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ABORIGINAL WORKSHOPS ON THE COAST OF NEW SOUTH WALES, AND THEIR CONTENTS.

By R. ETHERIDGE, Junr., Curator, and THOMAS WHITELEGGE, Senior Zoologist.

(Plates xlii.-xlv., and figs. 39-43).

I.—INTRODUCTION.

A preliminary account of this subject appeared in the Curator's Report for 1900.[1] The report reads as follows:—"A very remarkable discovery was made by Mr. T. Whitelegge in the early part of the year, along the local sea-board. A series of heavy gales displaced the sand hummocks at Bondi and Maroubra Bays, Dee Why Lagoon, etc., exposing what appeared to be an old land surface. On the latter Mr. Whitelegge found revealed, what we had never before imagined to exist, a series of aboriginal 'workshops' where for generations the blacks of the Port Jackson District must have manufactured chips, splinters and points for insertion along the distal margins of their spears and for other purposes. The old land surface at Bondi, as I saw it, in company with the discoverer, was covered with thousands of these chips, some of them exquisitely made, with core pieces, chippers and rubbers. The lithological character of the material used was very varied, from pure white crystalline quartz, opaque amorphous quartz, every variety of chert and quartzite, to rocks of a metamorphic character. It is quite clear that the siliceous material was derived in a great measure from the surrounding Hawkesbury Sandstone, but the others were probably obtained from distant sources. I regard this as one of the most important ethnological discoveries made in New South Wales for many years."

Mr. Walter Howchin[2] appears to have discovered a large number of small weapons and implements of various kinds on the South Australian sea-board, but there is no indication as to whether these stone implements were found scattered over the surface generally or derived from "workshops." The instruments are

[1] Etheridge—Rec. Austr. Mus., iv., 4, 1900, pp. 148 and 165.
[2] Howchin—Proc. Austr. Assoc. Adv. Sci., v., 1893, p. 522.

enumerated as follows:—(1) Stone points; (2) Flakes (knives), in seven varieties of single-edged, ridged, flat and polygonal, lanceolate, broad, serrated and trimmed; (3) Spearheads of a type which seems to be restricted to a narrow coastal belt; (4) Chisels; (5) Gouges; (6) Awls; (7) Scrapers, divided into eleven distinct varieties; (8) Hammers; (9) Anvils; (10) Fabricators; (11) Cores.

Mr. Brough Smyth[2] gave the following account as to the use of stone implements:—"The Western Australians use small splinters of quartz for making the long deep cuts which may be seen on almost every native—both men and women—across the breast and arms, with a similar fragment stuck to the end of a stick they dress and cut their kangaroo skins in preparing them for use as cloaks. They also stick thin splinters of quartz, broken by their teeth, to the side of a short stick to serve as a saw."

II.—Description of Localities.

During the early part of the year 1899, in wandering over the northern end of the sandhills at Maroubra, the attention of one of us (T.W.) was attracted by sundry flint chips. Having found many flints of various kinds on the Lancashire and Yorkshire moorlands, these flakes were at once recognised as having been made by man. On reaching the summit of the sandhill, a strange feature presented itself, instead of the usual bare waste of sand, the whole surface was studded with butts of Banksia trees two or three feet high, and one or two feet in diameter. The intervening spaces were covered with a scrubby growth, consisting of the stems and roots of various plants, many of which were standing Pandanus-like, having the roots covered with lime from a quarter to half-an-inch thick. Whilst the interiors of the lime tubes were lined with a thin cylinder of bark, in other parts the bark cylinders were standing alone without the calcareous envelope. The whole area appeared like a miniature skeleton forest, of black and white stems and roots.

The ground between was strewn with thousands of stones that had been used by the Aborigines for some purpose or other, and had all been taken to the top of the sandhills, many of the stones being quite foreign to the district. Here would be found a patch of black flint chips about a yard in diameter, there another of red or yellow jasper, just as if the native artist in stone-working

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[3] Brough Smyth—Aborigines of Victoria, ii., 1878, app., p. 520.

had only left the ground a few minutes before. In fact this was an aboriginal "workshop" from which the workers may have disappeared hundreds of years ago.

After a thorough survey of the ground all the smaller instruments available were carefully collected, the larger heavy instruments being gathered and duly interred to be attended to on some future occasion. The weapons collected were very valuable, including tomahawks, grindstones, a nose ornament, knives, scrapers, gravers, drills, and spear points such as were used for fighting or "death" spears, and lastly a very peculiar lancet-like surgical knife or scarificator. The latter is one of the most interesting of the finds inasmuch as instruments of the same shape have been found in America, India, England, and Ireland, and in the latter country they were met with on the tops of the sandhills just as we saw them at Maroubra and Bondi.

The "workshops" at Bondi were far more extensive than those at Maroubra, the whole length of the back of the beach was more or less covered with tons of stones, all of which had been taken there and put to some use. In the centre of the beach there was a kind of delta upon which the coarser materials were deposited, the sand having been washed away on this area; thousands of implements, which had evidently been used, were found, and chips or flakes were few and far between. For many months the original ground at Maroubra, and also the more extended area at Bondi, yielded an abundance of implements and at each visit we invariably returned with as much as we could carry. Unfortunately the new road across Bondi has now covered most of the sites that afforded the best ground for collecting. Still there are a few patches left at Bondi, which after certain gales would be well worth visiting; the same remarks apply equally well to Maroubra and other places.

The workshops exposed at Rocklily, Dee Why, and other places north of Manly, are very small and patchy, the northern end of Curl Curl Beach is generally good ground to collect on after a strong north-east wind, but otherwise there is scarcely anything but sand. During our researches one of us (T.W.) visited Newcastle, but with little result; the most likely place on this extensive beach would be the end of Stockton Beach towards Port Stephens.

A few stone implements were found at Botany Bay and at Kurnell, but there does not appear to be any extensive accumulations at these places. The northern end of Cronulla Beach is

extremely rich in stone weapons, chips and flakes. It is covered with many mounds of oyster and other shells, some of which are nearly a hundred feet or so in height. The whole surface in addition to the shells is sprinkled with chips, flakes and weapons, and many of the best found were obtained on or near the base of these oyster mounds. Some distance to the south of the latter there exists a series of extensive flats and hummocks more or less covered with pumice stone. On this ground a large number of implements were found, all of which had evidently been used, but there was an absence of chips or flakes, such as are usually present on the "workshop" grounds.

A few worked implements accompanied by chips and flakes have been met with on several wind-swept sandy patches on the Waterloo Swamps between Kensington and Bourke Street, Redfern.

During a short stay at Mr. Mark Foy's Valley Farm, Kanimbla Valley, Medlow Bath, Blue Mountains, one of us (T.W.) found the soil on the escarpment slopes, as well as on the flats and the banks of the creeks, more or less charged with chips, flakes, and many worked implements, among which were numerous examples made of white quartz, the latter exhibiting very distinct chipping, in a manner more perfect than in any instruments of quartz previously found.

During our researches traces of minor "workshops" which yielded various weapons, chips, flakes, and other objects of interest were found at Gerringong, Redhead, Ulladulla and Milton on the South Coast. There is also evidence of a large "workshop" on the southern end of Wollongong Beach, a little distance from the racecourse stand. The most extensive "workshop" met with, however, is situated at Bellambi Beach (Pl. xlv.). This area is many acres in extent, and is more or less densely strewn with stones of all descriptions, at least such as are usually found on shell heaps, camping grounds or workshops. Of the larger stones observed, many consisted of irregular pieces of sandstone (fire stones ?), fragments of siliceous fossil tree stems, oval or rounded flattish boulders, probably used as grindstones for pounding seeds, others of the same shape but smaller, or such as were suitable for the manufacture of tomahawks. The latter were very numerous, and also other thicker stones frequently with central pits as if they had been used as anvils for cracking large seeds or fruit-stones on.

The smaller stones fit for use were present in vast numbers, and consisted for the most part of waterworn pebbles, more or less egg-

shaped. They are very variable in size and also in composition ; a large number of them had already been tested as to suitability for cores or from which instruments had been manufactured. The rest of the ground was covered with innumerable chips, flakes, cores, together with a fair sprinkling of carefully-worked weapons, as well as others upon which much labour had evidently been expended, and yet through a flaw in the stone, or want of care or skill on the part of the operator, proved to be " wasters."

There is ample evidence that many of the sand dunes were at one time much higher than they are now, and also that in some parts they had been covered with vegetation interspersed with native camping grounds, upon which vast quantities of shells were deposited ; in course of time the vegetation was covered by sand drifts, other shell heaps formed at the summit, and the whole again buried. The period of time required for these various changes must have been very great, and it has required a still greater lapse of time to produce the present condition. The shells, probably owing to the rainfall, have in many instances been dissolved and the constituent lime deposited around the roots and stems of the plants which lived on the surface. Many instances proving the correctness of the views as above related may be seen on the coast at Maroubra and Bondi, but more especially at Cronulla and Bellambi. In other spots the beds of shells are still visible, but in various stages of decay, either having been accumulated more recently or protected by thick layers of black soil and covered with vegetation. The edges of some of the sand cliffs at Cronulla, Maroubra and Bellambi afford many sections illustrative of the above remarks. These cliffs are gradually being denuded by the action of the wind, and constant falls are taking place, leaving the shells and stones either at the foot of a cliff or around the base of some large mound on which vegetation, soil and other shells and stones are still *in situ*. The sand and soil are then rapidly blown away, leaving the shells and stones scattered about the surface ; a gale from one quarter will cover the area, and windy squalls from another will lay it bare.

III.—Description of the Implements and Weapons.

The various stone implements obtained from the " workshops, camping grounds, kitchen-middens, and alluvial deposits will now be described in the order of importance as exhibiting flaking, chipping, or skill in manipulation. Opinions as to the uses of the implements, with a few exceptions, must be taken as speculative.

In some instances the use to which any given manufactured stone implement was put is known from the fact that observers both in Australia, America and elsewhere have seen the natives using the instruments for various purposes of daily life. Other stone implements which no doubt were largely used by the Aborigines are difficult to define, and we can only surmise as to what use they were put. Recent weapons and implements, such as are now made in Northern and Western Australia, afford a clue to the uses of these carefully-prepared stone tools or weapons, and also illustrate how the smallest fragments of flint or quartz were fully utilized in the manufacture of fighting or "death" spear barbs, saws, surgical lancets, gouges, etc.

No I.—Plate xlii., Group 2.

The most important instrument from an Ethnological point of view is what we would prefer to call chipped-back surgical knives (fig. 39). Various authorities have figured and described them, but so far as we can gather they have never been found in such quantities as obtained on the coast of New South Wales. The most remarkable feature in connection with these instruments is their more or less uniform shape, irrespective of size. The thick worked back is generally curved, and in section is cuneiform or triangular; the thin cutting edge is usually sub-crescentic, sometimes straight but rarely convex. Judging both from the unfinished and perfect instruments they were manufactured from pebbles about the size of a duck's egg; the stone would be divided transversely in the middle and the instruments struck off from each half. As to the working or chipping, it is impossible to say whether this was done before or after the formation of the implement, but from the fact that numerous similarly-shaped instruments have been found with, perhaps, a broken point, which do not exhibit any chipping, we are inclined to the opinion that the thick convex part of the instrument was worked after the flake of the requisite shape had been obtained. So far as the cutting edge or point is concerned, there is no evidence revealed in the instruments of chipping or grinding, as the original sharp edges and points have not been interfered with in any way. As regards

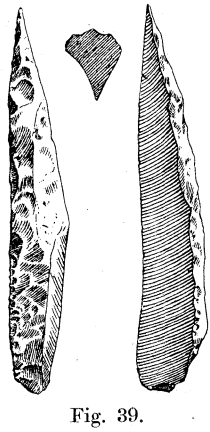

Fig. 39.

size the instruments vary greatly, the largest obtained is about 50 m.m. in length, 10 m.m. in breadth, and 7 or 8 m.m. in thickness; the smallest measures 10 m.m. in length, 5 m.m. in breadth, and 2 to 4 m.m. at the delicately carved back.

The lithological character of the stone used in making these implements is extremely variable, viz., quartzite, fossil wood, white chert, black flint, red and yellow jasper, and other siliceous materials, most of which were from places remote from the metropolitan district; shell was occasionally employed (fig. 40). To what use these knives were put, we can only surmise. It seems probable that the Australian Aborigines have ceased to manufacture this form of lancet at the present day—at least from stone. Neither Prof. W. B Spencer or Dr. W. E. Roth had any knowledge of such implements from any part of Australia

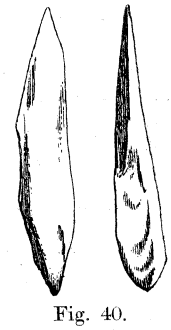

Fig. 40.

The literature relating to these knives is scanty, and so far only one authority has been found who gives a definite statement as to their use, all the rest of the opinions, including those herein expressed, being purely speculative.

Under the title of "Minute Stone Implements from India."[4] Dr. Thomas Wilson figures and describes knives which are identical in every particular with those found so abundantly on the sand-dunes along our coast. It is also remarkable that the implements are similar in lithological characters; they were "found in the caves and rock-shelters amongst the Vindhya Hills, in places difficult of access and unknown to the ordinary traveller." The author states that "the similarity of form and mode of manufacture . . . . is evidence showing the same intention on the part of the makers, although we are quite in the dark as what that intention was. . . . . It is not easy to determine the purpose of these small implements, especially the crescent, trapezoid and scalene triangular, which have neither known prototype or antitype; some of the smaller and straighter objects might have served as needles or perforators. A possible use akin to that

[4] Wilson—Ann. Report Regents Smithsonian Inst. (U. S. Nat. Mus. Report) for 1892 (1893), p. 455, pl. cii.

of tattooing might have been that of the medicine man for bleeding or scarifying."

The same author in a paper on "Arrow-points, Spearheads and Knives of Prehistoric Times," [5] figures several flaked stones which have a strong resemblance to those he describes from India; we refer to Pl. vii., figs. 6 and 9 from Lake Bienne, Switzerland; Pl. xxv., fig. 29 from the island of Crete, and Pl. xxxix., figs. 2 and 3.

The best account to come under our notice of these peculiar instruments is that given by Mr. W. K. Moorehead in his "Prehistoric Implements."[6] Under the heading of "Scarificators.—'Delicate Splinters of Flint,'"[7] he gives a description of the finding of the instruments in burial places on Santa Rosa Island and San Nicholas Islands. About a quart of these implements was obtained. "They were finely made of yellowish-brown jaspery or flinty rock. They were all together when found, having evidently been buried with their former owner. Not finding any other specimens in our extensive explorations, extending over a period of three weeks search for relics, I was convinced that they were not objects of general use, but were part of the paraphernalia of a medicine man among the natives, and that their manufacture required the exercise of unusual skill, and would only be made by certain individuals of the tribe possessing the necessary qualification. Some ten years after the discovery I had the opportunity to interview some of the few representatives of the former aborigines, and from them learned their uses. They said they were used by the medicine men in the cure of disease, by scarifying the skin over the affected part, and applying one end of a bone or stone tube over . . . the scarified parts and exhausting the air from the tube by sucking applied by the lips of the operator, thus causing blood to be drawn from the wounds made by these splinters. . . . . Hugo Reid says of the Indians of Los Angeles county, that local inflammatien was treated by scarifying with pieces of sharp flint and procuring as much blood as possible from the part. (See Overland Monthly for August, 1896)."

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[5] Wilson—Ann. Report Regents Smithsonian Inst. (U. S. Nat. Mus. Report), for 1897 (1899), pt. 1, p. 811.

[6] Moorehead—Prehistoric Implements, Cincinnati, Ohio, 1900.

[7] Moorehead—*Loc cit.*, p. 246, fig. 379 (p. 247).

Considering the similarity of these instruments, both as to their uniformity in general shape, flaking and lithological characters, it may be inferred that they were used as surgical lancets, and in the hands of a skilful medicine man might be used for purposes other than those enumerated above, such as "crimping" the skin of the arms, chest and back, to form the numerous cicatrices so frequently seen on the bodies of the Australian Aborigines.

A large flaked-back knife is figured by Sir John Evans,[8] from Australia, which differs little from the smaller instruments, the only points of difference being the size and the convex cutting edge, which is rarely the case in those herein described. The knife may be more useful in producing the larger cicatrices, but the smallest kind might also be employed for the lesser tribal marks, etc.

Very similar objects have been found in Britain, although of rather larger size. Evans[9] figures four, two of which at least, from Newhaven and Seaford, respectively, are very like indeed. Rather similar chips are also figured by Brough Smyth[10] as used for this purpose. We are informed by Mr. E. Bonney[11] that in the Bungyarlee and Parkungi tribes of the Darling River, stone chips called *carnee moolee* were actually used to produce the cicatrices, or raised scars, known to these tribesmen as *nincka;* other similar references could be given.

No. II.—Plate xlii., Group 1.

The second group contains many knives of various shapes and sizes, some of which are neatly flaked or chipped, so as to produce a fine sharp edge, but the majority were flaked from the core in such a perfect condition as to cutting edge, that secondary chipping was not required, and were evidently satisfactory to the maker.

No. III.—Plate xliv., Group 5.

Large series of implements, probably scrapers of a peculiar pattern were obtained, which are invariably carefully chipped on one or both surfaces; they are more or less lenticular in shape and

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[8] Evans—Ancient Stone Implements, Weapons and Ornaments of Great Britain, 1872, p. 264, f. 198.
[9] Evans—*Loc. cit.*, p. 251, figs. 190-193.
[10] Brough Smyth—*Loc. cit.*, i., p. 381, figs. 208-9.
[11] Bonney—Journ. Anthrop. Inst., xiii., 1884, p. 126.

some portion of the periphery generally presents a sharp cutting edge. As to the use of this particular form of instrument, little is known. Wilson in his "Arrow-points, Spear-heads and Knives of Prehistoric Times,"[12] gives a short description of these small flaked implements, and on Pl. xii. he figures about thirty-six specimens which are practically identical with the Australian examples depicted (Pl. xliv., Group 5).

Dr. Wilson gives an interesting account of the discovery of a scraper "workshop" on the west coast of Brittany, France. Working in company with M. Gaillard, a visit was paid to the extreme point of the promontory of Quiberon. Here "a high rocky point level with the surrounding surface, but forty or fifty feet above the water. It was severed from the mainland by a crevice a few feet in width passable only at low tide. The entire mass was of granite rock. It was covered by a layer of soil which was nearly bare on the ocean side, but on the inside edge it was three-and-a-half feet thick. Beginning at the outside edge by screening, examining, and throwing the dirt behind us, bits of broken and wrought flint and fragments of pottery were soon found. We saved everything. Our work continued across the point until we had thousands of objects, principally scrapers in all stages of manufacture. It was a prehistoric scraper 'workshop. The pecularity of these were their diminutive size; many perfectly finished were no larger than a man's thumb nail. At the edge farthest from . . . the ocean we unearthed the skeleton of a workman, a man of middle age, he who probably had made these prehistoric implements, who had here lived and had here died, and had been buried in his workshop and habitation." In size the Australian worked scrapers agree with those above described.

Brough Smyth[13] figures a chip for skinning, etc., dug out of a *mirrnyong* heap, with some relation to those of the present group, but our coastal chips are much more highly flaked, and usually with a central ridge.

No. IV.—Plate xliii., Group 1.

Another instrument (fig. 41) which often displays chipping, flaking and notching, was found in great numbers. The shape is

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[12] Wilson—Ann. Report Regents Smithsonian Inst. (U.S. Nat. Mus. Report) for 1897 (1899), pt. i., p. 867.

[13] Brough Smyth—*Loc. cit.*, i., p. 382, fig. 217.

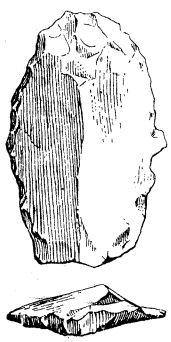

Fig. 41.

pretty uniform, but in size they are very variable. They are generally oblong with the bases truncate and the apices more or less rounded by chipping, the lateral margins usually have clear cut sharp edges just as if they were flaked from the core, but in some instances secondary chipping has been resorted to, to make the requisite sharp edge on one or both sides. In the majority of specimens the sides are notched so as to produce a series of saw-like teeth, fine on one side and coarse on the other. There is little doubt that these implements were used as gravers, by the aid of which the elaborate line work was made on boomerangs and other weapons. One of us[14] in 1890 gave a full and definite account as to the use of this class of implement which has often been figured from many parts of the world. The evidence as to the purposes to which these instruments were put was from a reliable eye-witness.

In the description it was stated that "the two chips exhibited were given to me by Mr. George Sweet, of Brunswick, Melbourne, who saw them used by 'Jerry,' of the Telebra Tribe at Marathon, Central Queensland, to produce the indented lines ornamenting wooden weapons. They are composed of a black brecciated chert, with glossy lustre, and a subconchoidal fracture, but appear to have been fortuitous fragments chipped from larger masses, and more or less triangular in form. Mr. Sweet informs me that the chips are held tightly between the fingers of the right hand, the weapon to be worked reposing on the left, and supported by the left arm. The chip is then used as a chisel, the carving, in the practiced hand of the black, proceeding with great rapidity." The specimens figured on Pl. xliii., Group 1, will fully prove these gravers are not "fortuitous fragments," as at first supposed, but implements that have been deliberately manufactured for a definite purpose.

Judging from the instruments generally, apart from the triangular form, they appear to be usually adapted for use by the index finger and thumb; the truncated base is somewhat oblique and well calculated to afford a firm hold when applied to the fleshy part of the thumb; the rounded apex also forms a surface

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[14] Etheridge—Notes on Austr. Aboriginal Stone Weapons and Impls. (Proc. Linn. Soc. N. S. Wales, v., 1890, p. 367, f. 13).

around which the index finger can be slightly bent, and thus provide a firm grip of the tool when in use.

No. V.—Pl. xlii., Group 3.

Included in this group are a number of straight, slender points, with clean cut edges, and devoid of any secondary working; they are generally more or less triangular in section in the distal two-thirds, while the proximal third has been flaked off, so that in section they are four-sided.

No. VI.—Pl. xlii., Group 4.

There are a number of instruments generally shaped like spear-heads or arrow-points, frequently triangular in outline, mostly longer than broad, and sometimes elongate. It is difficult to conjecture what they were used for, but it appears highly probable that most of them were intended to be mounted on the end of a short handle of wood, the larger kind forming a short spear and the smaller being used as knives, drills, skinners, or perhaps even for shredding bark fibre. They are mostly clean cut, and secondary working is evident only in the form of small notches on one or both margins.

No. VII.—Pl. xliv., Group 2.

By far the most abundant objects obtained were flakes resembling those formerly, and still, used for making one form of barbed spear. Although mere flakes, without any trace of secondary chipping or flaking, these implements, when well made, have usually a very definite character, irrespective of their size or exact contour, and are very neat in outline.

The most perfect forms are triangular in outline, the basal part is thick and often elongate centrally, at least on one side; in many examples there is a longitudinal ridge, and from the latter the surface slopes away to the lateral margins. One or both edges are extremely thin, and, in many specimens, often jagged in outline; the edge on one side is thick or blunt, or the stone may be flaked a little to produce a non-cutting edge. Apart from the well-formed barbs there are many thin flakes which were used for the same purpose. The implements were manufactured in great numbers as barbs for the fighting or "death" spear, which had a shaft eight or ten feet long, and the terminal or distal portion grooved on one or both sides, the grooves starting at a short distance from the point of the spear for about

eighteen inches backwards. The stones above described are inserted in the grooves with the base downwards and the thin cutting edge directed forwards, while the blunt edge, if present, is directed backwards; the stones were selected according to size, the smaller being placed near the tip of the spear, and the whole cemented into the grooves, leaving about two-thirds of the barbs projecting. It appears highly probable that the blunt-edged barbs are designed to prevent the extraction of the spear without leaving some of the chips in the wound.

As illustrating the use of the "death" spear, Collins[15] supplies the following account of a man who was employed to shoot game for Governor Phillip. He states that "on the tenth of December a convict employed by Governor Phillip to shoot for him was dangerously wounded by a native named Pe-mul-wy whilst in quest of game at some considerable distance in the woods. When brought in he declared, and at a time when he thought himself dying, that he did not give any offence to the man who wounded him; that he had even quitted his arms to induce him to look upon him as a friend, when the savage threw his spear, at a distance of about ten yards, with a skill that was fatally unerring. When the spear was extracted (which was not till suppuration took place) it was found to have entered his body under the left arm to a depth of seven-and-a-half inches, and was armed for five or six inches from the point with ragged pieces of shells fastened in with gum. His recovery was pronounced by the surgeon to be very doubtful. . . . . On the twenty-second the man employed to shoot for the Governor expired of the wound he had received from the native. On opening the spear appeared to have wounded the left lobe of the lungs, which were found adhering to the side. In the cavity were discovered some of the pieces of stone and shell with which the weapon had been armed." Other cases as to the fatal effects of the death spear are on record, but unfortunately at the moment of writing the exact references cannot be given. It is rather singular that the aboriginal inhabitants of Sweden should have used a barbed arrow-head (fig. 42) of the same type as the spear formerly used by the natives of the Port Jackson District, and which is still manufactured by the blacks in West and North Australia. The only difference between the two weapons is that the Swedish arrow-head (fig. 42) was made of bone as far as the apical portion was concerned,

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[15] Collins—Account of the English Colony of N. S. Wales, 1804, pp. 118 and 123.

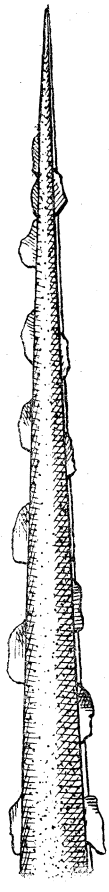

Fig. 42.

whilst the Australian examples were of wood. The flakes or barbs used, however, appear to have been the same, and any jagged fragment of suitable size was used to fix into the grooves of this fatal form of spear.

The following quotation from Wilson's[16] "Arrow-points, Spear-heads and Knives of Prehistoric Times," is of interest:—"Fig. 191 is one of the peculiar forms restricted in number and locality. Its restrictions in both these regards are so close that the author has not deemed it necssary to assign it a class or give it a name. These forms are confined to Scandinavia and are extremely rare even in that country. The specimen figured is from Sweden, was procured by the author and forms part of the collection in the U.S. National Museum. It is an arrow-point of bone (fig. 42), sharped to a fine point, is extremely hard and stiff, and could pierce equal to any flint weapon. Either side is opened with a deep and narrow groove, into which have been inserted tiny bits of flint flakes, with sharp cutting edges, fastened with bitumen or gum. Some of these bits of flint have been lost out of the original specimen, but enough remains to show its character and effectiveness as a weapon." It may be that this particular arrow had been used and the missing chips left in the body of some unfortunate victim.

Figures and casual references to the stone-barbed or "death"-spear are fairly numerous, but little information is available as to their manufacture or method of use by the natives. Considering the natives of West and North Australia still make and use these spears, often substituting glass splinters, it would be advisable for travellers, prospectors and others to make notes on this weapon before it is too late.

Collins figures one of these barbed spears, he also gives engravings of groups of natives, and some seven full paged plates are

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[16] Wilson—Ann. Rep. Regents Smithson. Inst. (U. S. Nat. Mus. Report) for 1897 (1899), pt. i., p. 943, fig. 191.

illustrated and in every case the "death"-spear is depicted in the hands of the aborigines. The majority, judging from the figures, are barbed on one side only, but many are armed on both edges.[17] The "Saturday Magazine" contains some account and a figure of one of these barbed spears. The writer signs his "Sketches of New South Wales"—W.R.G. [Surveyor Govett]. His description of the spear under notice is as follows:—"Their spears are generally from ten to twelve feet in length, frequently longer; some consist of one, others of two, and the longest of three distinct pieces, which are chiefly made of 'iron-bark' wood. In the longest the centre bits are made of the grass tree, which grows like a tall straight reed, and seems very well suited for the purpose of a spear. Some spears are hooked and jagged, and since the natives have become acquainted with glass, they have taken advantage of that material, by cementing the broken sharp splints of it, which are made to jut out from the top of the spear like the points of lancets, as a substitute for their common way of jagging."

An excellent figure (fig. 43) of the "death"-spear is given by Brough Smyth.[19] He states that "the *Mongile*, a double-barbed spear, is one with which cruel wounds are inflicted. If it strikes a black fairly, it will enter quite up to the lower barb, and it can be extracted only by cutting open the wound and drawing it through. . . . A hard and tough wood is used for making spears of this kind. With a piece of quartz the native cuts a groove on each side of the upper end, and he inserts therein small chips of hard black basalt, or chips of some other suitable stone, and these chips are fastened in their place by *Pid-ger-ong*, a gum resembling pitch." Brough Smyth also figures[20] individual chips of black basalt used for this purpose.

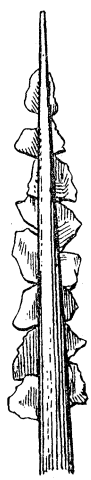

Fig. 43.

The following includes a few further references to this spear. The Rev. G. Taplin[21] states that "they make their weapons of the hard wood which grows in the country. Heavy spears generally come from the Upper Murray natives, and are highly valued. They are made of the hard and elastic miall wood, and are

[17] Collins—Account of the English Colony of N. S. Wales, 1804, p. 455 pls. 1-7., particularly pl. 4 (pp. 367-74)

[18] Govett—*Saturday Magazine*, 4th June, 1836 (No. 252), p. 217, and 15th Oct., 1836 (No. 275), p. 156, fig.

[19] Brough Smyth—Aborigines of Victoria, i., 1878, p. 304, f. 68.

[20] Brough Smyth—*Loc. cit.*, p. 380, figs. 202-7.

[21] Taplin—Native tribes of S. Australia, 1879, p. 40.

formidable weapons. Some of the spears made by the Narrinyeri are barbed with spicules of flint. They are called *meralkaipari* or deadly spears."

Mr. W. E. Stanbridge gives a brief account of the barbed spear as follows[22]:—"The light spear is about nine feet long and is either a reed having at the end a pointed piece of hard wood, about two feet long, secured to the reed by cement and a binding of sinews, or a thin sapling scraped to the required size with a shell, straightened and hardened by being passed through hot ashes, with a piece of the flower stem of the grass tree for the butt. In summer the spears are barbed for about eight inches, at the points, with small pieces of flint fixed in cement."

Sir T. L. Mitchell[23] mentions the discovery in a hut used as a casual habitation near Mount Arapiles, of a number of "jagged spears, some of them set with flints."

Similar chips are also put to quite a different purpose, for Capt. P. P. King described and figured[24] a peculiar knife or saw. "The knife or '*taap*' is perhaps the rudest instrument of the sort ever made; the handle is about twelve inches long, scraped to a point, and has at the distal end, three or four splinters of sharp-edged quartz stuck on in a row with gum, thus forming a sort of jaggéd instrument. . . . It is thus used: after they have put within their teeth a sufficient mouthful of seal's flesh, the remainder is held in their left hand, and, with the '*taap*' in the other, they saw through and separate the flesh. Every native carries one or more of these knives in his belt besides the hammer, which is also an indispensable instrument with them." In a footnote he further remarks that the natives of King George Sound "hold the knife underhanded, and cut upwards." A modification of this knife, or saw, occurs on the north-east coast of the continent, by the replacement of the stone chips with small shark's teeth.[25]

No. VIII.—Plate xliii., Group 2.

Numerous adze-like instruments were obtained, these are generally clean cut, but some exhibit flaking and chipping to

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[22] Stanbridge—Trans. Ethnol. Soc., (n.s.), i., 1861, p. 292.

[23] Mitchell—Three Expeditions into the Interior of East. Australia, ii., 1837, p. 193; Eyre—Jnls. of Expeditions of Discovery into Cent. Australia, i., 1845, p. 269.

[24] King—Survey of the Intertropical and Western Coasts of Australia, ii., 1827, p. 139-40 fig.

[25] Partington—Album, 3rd series, pl. 129, f. 1; Etheridge—Rec. Austr. Mus., iv., 5, 1902, p. 207, pl. xxxvi.

fashion the stone to the required shape and provide a broad cutting edge. Implements of this kind but on a larger scale, were usually mounted on the end of a stout stick about eighteen inches in length and sometimes bent, the stone being cemented in with gum; this was used as a gouge. The cutting edge in some cases is hardly visible and rarely projects more than an inch or less. Some adzes have a stone at each end of the shaft.

No. IX.—Plate xliv., Group 4.

Gouges of various kinds were obtained in large quantities. These are quite peculiar in shape and closely resemble cores. They are frequently flaked or chipped all over, and the cutting edge is usually semi-circular and provided with a central notch, or a slighly projecting tooth. They are mostly thick and more or less subconical with the working edge at the apex of the cone.

No. X.—Plate xliv., Group 1.

Smooth scrapers were found in abundance especially on the various shell heaps. They are simply clean cut flakes from pebbles, with one flat side and the other convex, and consisting of the original surface of the pebble. The thin edge is mostly smooth but in some cases it is finely notched.

No. XI.—Plate xlii., Group 1, Figs. 10 and 11.

Two gritty sandstone rasps were obtained at Bondi. These are practically identical with similar tools from Cherokee, Iowa, U.S.A.[26]

No. XII.—Plate xlii., Group 1, Fig. 6 from left.

A single nose style or ornament was found at Maroubra. The ornament is nearly three inches long and about one quarter of an inch in diameter, somewhat tapering towards the ends, and exhibiting two or three faint longitudinal ridges and many slight transverse depressions, which probably indicate the original chipping. The specimen however is much worn, probably through use, and the surface details are obscure. When discovered it was thought to be simply a piece of ordinary slate pencil, but on applying a knife it was found to consist of some material much harder than slate pencil.

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[26] Wilson—Ann. Report Regents Smithsonian Inst. (U. S. Nat. Mus. Report) for 1897 (1899), pt. 1, p. 285, pl. xxvii.

No. XIII.—Plate xliv., Group 3.

A large series of irregularly shaped objects was found. In many cases they are simply flakes, but some exhibit special flaking and chipping. These instruments were possibly intended to be used as knives.

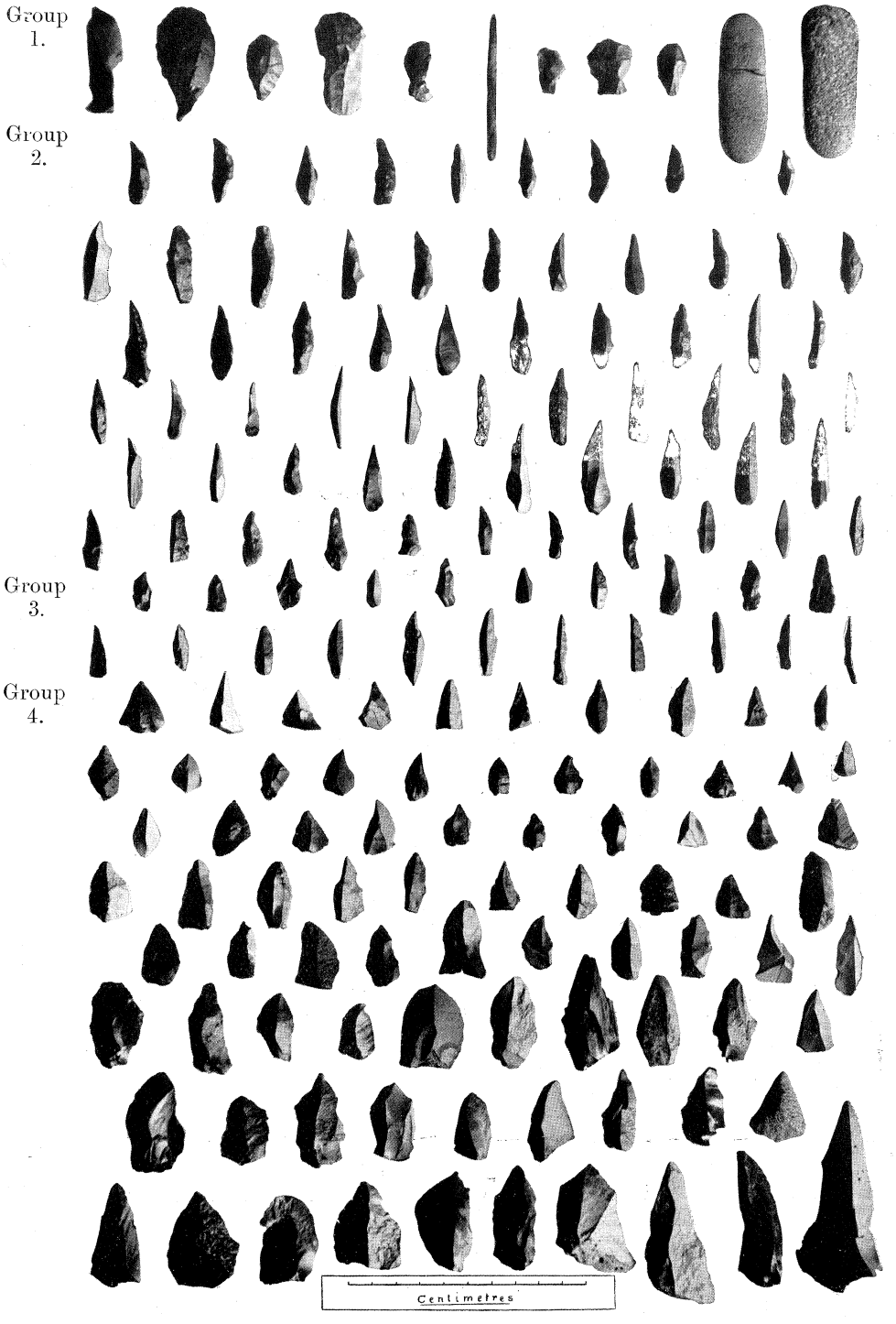
No XIV.

Numerous tomahawks, grindstones, knappers, anvils, and cores were secured, but these were for the most part of the usual kind and do not require any description.

The specimens figured on each plate have been reduced to about one third natural size. To facilitate reference they are classified in groups, and inasmuch as they are all arranged in rows, any particular specimen may be easily found by counting from left to right in any given group.

EXPLANATION OF PLATE XLII.

Group 1—Figs. 1-5 and 7-9. Variously shaped knives.
,, 1—Fig. 6. Nose ornament.
,, 1—Figs. 10-11. Gritty sandstone rasps.
,, 2—Six rows of chipped-back surgical knives.
,, 3—Two rows of minute, straight, slender points.
,, 4—Eight rows of spear-heads or knives.

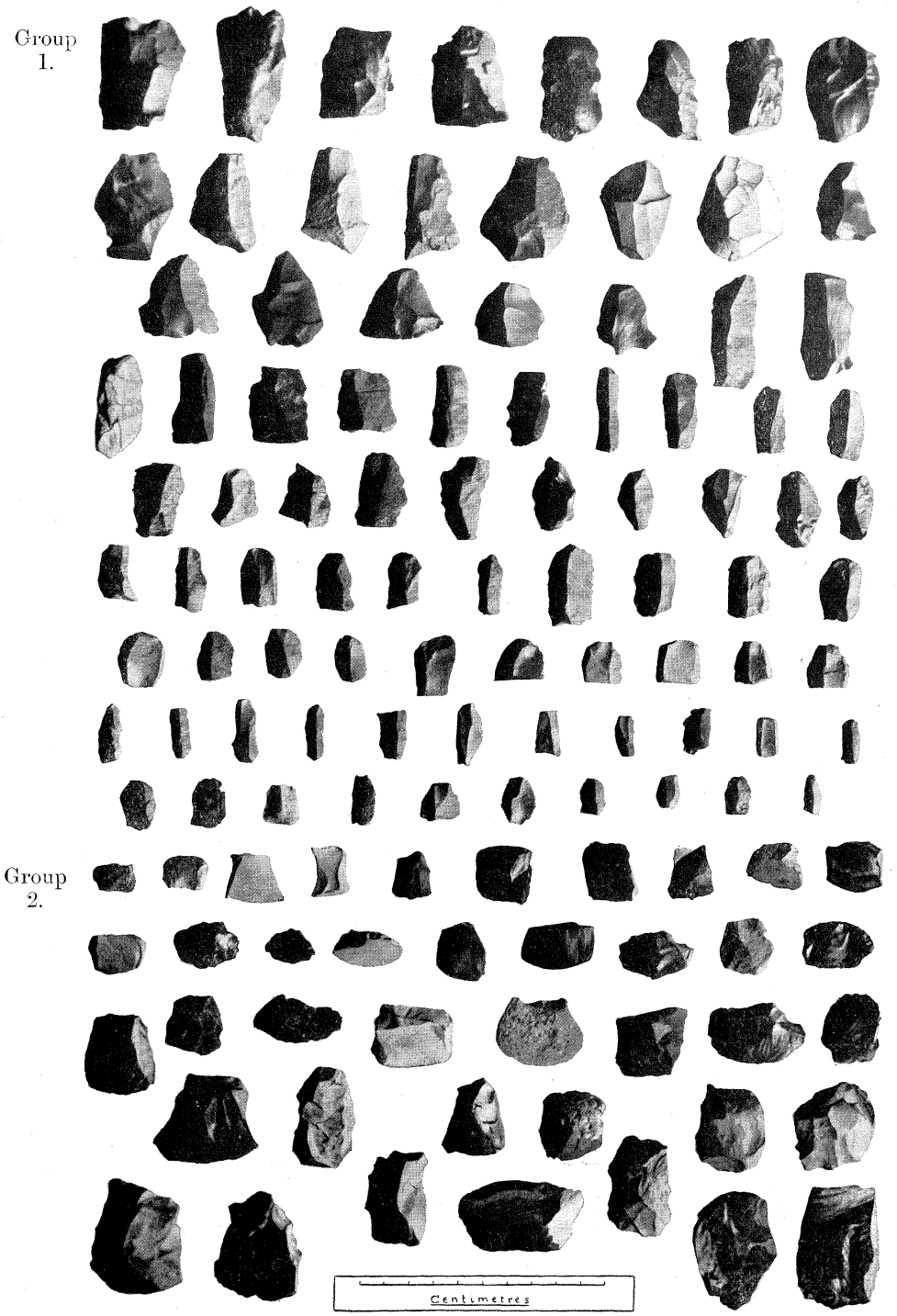


H. BARNES, Junr., photo.
Austr. Mus.

EXPLANATION OF PLATE XLIII.

Group 1—Nine rows of gravers.

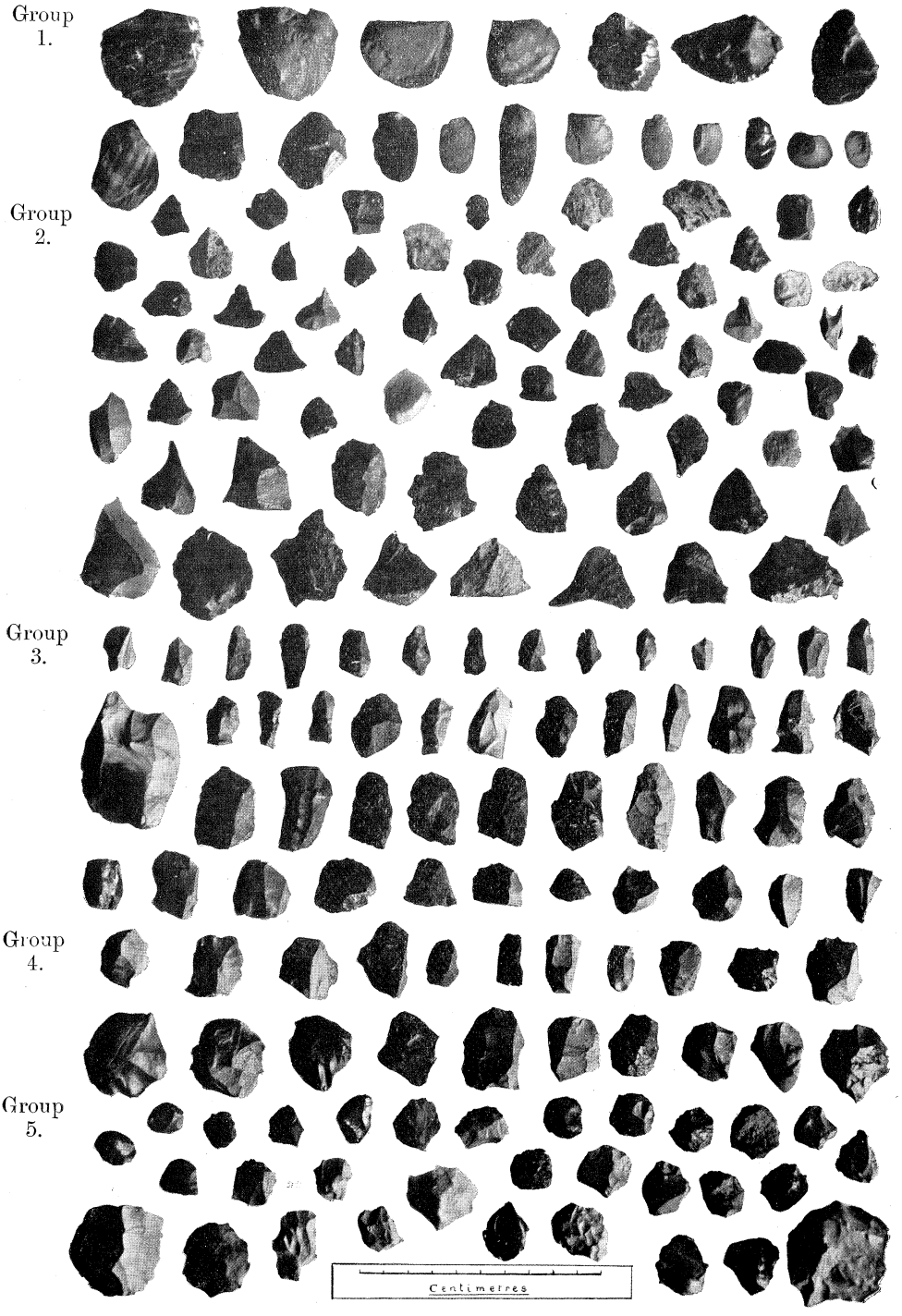
„ 2—Five rows of adze-like pieces—possibly gouges.



H. BARNES, Junr., photo.
Austr. Mus.

EXPLANATION OF PLATE XLIV.

Group 1—Two rows of smooth scrapers.
„ 2—Seven rows of death-spear points.
„ 3—Four rows of irregularly-shaped knives.
„ 4—Two rows of cores.
„ 5—Four rows of worked scrapers.



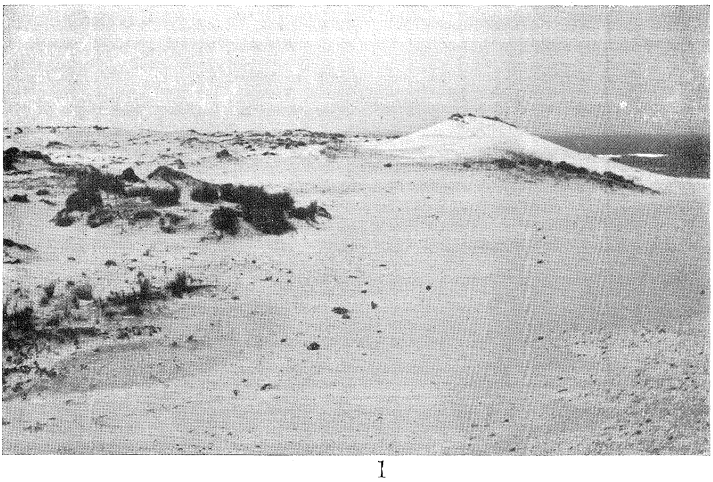
H. BARNES, Junr., photo.
Austr. Mus.

EXPLANATION OF PLATE XLV.

No. 1—View of the principal sandhill at Bellambi looking towards the north-east.

„ 2—Summit of the same looking north.

„ 3— „ „ „ „ „ south.



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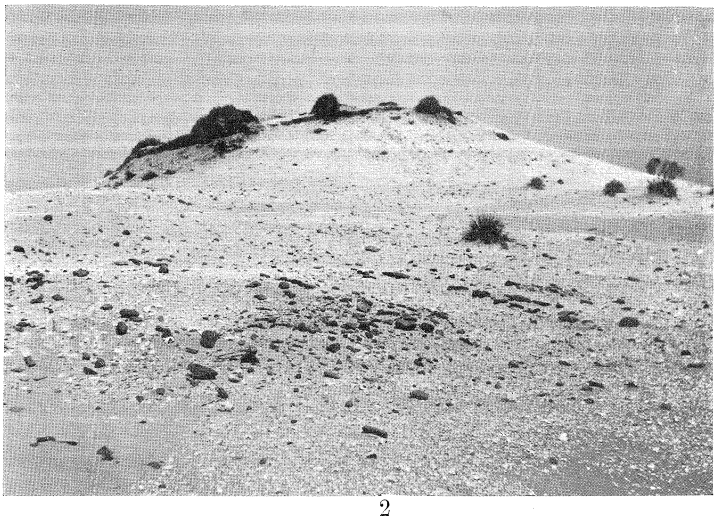

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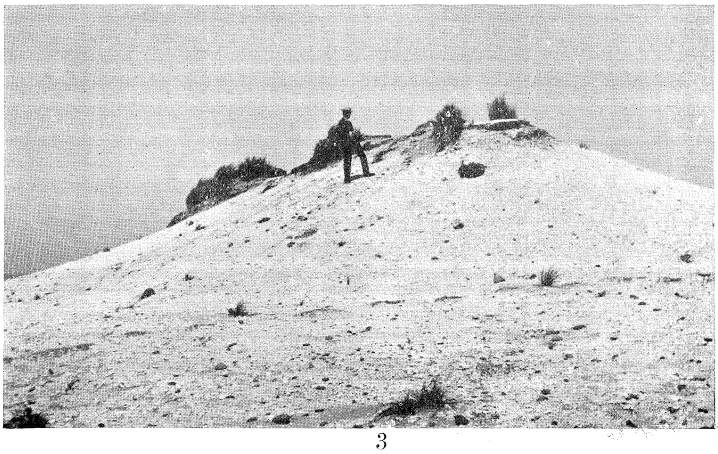

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T. WHITELEGGE, photo.
Austr. Mus.

CORRECTIONS.

Page 256, footnote—for "portion" read "position."

Plates xlii., xliii., xlv., at foot of plate—for "H. Barnes, Junr." read "T. Whitelegge."

Plate liii.—substitute the plate inserted in this part (5) for that previously issued (in part 4), on which the figure numbers were omitted.

Page 404, line 18—for "the faint line" read "a line."