle which tends to upset this hypothesis. Its presence might be ascribed to some foreign influence. As Nsuta is not forty miles distant from the coast, the possibility of an importation from that direction must not be overlooked.

However, the main purpose of this account is to place the facts, so far as they are known, on record and as this is the only piece that is available for examination so far, perhaps any undue criticism of its provenance is hardly justified.

Hammer Stone (Plate VIII).

The hammer stone, Plate VIII, is another link in the cultural connection between Nsuta and Obuasi where so many of this type of artefact have been found. It is similar in shape and appearance to those which have been dug up on Monkey Hill, Obuasi.(5) Further, the nature of the stone, namely a quartzite from the Tarkwaian series, is identical with that composing the examples from Obuasi.

The extensive bruising at both ends and the central depressions or finger pits on both surfaces indicate the purpose for which it was intended—a hand hammer stone for the beating of crude iron— although the depressions may have been formed during the pointing of such implements as spear heads.

There is however one minor feature which signifies a variation from the Obuasi hammer stones, in that the two larger faces have been smoothed or ground down, a process which has tended to obscure the depressions. This denotes that the implement had been used for grinding, it may be corn or some such food. Though it is possible that this detail is subsequent. Anyhow, in this particular case an all round tool has been produced, useful for hammering, grinding and sharpening weapons.

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(5) Wild, R. P.—Op. cit.

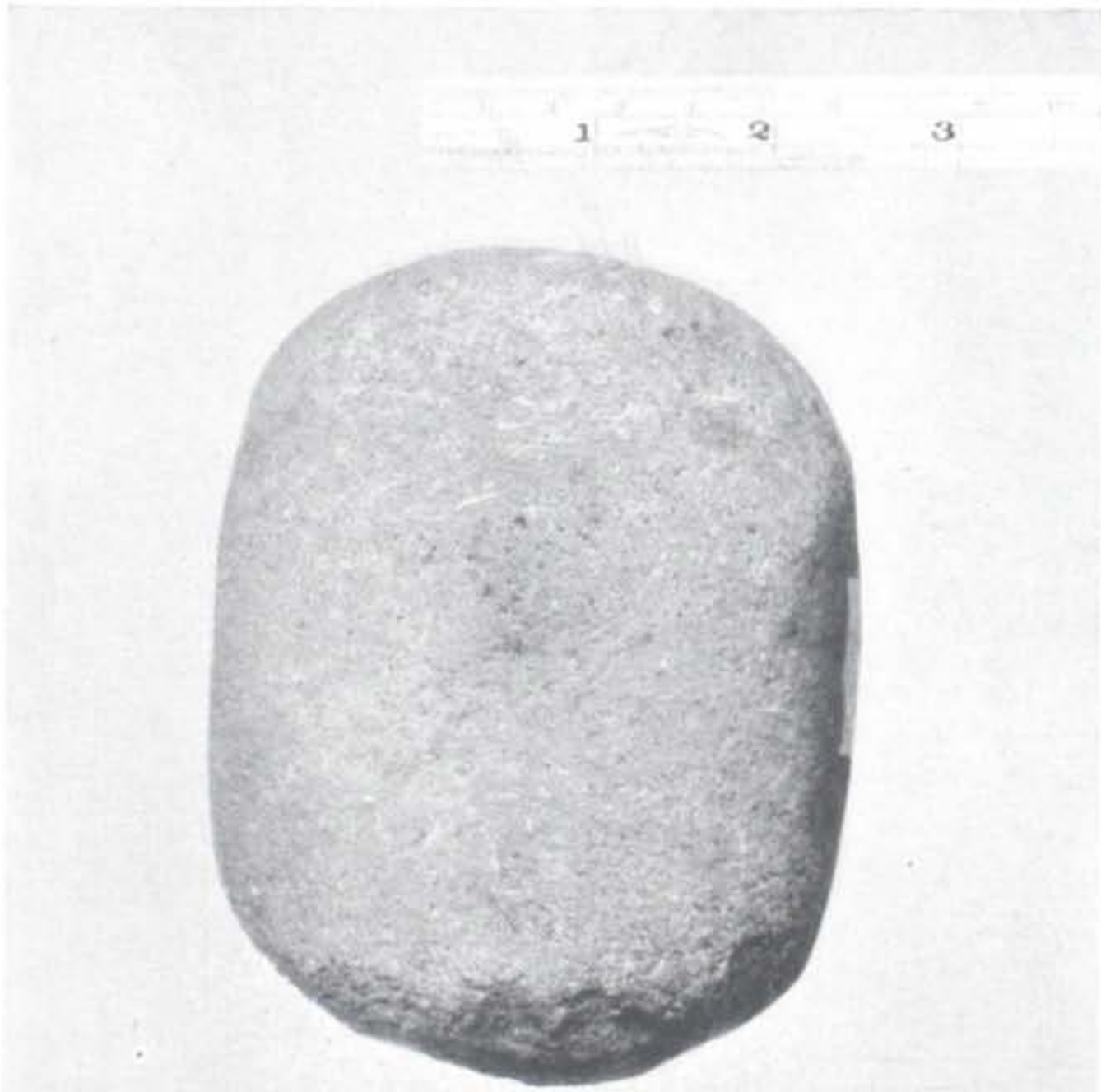

PLATE 8.

"Hand Hammer Stone" with central depressions.
Nsuta Manganese Mine, Gold Coast.

This stone implement was obtained from the surface at the top of Nsuta ridge and has the following dimensions :—$4\frac{1}{4}$ inches by $3\frac{5}{8}$ inches by $1\frac{5}{16}$ inches; a typical bun shaped hand hammer stone.

To conclude it may be stated that from the consideration of the facts detailed in this article, it is inferred that the occupiers of the Nsuta ridge had cultural relations with their contemporaries at Obuasi and were also racially connected with them.

NOTES.

(1) For permission to publish the contoured map of Hills D and E at Nsuta, I am deeply indebted to Mr. C. R. Millar, the Manager of the African Manganese Company. The co-ordinates shown on the map are 1,000 feet apart, giving a scale of approximately $3\frac{1}{8}$ inches to the 1,000 feet. The contouring is correct within 10 feet of O.D.

(2) The ten examples of Nyame Akuma reproduced in Plate III are from Mr. C. R. Millar's collection.

(3) The right hand side " hand hone " in Plate I and the lower one in Plate II have been deposited in the Pitt-Rivers Museum, Oxford.

(4) The remainder of the objects described in this article have been presented to the Department of Ceramics and Ethnography at the British Museum.

(5) The Plates have been reproduced from photographs taken by Mr. S. Pitcher, F.R.P.S., of Gloucester.

BIRD POPULATION STUDIES.—TRAVELLING BIRD CENSUSES IN THE GOLD COAST.

By J. M. Winterbottom, B.Sc., Education Department.

The applied science of economic ornithology is only in its infancy, even in Europe and North America. The pioneer work of the United States Biological Survey and of E. M. Nicholson, W. E. Collinge[1] and others in Europe is already yielding valuable results, however. It had for long been known that many birds were helpful to man on account of their insectivorous habits, but about the position of others there was much controversy. For instance, dispute raged, and still to some extent does rage, about the economic status of the English rook, starling and blackbird. These questions can only be decided by careful, quantitative investigations. Precipitate action is often disastrous. In Australia, for example, the fishing on a certain river was very poor and it was assumed that the multitudes of cormorants that were found there must be responsible. The birds were accordingly slaughtered in large numbers and rapidly became scarce. The fishing however, grew worse instead of better and it then occurred to someone to find out what exactly it was that the cormorants fed upon. When the crops were examined, they were found to contain nothing but crabs and dredging revealed that the bottom of the river swarmed with these enemies to fish life. By their hasty action, the fishermen had permanently spoiled their own fishing, for no amount of lamentation would bring back the cormorants.

Here in the Gold Coast, things are hardly ripe for any systematic attempts at investigating the economic position of the various species of birds. At the same time, birds must undoubtedly affect, favourably or adversely, the condition of the cacao, maize, rice, cassava and other crops. It is obvious,

(1) The Food of some British Birds, 1927.

too, that the birds of importance in this respect are the common ones. The rare species, however interesting scientifically and æsthetically, are of little practical importance. Hence it is necessary first to establish what are the common species in a country. This is easy enough if nothing more than a rough list of commoner birds is required, but something more exact is desirable. We could, perhaps, regard all the species mentioned in Dalziel's pamphlet[2] as being ' common,' but they are not by any means equally common and the proportions vary in different parts of the Colony.

With human beings, we arrive at the number of individuals in the country by means of a census. The unit is the householder, who gives information as to the number of persons resident in his house. Ideally, we should adopt the same methods with birds. But there are many practical difficulties. It is difficult in the Savannah and impossible in the Forest to count accurately the number of birds in any given area and even were it possible, it would still be impossible to say which of the birds included were actually resident in the area surveyed and which were casual visitors. Moreover, it will be enough for practical purposes to have a comparative and not an absolute figure. It is the relative density and the percentage composition of the fauna that we want to find, at least at first. For this purpose, what I have called in the title a ' travelling census ' has real value.

A travelling census is one taken from a moving vehicle such as a motor-car or a railway train. I do not propose to discuss here the relative merits and defects of this method of census-taking or of the different means of transport, since this has already been done elsewhere,[3][4] and the keen student will go to these sources for information. But for the benefit of those to whom the other papers are inaccessible, I will give a few details of my own mode of procedure. Those

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(2) Bird Life Around Accra, 1922.
(3) E. M. Nicholson, *Discovery*, IX, 104, August, 1928, pp. 253–257.
(4) J. M. Winterbottom, " Bird Population Studies—I. The Results of Some Travelling Censuses in Southern England," *British Birds*, 1930.

who wish to try census-taking for themselves can introduce such modifications as they think fit.

The equipment required is a pencil and paper and a knowledge of the commoner birds of the district. A pencil is to be preferred to a pen, especially if the roads are bad or if the train is liable to jolt. Sufficient acquaintance with the bird life can easily be obtained in a few months, since only the commoner species are really important. But these commoner forms must be known well, so that they can be identified without hestitation even at a distance. Persons in Accra, and in the open country generally, could probably make do with Dalziel's pamphlet,(2) but those who live in the forested parts must, and others would do better to, get Bate's book(5) or even Bannerman's,(6) though this last is not yet completed.

Ideally, of course, one should record every species separately. In practice, this would necessitate a big list and while one was finding the place to record one bird, probably three or four others would be missed. Furthermore, it is often impossible in the time available to distinguish between closely allied species, (e.g. female sunbirds and weavers) even at close quarters. Consequently one is compelled to adopt some sort of grouping. In framing this, two guiding principles may be adopted: (1) Birds of different families should not be grouped together; (2) Birds of different feeding habits should be recorded separately, even if they belong to the same family. Thus one must distinguish between the swallows (family Hirundidae) and the swifts (family Apodidae—incidentally in a different order altogether); between the scavenging kites (*Milvus migrans parasiticus*) and the raptorial falcons, both of which are included in the family Falconidae. Here is one of my own lists for use in the Gold Coast.

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(5) G. L. Bates, *A Handbook of the Birds of West Africa*, 1930.
(6) D. A. Bannerman, *Bird Life in Tropical West Africa*, 1930.

Weaver Birds	
Swallows	
Swifts	
Sparrows	
Bulbuls	
Small Birds	
Shrikes	
Bee-eaters	
Falcons	
Pigeons	
Kites	
Crows	
Starlings	

It will be noted that there are a number of vacant spaces below ' Starlings.' These can be filled in as additional species are noted. In the wide space at the foot of the paper, the route, distance, time of day, weather, type of country and any other relevant details can be noted. With reference to the type of country, this is very important, and it as well to break up the census into two if more than one type of country is met with on a journey of any length. Thus between Accra

and Kumasi, Census 1 should end a few miles in the Accra side of Nsawam, where the open country gives place to forest. I usually write out the list before starting on a trip, but if much travelling is done and a cyclostyle is available, it is as well to have the list cyclostyled. Three such lists could be got on-to a sheet of paper foolscap size.

Now a word or two on the categories. These are not ideal. The first one, " Weaver birds," is too large. I tried at first to divide it into two, " Large Weaver birds " and " Small Weaver birds," corresponding roughly with the two sub-families Ploceinæ and Estrilidinæ (*see* Bates[5]), but it was not very successful. In the rainy season, when the males are in breeding plumage, it might be worth while taking a census of the males of such common species as the palm-bird (*Ploceus c. cuculatus*), the yellow-mantled whydah (*Coluispasser macroura*), the bishop-birds or cardinals (*Euplectes h. hordeacea and E. f. franciscana*) and the pin-tailed whydah (*Vidua macroura*), but at present I am concentrating on a more general survey. Again, it might be worth while distinguishing between the little swift (*Apus a. affinis*) and the palm-swift (Cypsiurus *parvus brachypterus*). I do normally keep a note of the numbers of each species of the three common species of bush-shrike, the Ethiopian (*Dryoscopus g. gambensis*), *Senegal* (*Tchagra senegala pallida*) and Barbary, or gonolek (*Laniarus b. barbarus*). The onlv remaining category needing comment is " Small Birds." This is made up mainly of warblers (*Sylviidæ*) and sunbirds (*Nectariniidæ*), so that I must plead guilty to violating one of my own rules. My only excuse is the difficulty of distinguishing a relatively short-billed sunbird from a relatively long-billed warbler when seen only for a second or two, perhaps some distance away. I also include here any small species I cannot identify—there is not often much difficulty about the large birds, which can be recorded separately at the foot of the list. It might, perhaps, be better to keep the sunbirds and warblers as one or two separate categories, and to reserve " Small Birds " for the unidentified species. But the suggestions I have made towards improving the grouping would very nearly multiply the initial number

of categories by two and would tend to lead to grave inaccuracies in the noting of birds as a whole.

In noting down the numbers, I find it useful to put a ring round a two-figure number. This avoids the risk of afterwards adding up each figure separately. Thus if one saw a flock of 17 glossy starlings and, on the same run, small groups of 3 and 2, one is liable to add them up $3+2+1+7=13$, instead of $3+2+17=22$. Putting dots between the figures, thus: 3.2.7, takes up a great deal of space (often very precious, as a large piece of paper is unwieldy) and it is difficult to keep the line neat if the car or train is jolting. The misplacing of a dot might have serious consequences, e.g. 3.21.7.=31.

These rough field-notes must be entered up properly later on in a book. Probably everyone will have their own ideas on the best way to do this, but I give an example of my own, not as a model but as a starting point for others.

15th June, 30.—Weather fine but dull. Accra to Dodowa (25 m.), leaving Accra about 4.30 and arriving about 5.40. Figures:—

		No.	*Av.*	%
Total	.. ..	325	13.0	—
Weavers	.. ..	111	4.4	34.1
Swallows	.. ..	64	2.6	19.7
Bulbuls	.. ..	32	1.3	9.9
Small Birds	.. 44	Sparrows		22
Pigeons	.. 11	Barbary Bush-shrikes ..		7
Crows ..	.. 8	Ethiopian Bush-shrike		1
Starlings	.. 8	Senegal Bush-shrike ..		1
Swifts ..	.. 5	Kingfishers		3
Falcons	.. 2	Touracous		2
Hornbills	.. 2	Vulture		1
Bee-eater	.. 1			

I took my first census in the Colony on 27th April, 1930, so that it is too early yet to base much on the figures obtained. The total distance over which I have taken censuses is under 650 miles, nearly all on the Accra plains. These figures, however, bear out the conclusions based on my English results in showing that cultivation is definitely favourable to bird life, and they also suggest that the open country carries a larger

population than forest. This last result, however, may well be deceptive (as it certainly is in part), for conditions of visibility are naturally much better on the savannah.

Easily the dominant group of birds is the Ploceidæ or weavers, which form at least 30 per cent of the total of all species observed. The majority are seed-eaters and they must do considerable damage to grain. Swallows (mostly *Hirundo senegalensis* subspp.), sparrows (*Passer g. griseus*) and bulbuls (*Pycnonotus barbatus inornatus*) are also numerous and of fairly regular occurrence. The crow (*Corvus albus*) seems commoner in the forest than in the open country. Bee-eaters (*Melittophagus* and *Merops* spp.) are irregular, sometimes being seen in fair numbers and at other times not at all. I have only two records after May and the birds are probably migratory, at least in part, breeding in the Haute-Volta and perhaps in our own Northern Territories. Yellow wagtails (*Motacilla flava*) I have not yet included, since I did not begin census-taking until they had already left for Europe, but I fancy they will be found to constitute an important part of the fauna while they are with us.

My average per mile is, at the time of writing, 9.4 for all species, with a maximum of 53 for a five-mile run from the European residential area in Accra to the Government Sisal Plantation on 5th June before 8 a.m. and a minimum of 5.2 for another five-mile run, between Accra and Labadi after 4 p.m. For distances of 10 miles and over, the maximum and minimum are 20.3 and 6.6 respectively. For the last 250 miles, the average for the total distance has only fluctuated between 9.7 and 9.4, so that the true figure will probably not be far off 9.5, or 10 at the highest. It must be remembered, however, that another observer would probably obtain a slightly different figure, for a good deal depends on the powers of observation of the individual. This, however, should not affect the percentage composition of the fauna to any marked extent. My figure for Africa is, curiously enough, somewhat lower than the one I obtained for England! This supports what was said above on the effect of cultiva-

tion on the numbers of birds. I am reserving the complete analysis of my figures until they are a good deal more extensive than they are at present, and they will be published in an ornithological periodical. But I shall be very glad to send a copy of the paper to anyone interested in the subject. In the meantime if anybody keen on birds wants a pleasant way of passing a journey, I would recommend him (or her) to try census-taking. The results, if too limited to have much value by themselves, would be of interest when correlated with those of others and I should be very glad to have my figures checked and extended by the work of others. A team of census-takers working throughout the Gold Coast would, in a few years, enable a fairly accurate picture to be obtained of the bird fauna of the country and would pave the way for more detailed study later. The wonderful results of the bird-ringing and phenological schemes in Europe and North America (see Wight's[7] book for the latter and Thompson's[8] and Nicholson's[9] for the former) are examples of what can be achieved by a team of amateurs working together.

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A STONE IMPLEMENT OF PALÆOLITHIC TYPE FROM THE GOLD COAST COLONY.

The discovery of stone implements in the Gold Coast and Ashanti has hitherto been mainly confined to celts of Neolithic type with the surface partly or entirely ground, hammer stones and other implements of the later stone age, which probably persisted in West Africa until the advent of the European. This is not in itself astonishing when the abundance of these artefacts is considered. Most Europeans, who have lived in the country for any appreciable time, have come across them. Sir Albert Kitson, until lately the Director of the Geological Survey states that:—(1)" Ground axes or chisels of cylindrical and flat oval shapes fashioned on both sides, can now be found on the surface of the ground in many parts of the country." Further, Captain R. S. Rattray was responsible for the collection of some 150 specimens which formed the basis of an article(2) by Mr. H. Balfour, F.R.S., of the Pitt Rivers Museum, Oxford; whilst the writer's own opinion is laid down in Vol. III, No. 2 of the Gold Coast Review, 1927, where the statement is made(3):—" In the light of the above statements and after some years experience travelling about the Gold Coast and Ashanti the writer of this article has come to the conclusion that these stone axes are so abundantly distributed that most localities will yield some specimens after careful investigation."

Though we have therefore ample evidence of a Neolithic culture in the Gold Coast and Ashanti, the problem which puzzled archaeologists was the scantiness of the evidence that a Palæolithic or early stone age culture existed prior to the Neolithic which is so

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(1) Kitson, A. E.: "The Gold Coast. Some consideration of its Structure, People and Natural History"; reprinted from "The Geographical Journal" for November, 1916.

(2) Balfour, H.: "Ancient Stone Implements from Ejura, Ashanti;" No. XLV Vol. XII. The Journal of the African Society.

(3) Wild, R. P.: "Stone Artefacts of the Gold Coast and Ashanti." "The Gold Coast Review" Vol. III No. 2 1927—The Government of the Gold Coast.

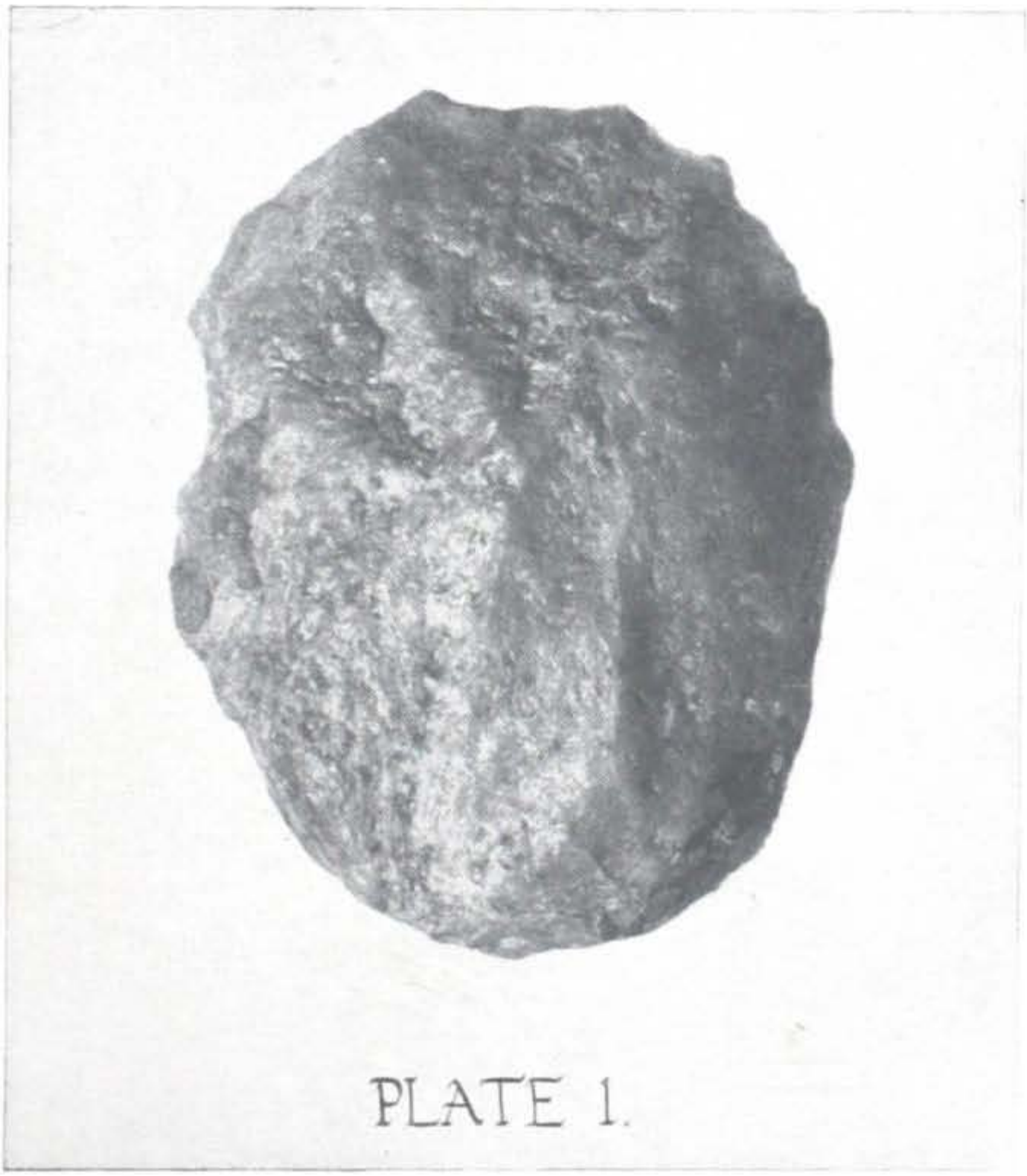

PLATE 1.

"CONVEX FACE."

Stone Implement of Palæolithic type from Achiasi station, Gold Coast.

abundantly demonstrated by the ubiquitous Nyami Akuma or "God Axes."

That stone implements of the Palæolithic type would be discovered in the Gold Coast and Ashanti was in the opinion of the most competent archaeologists only a matter of time. It was the only logical conclusion that could possibly be arrived at, after the evidence from other parts of Africa had accumulated and after the skilled technique of the Neolithic artificers had been so amply confirmed.

In Nigeria, however it would appear that implements of Palæolithic type have been definitely identified, for crude stone artefacts of this type have been found at depths varying from a few to thirty feet in the alluvial deposits on the Bauchi Plateau. These discoveries were subsequently described by Mr. H. J. Braunholtz, M.A., of the British Museum,[4] who, it should be noted, is careful to say:—"Although in the absence of any observed stratification of implements it would be unwise to draw definite conclusion as to their relative ages, we have to face the possibility of a partial overlapping of palæolithic and neolithic industries, in other words to allow for the possible extension of an early palæolithic type down to comparatively recent times. Such a conclusion would be in consonance with the evidence from other parts of Africa. No associated skeletal remains, either animal or human, nor any evidence of a palæontological kind has been found to assist in determining the age of the implements or of the deposits in which they were found."

With regard to evidence, which more immediately concerns the locality of the Gold Coast, Mr. Braunholtz makes the statement that:—"The occurrence of implements of palæolithic type has been reported from the Gold Coast at Accra[5] though without detailed description, and a few specimens of crude quartzite hand axes and flakes from Accra, without clear evidence of age, are in the British Museum. A few doubtful

(4) Braunholtz, H. J.: "Stone Implements of Palæolithic and Neolithic Types from Nigeria" Geological Survey of Nigeria. Occasional Paper No. 4.

(5) Kitson, A. E.: "Gold Coast Geological Survey." "Annual Report." 1913–1914§ 16.

cases of Palæolithic from near Kumasi and from the Northern Territories of the Gold Coast have also been published.(6)".

In consequence of these scanty details, it is interesting therefore to be able to put on record an indubitable Gold Coast stone implement of Palæolithic type, which was found by the writer in June, 1930 at Achiasi station on the Central Province Line (Map reference North B-30/Q-11 1.125000 Gold Coast Survey). Whilst strolling along the platform waiting for the train, the Palæolith was discovered lying among some opaque, white, well rounded quartz pebbles, which made up the bulk of the surface of the platform. Between the pebbles there was a little fine grained red loamy material. It was subsequently ascertained that these quartz pebbles and the fine grained material were screened ballast which had been obtained from some railway cutting on the line when construction was in progress. This material was also used to ballast the line. Unfortunately further enquiries failed to elicit any information which would lead to the identification of the particular cutting. This was greatly to be regretted, as important data, such as depth below surface, stratification, associated implements, skeletal remains, character of the deposit and locality, are missing; and therefore the conclusions to be drawn are few and indecisive.

From the meagre details available, namely the association of the Palæolith with well-rounded opaque quartz pebbles and some fine grained loamy material, it is highly probable that this implement was derived from some ancient deposit of river gravels through which the Central Province line had been laid. The well-rounded quartz pebbles and fine grained material, in all probability a loamy alluvium, both indicate that source, which may be a river terrace, a flat or a former river channel.

Notwithstanding the evidence of action as demonstrated by the shape of the associated quartz pebbles, the implement itself shows no signs of being rolled, for

(6) Migeod: Cardinall and Seligman "Man" 1916; 36. 1919; 6. 1921; 57.

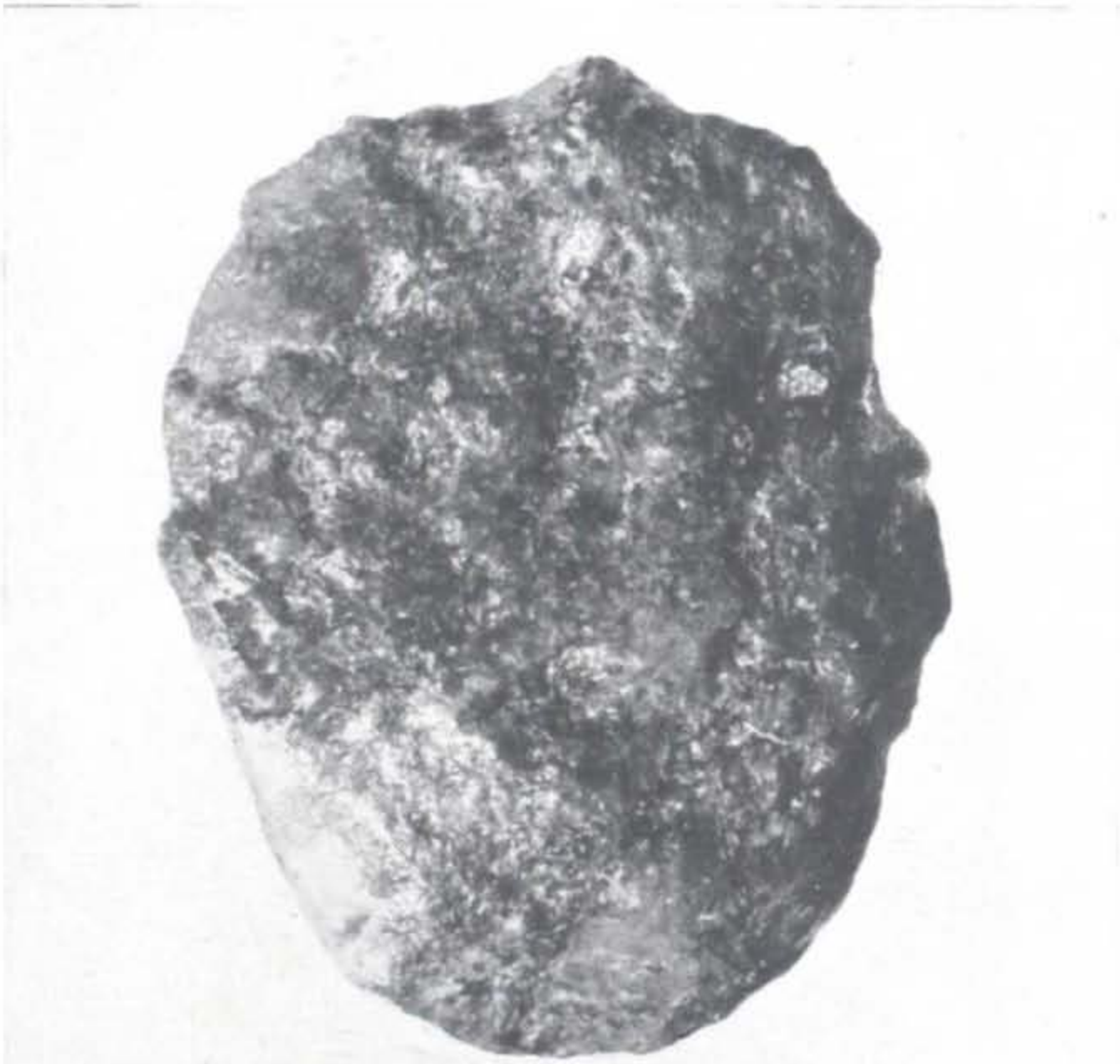

PLATE 2.

"FLAT FACE."

Stone Implement of Palæolithic type from Achiasi station, Gold Coast.

PLATE 3.

"PROFILE."

Stone Implement of Palæolithic type from Achiasi station, Gold Coast.

the edges are sharp and the flaking is distinct, and it might be inferred that it had been lying on the surface of the deposit and not buried beneath other material. Its colour however and some small patches of ferruginous incrustation suggest that on the other hand the implement had been covered over at some period. Except for one or two bruises, where the light grey quartz composing it shows up, the Palæolith is uniformly stained with yellow. This points to some period when it came in contact with water carrying iron salts in solution, which would probably be derived from the surrounding alluvial material. There is further another point which should be borne in mind, and that is there is always a tendency for articles of this type owing to their relative weight to sink, aided by the action of percolating water. The writer assumes that the bruising would be caused during the process of screening the ballast and removing it to Achiasi station.

Whatever evidence may be obtained regarding the provenance of this specimen, very little that is conclusive can be gathered from its mode of manufacture. To archæologist this type is known as "ovate hand axe" with crude and bold flaking. Its dimensions are, length $3\frac{1}{2}$ inches and breadth $2\frac{3}{4}$ inches. The implement was prepared by striking off a few flakes with well directed blows from a larger piece of quartz. Having "dressed" the surface in this manner, a blow was sufficient to remove the flaked portion from its parent core, giving the underside a flat surface. In this case the underside was subsequently "dressed" to form a bevelled cutting edge at one end.

We have therefore very little data upon which we can base an estimate which would allow us to determine the type of man who made this implement. From analogies archæologists consider that this kind of implement should be classified with types which are found in the Chelles—Le Moustier epoch of Europe and in some of its aspects this particular specimen distinctly resembles the Acheulean culture and in other aspects the Mousterian culture of the early Palæolithic

age; an age which was accompanied in Europe by intense glaciation and according to some authorities existed some 25,000 years ago, though this date is based only on a rough calculation. On the other hand it has certain features which are African. It must not, however, be taken for granted that man with a Mousterian culture existed in West Africa at that early date. There are other possibilities to be considered, which owing to lack of evidence cannot be summarily put aside.

From a chronological point of view, the Gold Coast industry may have originated at a much later date than its European equivalent. Its Palæolithic industry of this type may have survived well into Neolithic times, and if so, the two industries would overlap and further, may not a palæolithic culture have survived until comparatively recent times in West Africa? It is conceivable that as the ice age in Europe approached its maximum intensity, early man was driven into Africa to seek a more congenial clime. On the other hand, it is also conceivable that African man may have advanced into Europe as the ice retreated and as the great Saharan area dried up. And what is the cultural connection, if any, between the Rhodesian man of Broken Hill and these West African Palæoliths? These are a few of the problems which an implement of this type conjures up and our ignorance of Africa is still very profound.

Besides Nigeria, Mr. Braunholtz's paper* makes mention of the following palæolithic sites which point to a cultural connection with the Gold Coast:—in the Western Sudan at Foum el Alba, 400 kilometres north of Timbuctoo, in the French Territory of the Niger; at the confluence of the Oued Telemsi and the Nigerian plain several kilometres east of Gao, i.e. about 200 miles east of Timbuctoo. Further, when referring to Nigeria, Mr. Braunholtz says "More than 1000 miles to the north across the desert we find

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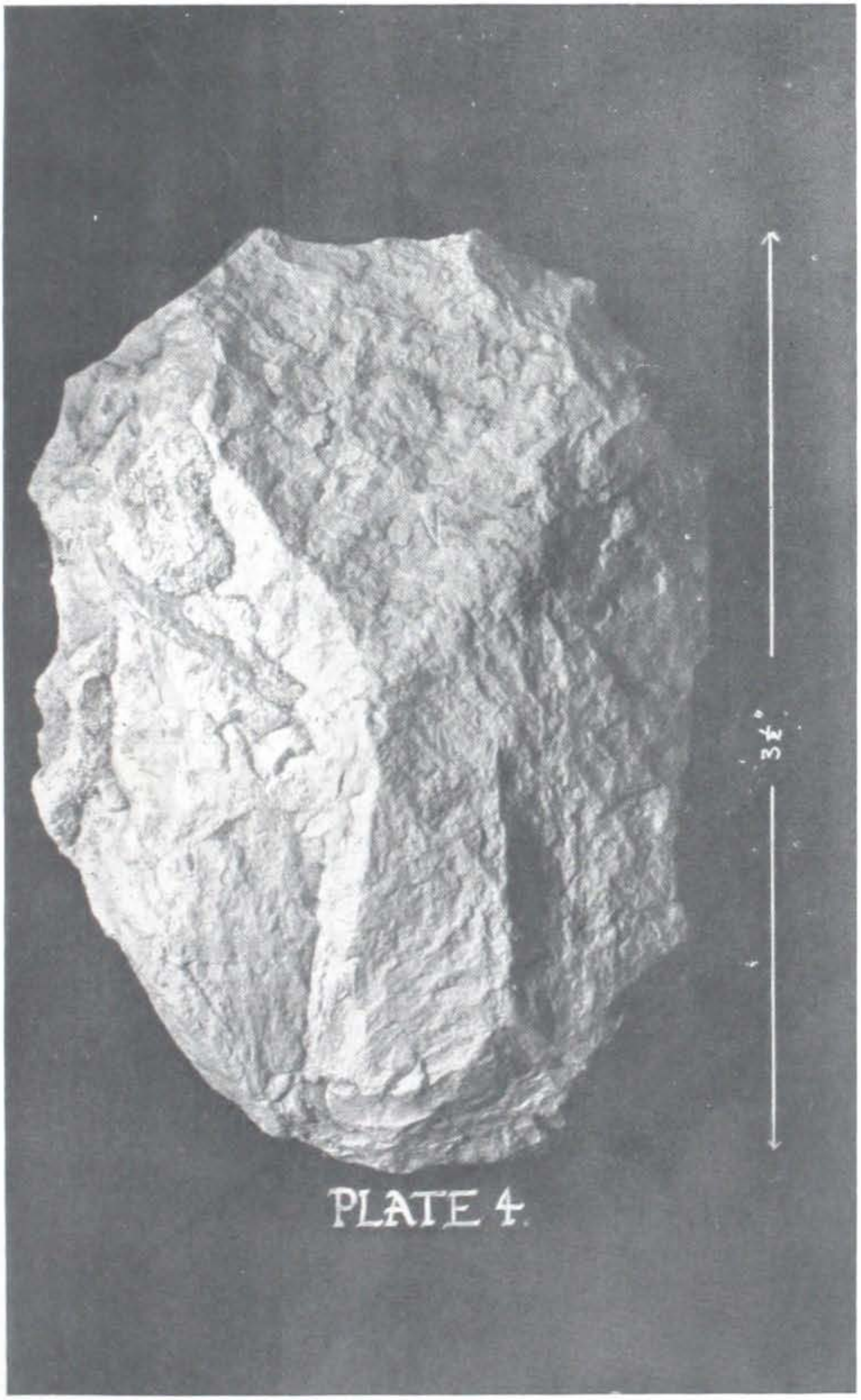
NOTE.—The Palaeolith has been deposited in the Pitt-Rivers Museum, Oxford. The illustrations are reproduced from photographs taken by Mr. S. Pitcher, F.R.P.S., of Gloucester.

*Braunholtz, H. J.: "Op cit."



"CONVEX FACE."

"Flaking specially accentuated." Stone Implement of Palæolithic type from Achiasi station, Gold Coast.

implements of early palæolithic types appearing at Timassinin on the Tinghert Plateau of the Algerian Sahara and another large step brings us to the Oran in Southern Algeria, where e.g. at Tabelballa cultures of Chelles—Le Moustier facies are fully represented."

It is to be hoped that anyone who is interested in the pre-history of the Gold Coast and its Dependencies will, in future keep a careful look-out for any further specimens of Palæolithic type and will notify the Gold Coast Review accordingly. There is no doubt in the writer's mind that they do occur in greater abundance than has hitherto been suspected. Probably this is due to the fact that they have been overlooked. This is not surprising for many persons would not recognise, in these early stone implements, the handiwork of man. In fact the specimen described evoked merely scepticism in most instances, when exhibited. Wherever there are gravels, especially along the banks of rivers, both ancient and recent, an effort should be made to examine them and more importantly in the event of an implement being found, an exact record of the occurrence should be noted down.

Thus may valuable pre-historical data be preserved.

A DISC-SHAPED STONE ARTEFACT FROM TARKWA.

The artefact about to be described was discovered by the writer in the garden of the Mines Department bungalow, Government Hill, Tarkwa on August 12th, 1930.

It had been turned up a day or two previously from a trench which was being prepared for a rose bed and had been deposited with the rest of the material from the trench on to the front drive near the main entrance to the bungalow, and was merely functioning as ballast. The subsoil from which the specimen was derived is the usual highly ferriginous lateritic formation which caps the hills in the Tarkwa district; and as the composition of the object is an igneous rock of some granitic material with well developed but opaque Felspar and a little quartz, it will be at once apparent that it is an exotic as far as Tarkwa is concerned. In this locality there is no granite, the nearest outcrop being at least ten miles away, and the rock formation underlying the lateritic cap is a series of either highly or moderately altered sediments with intrusions of a greenish intermediate basic type.

Though the artefact was not found actually in situ, careful inquiries confirmed the inference that it had come from a position near the bottom of the trench which was roughly three feet deep. Further, the site itself has some value as archæological evidence, because the Mines Department bungalow is situated on the crest of one of those long low ridges which are such a feature of the Tarkwa District.

At the time of the discovery no other objects of importance were found, but the writer, some eight years previously, had picked up two Nyame Akuma within fifty yards of this spot. It is hoped, when time and circumstances permit, to carry out further investigations of this part of Government Hill; but it is rather difficult to justify the excavation of a rose-garden in the interests of archæology.

"A Disc-shaped stone Artefact." Government Hill, Tarkwa, Gold Coast.

In shape the artefact approximates to a circular disc as an inspection of the illustration will show. Its dimensions are as follows:—

Longest diameter ... 3 inches.
Shortest diameter ... $2\frac{7}{8}$ inches.

The thickness varies from 1 inch to 11/16 inch.

Its appearance suggests that it has been ground flat on both sides, whilst the edge is rounded and also appears to have been ground. It is difficult to definitely decide whether subsequent bruising has taken place along the rim, for a close examination rather points to the contrary and the stone would not lend itself to a smooth finish. This is rather an important point when the object of this artefact comes to be considered.

The most interesting feature, however, is the two depressions, in the centre, one on each side, which supports the argument that this specimen is a hand hammer stone and the depressions would therefore be finger pits; a view in which some experts concur. On the other hand, if it is accepted that no subsequent bruising has taken place on the rim, a much more difficult problem arises. Except for the finger pits, it has no similarities with the hammer stones discovered on Monkey Hill, Obuasi.[1] What is it? Of course it may be an unused hammer stone almost in mint condition, but when due allowance is made for the occurrence of other disc shaped stones, not hammer stones, found in the Gold Coast, the question of its use still remains unanswered. The possibility that it could be an unperforated spindle whorl can be dismissed as it is not sufficiently symmetrical for the purpose.

Failing a hammer stone reference will have to be made to those bi-conically pierced discs which have tantalized so many Gold Coast investigators; and so aptly termed "Gold Coast Puzzles" by Mr. H. S. Newlands[2] (Chief Commissioner of Ashanti) in his interesting article on that subject which was published

(1) Wild, R. P. :—"Vestiges of a pre-Ashanti Race." Vol V, No. 1, "Gold Coast Review." The Government of the Gold Coast.
(2) Newlands, H. S. :—"An Archaeological Puzzle from West Africa," Vol. XIX, No. LXXIII. Journal of the African Society.

in the Journal of the African Society and to which the reader's attention is invited. The artefact under dicusssion may come within the category of an unfinished specimen of these puzzles, i.e. it required perforation. Even if it does, we get no further, for the purport of these pierced discs still remains unsolved. Further arguments on this point may be found in Vol. III, No. 2 of the *Gold Coast Review*[3] where examples of these puzzles are figured.

The writer is indebted to Mr. H. A. Braunholtz of the British Museum for the suggestion that the specimen has been used as an anvil which would account for the depressions whereby the pointing and sharpening of such weapons as arrowheads and spearheads would be facilitated.

Another point of view, of value to the anthropologist and showing the attitude the native adopts towards these matters, was expressed by an Ashanti, who emphatically declared that this particular specimen was used by the " Bobijohns " (sic) to play a game, which he illustrated by seizing the stone, at the finger pits, between the second finger and thumb, the stone being held horizontally and proceeded to impart a skimming motion to it, suggesting some modificaton of quoits. That is as it may be, but the importance lies in the fact that the Ashanti attributed its use to the " Bobijohns " (sic) or " Mmoatia " otherwise Rattray's " Little Folk " which thus brings us to the " Tetefu " or " Old Old People."

The writer has endeavoured to prove, elsewhere, that these " Tetefu," a pre-Akan race, occupied the hill top of the country, latterly, it is probable under duress of invasion[4].

There survives a legend in Upper Wassaw that the " Little People " are still up in the hills and it is to these aboriginal folk that we must ascribe the

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(3) Wild, R. P. " Stone Artefacts of the Gold Coast and Ashanti." Vo lIII No. 2. " The Gold Coast Review." The Government of the Gold Coast.
(4) Wild, R. P. " Op cit."
NOTE.—The illustration is from a photograph by Mr. Sydney Pitcher, F.R.P.S., of Gloucester. The artefact has been deposited in the Pitt-Rivers Museum, Oxford.

manufacture of an artefact such as this. There thus appears to be four possibilities, the most probable a hammer stone; on other grounds a "Gold Coast Puzzle" unfinished; or an anvil stone; yet may not the Ashanti be right, and the "Bobijohns" have lived and played?

AN UNUSUAL TYPE OF PRIMITIVE IRON SMELTING FURNACE AT ABOMPOSU, ASHANTI.

The writer is greatly indebted to Mr. J. C. McGranahan, one of the proprietors of the Akrokerri Estates at Abomposu, Ashanti, who very kindly brought to his notice the discovery of a primitive i on smelting furnace which is situated in the Cacao plantation of Mr. McGranahan at Abomposu, some seven miles East of Akrokerri station.

The interest which arises out of the discovery of this furnace lies in the fact that the entire furnace has been excavated after the manner of a pit and not built up above ground as so many primitive African iron smelting furnaces have been.

The usual type of structure which the African made in order to extract iron from its ores was in the form of a cupola constructed of clay, to a height of some 6 to 8 feet above ground which may be gathered from accounts of present day iron smelting from parts of Africa other than the Gold Coast and Ashanti. Of course, in different localities variations in dimensions and shape would be found. This type of furnace was generally terminated by a well rounded dome through which the " throat " was carried, the mouth of which would in some cases be narrowed down to about eight inches in diameter. It is through this mouth that the furnace is charged; whilst the blast is supplied by the well known goats-skin bowl bellows, which force the air into the furnace through clay tuyéres placed at an inclination to the vertical around the base of the structure. From the interior a special sloping channel is constructed through the wall of the furnace to a pit outside, which serves the purpose of draining off the molten slag.

Relics of this type of furnace, that is above ground level, may be found scattered all over the Gold

Coast and Ashanti. In many localities broken pieces of slag, tuyéres, iron furnace products and burnt clay, indiscriminately mixed, may be seen, showing that iron extraction had at one time been carried on.

Here it may be stated that the Ashanti iron smelting industry has ceased and remains only as a tradition probably due to the advent of the European product, which in Captain Rattray's words "killed" the local iron industry.(1)

In contradistinction to the above the Abomposu furnace is constructed entirely below the surface of the ground nearly at the bottom of a valley, where the inclination of the sides had eased off to a comparatively gentle slope. This choice of site introduces another feature unusual in the Colony and Ashanti; because in many cases the furnaces have been constructed against a side of some steep hill; thus assisting the blast, the tapping of the slag and also tending to economy in construction.

The circular opening which constitutes the mouth is flush with the bush path through the plantation, and is 1 foot 10 inches in diameter. In depth the furnace expands to 3 feet 2 inches near the middle, but contracts again to a diameter of 1 foot 9 inches at the bottom. In these respects it is somewhat similar in shape to modern blast furnaces. The total depth is 8 feet 6 inches. A glance at the sketch of the furnace in section, which was drawn by Mr. McJerrow also of the Akrokerri Estates will make this clear. (For Mr. McJerrow's assistance in measuring up the furnace and making this illustration, the writer wishes to express his grateful thanks).

The sides and bottom are covered with a hard well baked clay and there is no evidence of a break in the continuity of the lining which is remarkable for its smoothness. It is this smooth continuous surface of the interior which introduces a perplexity when the action of the furnace is considered; because a close

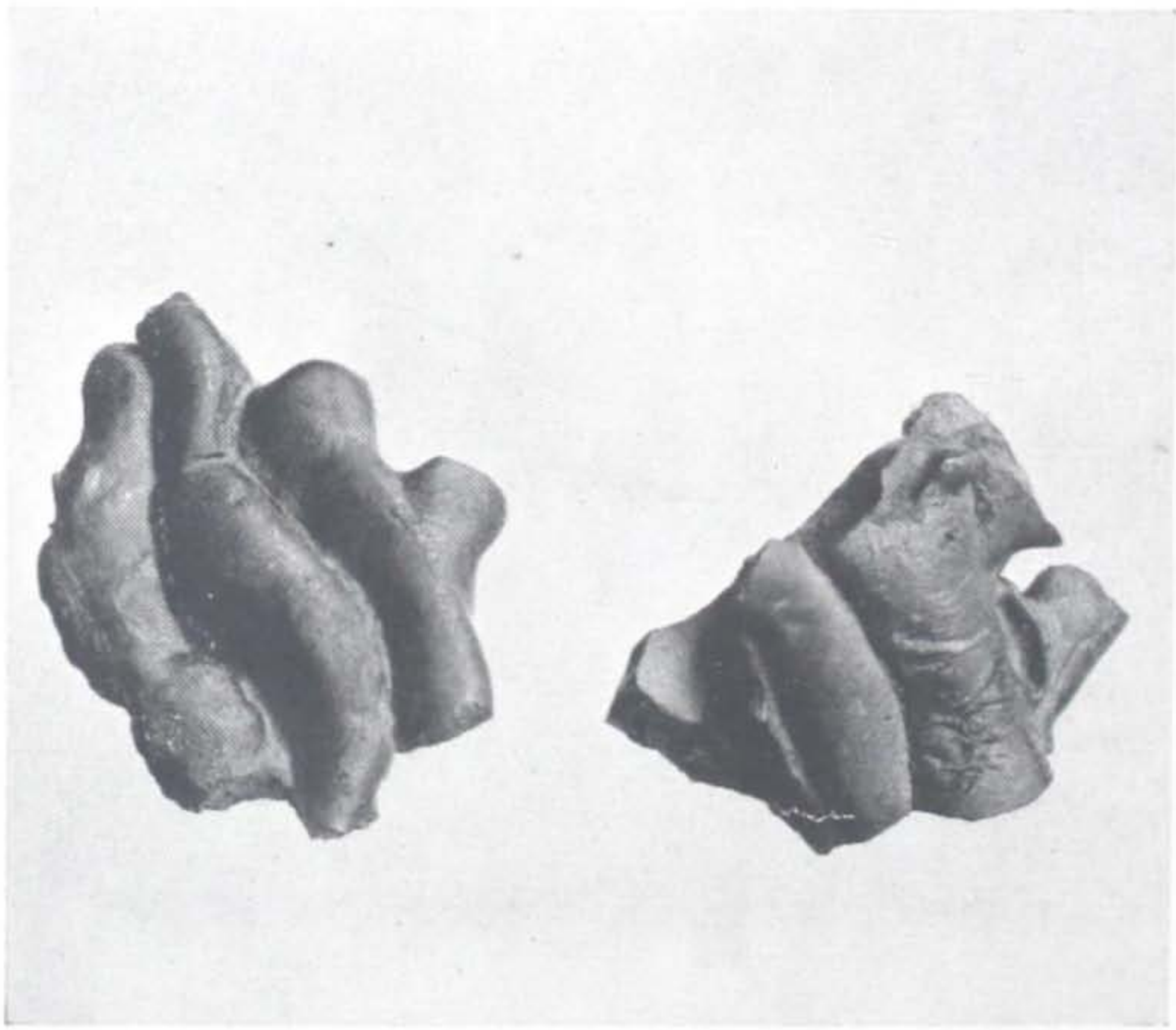
(1) Rattray, R. S.:—"Religion and Art in Ashanti." Chap. XXVIII, Oxford at the Clarendon Press, 1927.

inspection reveals no entrance for the tuyéres, neither are there any fragments of tuyéres found lying about on the surface which is a common feature of the above country. Further although the furnace has been carefully examined by other persons besides the writer, no trace of a channel to tap the slag could be found.

There is a quantity of slag showing typical flow structure, on surface within fifteen feet of the mouth. Furnace products, the result of smelting operations are found near by, and what is more, pieces of simliar furnace products of high iron content were collected from the bottom of the furnace, the analysis of which will be discussed later.

To elucidate the problem levels were taken and distances laid out and two parallel trenches were dug on the slope, at a spot calculated to give the shortest flow for the slag, but, after digging down for some three feet, the results revealed nothing. Time did not permit of a more complete investigation being made, that is, the digging of trenches all round the furnace and it does not seem probable that any signs of a slag duct would be discovered, for the length required to lead the slag into the open, owing to the gradual slope of the ground, would be so great that any slag would solidify and block the exit. One method that can be suggested is that the molten slag would have been dipped out with, for instance, calabashes either lined with clay or possibly unprotected. The charring of the inside of a calabash would afford sufficient protection against the heat of the slag. On the other hand, it may be possible that the slag would not be removed until smelting operations had ceased, and the furnace gone cold. These suggestions, however, do not seem to be sufficiently practical to be of much value, and what is just as important, the method used to conduct an air blast to the interior still remains an unsolved problem.

Could an effective blast have been introduced into the interior of the furnace from the top through the mouth? This hypothesis is not so very unreasonable when it is realised that the metal reduced from the ore was not a " cast iron " necessitating a temperature of



" Slag from iron smelting Furnace." Abomposo near Akrokerri, Ashanti.

about 1530° C, but a "spongy iron" or "bloom" which only required a temperature of 800°—900° C for its extraction from iron ore. The cumbustion of charcoal which was used as the fuel, produces carbon monoxide, and by this reduced, from the iron oxide of the ore, to the metallic state with the formation of Carbon dioxide.

There is another possibility which might have been carried out at Abomposu, and wihch would solve the difficulty involved in having to account for the absence of the usual methods of tapping the slag and producing an adequate blast. The writer believes he is correct in stating that some primitive tribes of East Africa construct a type of sunken iron furnace, but, in order to run off the slag, and at the same time provide for the inlet of draught, a tunnel, in some cases many feet in length, is driven to connect with the bottom of the furnace. In this event, it is probable that only a natural draught would suffice. This method would probably necessitate the breaking through of the furnace walls when the slag was about to be tapped, the ensuing damage being easily repaired after the furnace had cooled, by filling the breach with pieces of slag and clay.

Whether this method was practised at Abomposu, or not, remains to be proved, for only extensive excavation and the wrecking of the furnace would provide an answer either way.

Therefore it will unfortunately be necessary to leave the question of how the primitive iron smelters of Abomposu procured their draught and drew off their slag in a state of some considerable doubt.

The slag from Abomposu, two specimens of which are figured and which show a characteristic flow structure, is typical of the iron slag which is found in so many places in the Gold Coast and Ashanti. This slag is essentially a silicate of iron, and, in this particular instance, is very rich in iron and therefore has a high specific gravity, as a glance at the following two analyses (A and B) will show.

	Dried at 100° C.	
	A.	B.
	Percentage.	Percentage.
Ferrous Oxide (FeO)	52.47	55.53
Ferric Oxide ($Fe_2 O_3$)	15.43	16.00
Silica	17.40	15.80
Alumina	12.24	9.53
Phosphoroic Anhydride ($P_2 O_5$)	0.45	0.57
Sulphur	0.05	0.05
Lime (CaO)	0.09	0.09
Magnesia	Traces	Traces
Manganous Oxide (MnO) ..	0.50	0.50
Loss on ignition, probably organic matter	0.55	0.60
Total	100.00	99.28
Specific Gravity =	4.01	4.28

At first sight, the high iron content appears perplexing, but the crudity of the methods employed rendered any better result impossible of attainment. Yet this contained iron was not lost or thrown away, but, as may be gathered from other parts of Africa, it would be returned in the slag to the furnace again, and used as a flux for subsequent charges. This addition of old slag to the charge appears to serve a very useful purpose, in that it helps to decarbonise the metal reduced from the ore. The action appears to be somewhat as follows: the reduced iron combines with the gases of the furnace and takes up carbon. This carbonised iron meets with the slag when a mutual reaction ensues, resulting in the carbon from the iron combining with the oxygen of the iron oxide in the slag, forming oxides of carbon which escape and leave the metal as a pasty mass.

This is a method, though slightly modified, which was in vogue in Spain until very recent times and is known as the Catalan process.

The comparatively high alumina content and the low percentage of lime as given by the analysis of the slags, show that the iron ore treated was derived from a lateritic formation which caps the underlying rocks in so many parts of the country.

An analysis of a specimen (C) obtained from the bottom of the furnace by Mr. McGranahan gave the following result :—

(C)	Dried at 100° C. Percentage.
Ferrous Oxide (FeO)	31.59
Ferric Oxide ($Fe_2 O_3$)	28.90
Silica	25.00
Alumina	0.32
Phosphoric Anhydride (P_2O_5) ..	1.08
Sulphuric Anyhdride (SO_3) ..	0.27
Lime (CaO)	8.80
Magnesia	0.20
Manganous Oxide (MnO)	0.20
Carbonaceous Matter	0.90
Moisture	1.05
Total	99.31

From its appearance, it cannot be classified as a slag, though the silica content is not low. It does not show a flow structure characteristic of slag, and is distinctly porous. From its position in the furnace, and its appearance, it is highly probable that this specimen represents a portion of the " spongy iron " or " bloom " which results from the smelting operation and which contains many impurities as the silica as slag would occupy the pores to some extent. The subsequent process whereby it was refined will be discussed later.

A further analysis (D) of a somewhat similar sample of an iron furnace product was also obtained. This particular specimen was found near the slag on the surface some 15 feet from the furnace mouth. On analysis it gave the following results :—

(D)	Percentage.
Ferrous Oxide (FeO)	44.37
Ferric Oxide ($Fe_2 O_3$)	27.00
Silica	15.60
Alumina	9.57
Phosphoric Anhydride ($P_2 O_5$)	0.33
Sulphur	0.08
Lime (CaO)	0.70
Magnesia	Traces
Manganous Oxide (MnO)	0.50
Loss on ignition (probably organic matter)	1.80
Total	99.05
Specific Gravity =	3.91

Superficially, it presented the same appearance as the previous specimen (C); with a marked porosity and an absence of flow structure, which is reflected in the relatively low specific gravity. It differs however in its higher percentage of iron, but lower silica, phosphorous and sulphur content, the three latter being highly deleterious in character. Again the alumina and lime show that a lateritic ore was used, and it is probable that most of the silica would not be combined with the iron, but would exist as slag in the pores. That the percentage of metal iron in this example should approach as closely the amount of iron in the slags (A and B) again proves how rudimentary this process of iron smelting was.

This sample may therefore be taken as another example of the " spongy iron " or " bloom " which was produced at Abomposu, that it should differ from the first sample (C) is not extraordinary when the practice adopted was so crude. Again variations in the ore used would account for the difference, whilst it is possible that sample (D) might have undergone a second smelting and have been treated afresh.

Having obtained the bloom, the next important stage was to remove the impurities and to refine the metal as far as possible. This would be accomplished at the same time as the metal was fashioned into the required shape at the forge; but in some cases in Africa the forging is carried out separately by another set of operators. All the same, the refining of the bloom consisted of alternately heating and beating the " spongy metal " with " hand hammer stones " many of which have been found on Monkey Hill, Obuasi. By these means the slag would be forced out of the pores, the metal would be rendered homogenous and further, the amount of carbon present would be so reduced that a metal would be obtained of good quality.

In the case of phosphorus, a substance which very adversely affects the quality of iron, it is of interest to know that the smelting operation, though itself primitive, would have removed the greater part of this injurious material.

Thus a remarkably pure iron would be produced, of a quality that would, in spite of the crudity of the process, compare very favourably with modern European wrought iron.

From accounts of primitive iron smelting in other parts of Africa and the facts collected from Abomposu the various stages which were carried out at this locality may be approximately summarised as follows :—

(*a*) Mining of lateritic ore.
(*b*) Breaking down of the ore by hand and removal of deleterious matter by hand picking.
(*c*) Preliminary roasting?
(*d*) After furnace has reached a sufficiently high temperature, the charging of the furnace at intervals with a mixture of ore, charcoal and slag.
(*e*) Continuous smelting probably for two or three days.
(*f*) When the slag is sufficiently fluid, it is "removed" leaving the metal as a pasty mass.
(*g*) Cooling down of furnace.
(*h*) Removal of impure metal which is broken up.
(*i*) In some cases this impure metal may have been re-treated; in other cases it was delivered to the smiths for forging.
(*j*) Repeated heating and hammering probably with hammer stones, in which the metal was rendered homogeneous and purer.

NOTES.

In the locality of Abomposu this furnace was stated by the Adansis to have been used as a corn store during times of war. Any possibility that it was a furnace for iron smelting was dismissed as impossible.

It is possible that some allowance should be made for subsequent oxidisation of the metal, when the four analysis are considered. It is probable that this furnace became disused some decades ago, and thus there would be ample time for atmospheric agencies to take effect.

For the analyses, I am deeply indebted to Mr. C. R. Miller, the Manager of the African Manganese Company.

The specimens of slag have been deposited in the Pitt Rivers Museum, Oxford.

For the description of Tuyéres and hammer stones used by primitive iron smelters in Ashanti, the reader is referred to Vol 5, No. I. of the *Gold Coast Review*. To those who are interested in the subject of primitive iron smelting in Africa, as practised at the present day, the following two references will be found pertinent and useful :—

DIXEY, F.—" Primitive Iron-ore smelting methods in West Africa." *The Mining Magazine*. Vol. 23, No. 4, October, 1920.

BOWER, J. G.—" Native smelting in Equatorial Africa." *The Mining Magazine*. Vol. 37, No. 3, September, 1927

A SURVIVAL.

Well off the beaten track there lies in the Southern Province of the Northern Territories the curious village of Butie. It stands more or less on the watershed of the White and Black Volta Rivers not far from their confluence on the Southern path from Mpehe to Kabilipe, and is to-day quite cut off from the main streams of traffic which flow North and South.

Butie is the last survivor of a group of villages where long ago there dwelt the people called by themselves Mpre. Of these people a few are found at Debre but most live in the villages about which this article is written.

Approaching it from the North, one is at once struck with the contrast of the landscape. From across undulating country covered in small scrub of considerable density marked here and there with the taller trees of the orchard bush, one suddenly enters into the remains of thick forest, where certainly the undergrowth is lacking, but where the trees are of the forest country type, dense and of considerable height; one leaves the clay soil of the Volta valley and steps onto the laterite of the South.

The path takes one through this remnant of forest and then all of a sudden opens out and reveals three houses of a character unknown elsewhere in the Gold Coast Colony or in the Northern Territories.

These houses are square at the base and rise by inclined steps to a height of some 3 feet. They are made of dried mud and are three stories high. Their base measures approximately 45 feet by 45 feet. The height is made up as follows :- ground floor 7 feet, mud ceiling and floor 2 feet, first storey 9 feet, ceiling and floor 2 feet, second storey 7 feet, ceiling and flat roof 2 feet. The measurements are approximate only. There is only one door on the ground floor, and this is very small being only $4\frac{1}{2}$ feet high and about 3 feet broad. The walls are very thick being about 2 feet.

Windows and roof vents are cut out of the walls and roofs so that the interior is not too dark.

Just beyond the present group of these houses there are the ruins of many more, which to judge from the great height of the tumuli must have been of very great height.

I was told that originally these buildings were five storeys high and that in 1910 there were seven of them and in 1914 four. From this it would seem that in no long time these curious structures will have ceased to exist. Moreover the youngmen already have abandoned the architecture of their ancestors and now build for themselves huts of the usual old Ashanti type as made in the smaller villages.

Of the history of these people I could learn but little. They remembered the names of two great hunters Jala and Nyamase, but there was no evidence that these men were other than mere hunters. They certainly were not the founders of the settlement.

The ruin of Butie and its other villages was due to the furor Asanticus and seems to have been comparatively of recent date. So great indeed is the hatred for the Ashantis that the local deities have made such medicine that any of that hated race who visits Butie or drinks of the water from the neighbouring wells or storage tanks will die at once.

There is a legend that a company of Ashantis were caught here about 100 years ago and were driven into the wells where they perished miserably, as the wells were dry and full of snakes and scorpions.

These wells are another feature of this curious spot. They are vast underground tanks hollowed by man out of the laterite about four to six feet below the surface, the mouth of the well being a narrow funnel, more or less regular in circumference.

Of the customs of these people I had no time to enquire. They practise neither circumcision nor excision. Their burial practice requires that a man's head should be to the North and facing East, whilst a woman's head lies to the South and she faces West.

The language of the people is different to that of the surrounding tribes and in some respects different to any other spoken in this country.

The following is a short vocabulary collected by me :—

English.	*Mpre.*
God	Agbem
It rains	Agbem aba
Earth	Sunko
Earth owner or Tindana	Sunko Kawuseggi
1	Ekpe
2	Enyo
3	Eta
4	Ena
5	Enu
6	Grume
7	Ngpa
8	Nenengene
9	Gokpa
10	Edu
11	Edu bili mpe
12	Edu bili nyo
13	Edu bili ta, etc.
20	Ado nyo
30	Ado ta, etc.
100	Kelafa
200	Lefanyo, etc.
1,000	Agbu
Cowrie	Amuseraga
House	Eso
Cow	Nogha
Fowl	Kohor
Guinea-fowl	Aiyili
Manii	Chonangsi
Woman	Ejo
Child	Nzui
Father	Chichi
Mother	Emo
Son	Nkemnzui
Dog	Tebe
Goat	Ade
Water	Nkaw
Bow	Etawa

English.	*Mpre.*
Arrow	Ncho
Fire	Eja
It rains	Agbemaba
Yam	Ampi
Millet	Avue
Cassada	Wanchi
Corn	Aboyin
Beans	Aza
Nose	Masuma
Eyes	Anisi
Teeth	Ate
Tongue	Nchuma
Hair	Nmin
Hand	Eno
Arm	Ebopa
Leg	Eputo
Foot	Eputo Nasi
Fingers	Ataza
Toe	Atazai
Cloth	Busa
Tree	Eyia
Kapok-tree	Ejini
Native jumpers ..	Kale
Loin cloth	Dakor
Elephant	Ewogo
Bush cow	Zingilzinogha
Lion	Jikpajikpakoseggi
Hartebeast	Junga
Roan	Kol
Waterbuck	Bruguni
Bushbuck	Chankpala
Reedbuck	Kurunku
Oribi	Wulo
Kob	Volo
Duiker	Kukru
Red-duiker	Pumpu
Bush pig	Juro
Hippopotamus ..	Chaji
Horse	Vema
Donkey	Kwimi
Black	Ziri
White	Fuli

English.	*Mpre.*
Red	Ejuli
Iron	Epolebona
Hoe	Enwona
Axe	Etile
Farm	Ebaza
Bush	Zingelza
Village	Adebanza
Fish	Enchini
Snake	Ewoa
Scorpion	Lemma
Locust	Tintumba
Bee	Zinwi
Honey	Byunkonkon
Bird	Bobo
Animal	Abrimapre
Leopard	Jankamma
Hyaena	Jingachi
Bush-cat	Bata
Tobacco	Asara
Tail	Edu
Head	Zekpa
Skin	Ekuli
Mouth	Nchumu
Shea nut	Gwizi
Shea-butter	Ngu
Moon	Nnopavo
Sun	Ezol
Stars	Achepreza.

Vol. V. No. 2 | The Government of the Gold Coast. | July-December, 1931.

THE GOLD COAST REVIEW

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Copies of this Review are on sale at the Government Printing Office (Publications Branch), Accra; the Crown Agents for the Colonies, 4, Millbank, Westminster, London, S.W.1., and the Gold Coast Commercial Intelligence Bureau, Abbey House, Westminster, London, S.W.1.

Price of this Number—2 Shillings.