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AUSTRALIAN GROUND AND TREE DRAWINGS

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Introductory

A few fragmentary references are to be found among the writings of explorers, early Australian historians, missionaries, and others at different times in regard to figures drawn upon trees and upon the ground by the aboriginal inhabitants of this continent, but so far as I am aware no attempt has yet been made to classify these drawings or to give a detailed description of them. As I have been recording and describing with some measure of success the rock pictures* of the Australian aborigines, it seems fitting that I should supplement my researches by a short paper on pictures cut or painted upon trees or delineated upon the ground in various ways by these people.

In treating of this subject it will be necessary to divide it into two parts—one dealing with the earthen figures of different kinds, the other describing the devices drawn upon trees. Before proceeding to describe the drawings seen by myself under these two divisions it will be interesting to make a few selections from the books of early Australian writers and others in regard to these works of native art observed in different parts of the continent, both for purposes of comparison and to show their wide geographic range.

* "Aboriginal Rock Paintings and Carvings in New South Wales," published in the *Proceedings of the Royal Society of Victoria*, VII, N. S., pp. 143-156: "The Aboriginal Rock Pictures of Australia," in the *Proceedings of the Royal Geographical Society of Australasia*, Queensland Branch, X, pp. 46-70, and "Australian Rock Pictures," in *The American Anthropologist*, VIII, pp. 268-278.

Drawings on the Ground

These drawings consist of several kinds. (1) Some are outlined by laying down logs, bark, or bushes to a certain height and then covering them with earth. This was no doubt done because the natives had very primitive tools for digging; in large figures raising a considerable quantity of earth would require much time and labor, especially if the ground were hard or clayey. (2) Others are formed entirely of loose earth heaped up into the required shape. A modification of this form of drawing was observable on the Bora ground at Gundabloui, described by me, where there were two human figures, a man and a woman, roughly modeled in raised earth; then a sheet of bark was cut into human outline, showing the arms, legs, etc., and this was laid on top of the raised earth.* (3) Another kind of drawing consists of figures of men, animals, and devices in various patterns† cut into the surface of the ground, a nick or groove from two to three inches wide and about two inches deep being cut in the turf along the outline of each. These grooves were cut with tomahawks or with flat pieces of wood on which an edge had been formed. (4) Others again are merely drawn upon the sand with a stick.

The earliest authentic account of native drawings on the turf with which I am acquainted is that contained in Mr J. Henderson's work.‡ In describing a Bora ground near Wellington, New South Wales, he says: "A long straight avenue of trees extended for about a mile. . . . On one extremity of this, the earth had been heaped up, so as to resemble the gigantic figure of a human being extended on his breast, while through the whole length of this sylvan temple a variety of other characters were observed rudely imprinted on the turf." Mr Henderson states also that "the devices on the turf bore a strong similitude to the lingen of the Hindoos, and that he "recognized several hieroglyphics which seemed also to represent under different forms the same symbol which the Hindoos have selected in order

* Journ. Anthropol. Inst., xxiv, p. 416.

† These drawings on the turf are sometimes very numerous and cover a considerable area. At Gundabloui a space 320 yards long by 40 feet wide was covered with a great variety of such drawings. Journ. Anthropol. Inst., xxiv, pp. 414-418; Journ. Roy. Soc. N. S. Wales, xxviii, pp. 109-114.

‡ "Observations on the Colonies of New South Wales and Van Diemens Land," 1832, pp. 145, 146.

to indicate the creative attributes of the divinity." In a plate at the end of his work he gives copies of a few of these characters.

The Rev. William Ridley* describes a Bora ground on which "there was the horizontal figure of a man roughly modeled by laying down sticks and covering them with earth, so as to raise it from four to seven inches above the level of the ground. It was 22 feet long, 12 feet from hand to hand, and the width of the body four feet." He gives an illustration of this figure on the same page.

While exploring in Cape York peninsula, Queensland, Mr Norman Taylor found on the hardened earth flats at the back of a beach some regularly drawn turtles cut out in outline.†

At a corroboree witnessed by Mr W. T. Wyndham near either Barwan or Condamine river, Queensland, he saw an image made of earth and logs on the surface of the ground, which the blacks told him represented the bunyip, warway, or polgun, a water monster.‡

Mr E. M. Curr thus refers to a raised earthen figured formed by the aborigines in the county of Karkarooc, Victoria: "The work was described to me as a mound about 100 feet or yards long, I forget which, made to resemble a huge snake. Its locality was close to the Murray river, some twenty miles below Euston, but on the other side. It was said by the blacks to have been made to charm away the smallpox which raged in those parts probably about 1820 or 1830.§

Mr A. W. Howitt in speaking of the initiation ceremonies of the blacks about Bega, New South Wales, says: "The old men having carefully cleared a piece of ground proceed to mold in earth in high relief the life-sized figure of a naked man in the attitude of the dance . . . This is Daramulun."||

Mr J. K. McKay informs me that upward of 30 years ago he saw a figure made by the aborigines on the right bank of Moonie river, near a large water hole in that stream, about 30 miles above Nindigully. It was apparently intended to represent a swan of enormous proportions. The body was about 15 feet long, about 6 feet wide, and 4 feet high; it was formed of bushes and leaves

* Journ. Anthropol. Inst., vii, p. 255.

† R. B. Smyth's *Aborigines of Victoria*, i, p. 292.

‡ Journ. Roy. Soc. N. S. Wales, xxiii, p. 41.

§ The Australian Race, iii, p. 681.

|| Journ. Anthropol. Inst., xiii, p. 462.

pressed closely together and covered with a thick coating of mud; the head and neck consisted of a bent log of the required shape about 10 feet long, one extremity of which was fixed into the ground at one end of the heap of bushes, the other extremity being cut to represent the head, which was elevated several feet above the surface; the whole figure was then ornamented with daubs of white and red, the head being painted red. This figure was at a deserted camp of the natives, and before going away they had taken all the sheets of bark which they had been using for their own shelters or gunyahs and laid them over the monster to protect it from rain. There was a cleared space about 20 or 30 feet wide all round this animal, where the natives had apparently been dancing corroborees while remaining in the camp adjacent.

In my paper on "The Bora or Initiation Ceremonies of the Kamilaroi Tribe"* I gave a full and detailed description of a variety of figures drawn upon the soil in various ways. In plate XXI of that paper, figure 3 represents a horizontal image of Baiamai 15 feet long and formed of logs covered with earth and raised 2 feet 6 inches above the ground. Figures 2, 4, and 16 represent two snakes, a woman, and an emu respectively, all composed of raised earth. Figures 5, 6, 7, and 8 were formed by cutting grooves into the surface of the soil along the outlines of the objects to be drawn. Figure 5 of the plate referred to is especially interesting, representing a group of twelve persons life size, their hands and feet joining the hands and feet of others.

Beside the figures just referred to, other objects were formed on the ground in a similar manner. Some of the drawings displayed the inventive, humorous, and imitative faculties of the natives. As an example, I may refer to the group representing a stump, a broken cart, a horse, and the driver, illustrating the adventures of an old king dressed in his regalia, on his way to the Bora.† The raised earthen figure of a bullock, on one end of which was fixed the skeleton of a bullock's head, a crooked stick stuck in the other end for a tail, is also deserving of attention.‡

In my paper on an "Aboriginal Bora held at Gundabloui in 1894"§ is described a gigantic figure of an iguana, about 20 feet

* Journ. Anthrop. Inst., xxiv, pp. 411-427.

† Journ. Anthrop. Inst., xxiv, p. 415.

‡ Loc. cit., p. 416.

§ Journ. Roy. Soc. N. S. Wales, xxviii, p. 127.

long, composed of pieces of bark covered with earth. The pieces of bark were about 2 feet 6 inches long, chopped in the middle sufficiently to admit of their being bent at an acute angle. The two ends were then placed on the ground about 18 inches apart and about a foot high, forming a figure like the gable end of a house. A sufficient number of these were used in continuation to make up the required length of the body, and the whole was then covered over with earth. The head, tail, and legs were made of earth alone.

A gentleman who has been engaged on stations in northern Queensland informs me that on the Lower Gilbert river, which flows into the gulf of Carpentaria, he saw the representation of an alligator formed by heaping up the loose earth into the required shape. It was about 25 feet long, 2 feet wide across the body, and 1 foot high. He also told me that he had occasionally seen similar figures formed on the ground on other rivers in that part of the country.

Mr J. W. Fawcett informs me that at Townsville, Queensland, between 1870 and 1875, he saw the figure of a man formed on the ground by means of raised earth, the head pointing toward the north. There were other figures contiguous, but their outline was broken and partially leveled by stock. The same correspondent also mentions having seen other earth-molded figures about a mile northerly from Charters Towers, Queensland. Some of these figures appeared to have been intended for emus and kangaroos, but were much trodden down by cattle and sheep.

The same correspondent, writing from Dungeness, near the mouth of Herbert river, Queensland, states that the aborigines of that place and also those of Hinchinbrook island adjacent, sometimes amused themselves by drawing figures on the beach with sticks. Some of the figures mentioned represented men, birds, lizards, turtles, canoes, etc.

Mr S. Gason, of Beltana, South Australia, states that he has seen the aborigines, old and young, amuse themselves by portraying various objects on the sand by means of a piece of stick. These drawings consisted chiefly of kangaroos, dogs, snakes, fish, and emus and other birds.

Mr C. Winnecke informs me that it is a frequent pastime of the natives in several places in South Australia, as well as in the northern territory, to select a clay-pan and on its flat surface to

outline circles, squares, and other figures by means of small stones placed in a single row along the outlines of the figures to be delineated. The stones are sometimes carried to the clay-pans from long distances, none being obtainable in the immediate vicinity.

I will now proceed to give a detailed description, from personal observation, of all the drawings on the ground, which are shown in accompanying figures 18 to 36.

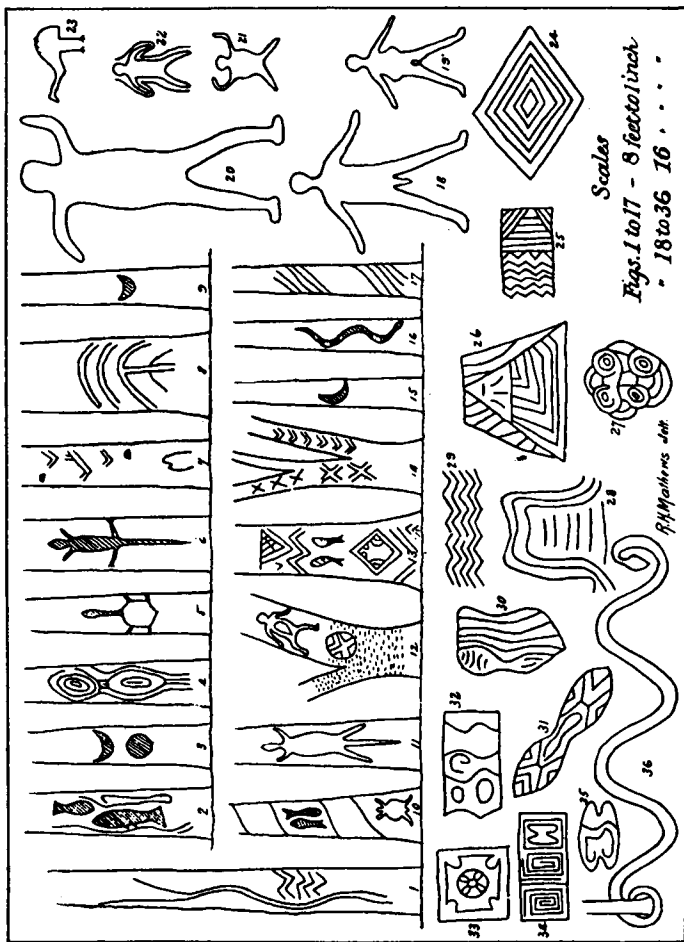
Figure 18—This is a huge representation of Baiamai, and was formed entirely of loose earth, heaped to the height of two feet. The length of the figure was 15 feet, the width from hand to hand 12 feet 3 inches, and the body was built in proportion. This raised earthen drawing was on a Bora ground of one of the Kamilaroi tribes and was situated close to the left bank of Gnoura Gnoura creek, about two miles northerly from the town of Kunopia, parish of Boonanga, county of Benarba, New South Wales.

Figure 19—This drawing, which represents Gunnanbeely, the wife of Baiamai, was also composed of the earth, heaped so as to resemble a gigantic human being extended on the ground. The length of the body was 10 feet, the width from hand to hand 8 feet, and the height above the surface of the ground 1 foot 6 inches. This figure was close to the image of Baiamai described in the last paragraph.

Figure 20—This colossal horizontal representation of Baiamai was formed on a Bûrbûng ground of one of the Wiradthuri tribes and is situated near the left bank of Bulgeraga creek, an Ana branch of Macquarie river, in the parish of Wullamgambone, county of Gregory, New South Wales. It was composed entirely of raised earth, and was 21 feet 8 inches long, 5 feet 6 inches across the body, and the arms were each 7 feet 3 inches long. The height of the breast above the level of the ground was about 1 foot 6 inches.

Figure 21—On the same Bûrbûng ground as figure 20 was a life-sized representation of a woman, outlined by means of a nick or groove cut in the ground about 2 inches deep and from 2 to 3 inches wide, cut out with tomahawks and sharpened sticks.

Figure 22—Not far from figure 20 was a drawing which the blacks informed me was intended for one of Baiamai's sons, executed in the same manner as figure 21. The length was 6 feet 6 inches and the width from hand to hand four feet. A grooved



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line, apparently for ornamentation, was cut along the outside of each arm and along the body down to the foot on each side of this figure, as shown in the figure.

Figure 23—About a chain from the feet of Baiamai, figure 20, was the representation of an emu, delineated by means of a groove cut in the soil; its length from the point of the bill to the end of the tail was 6 feet 7 inches, and from the feet to the curve of the back four feet.

Figures 24 to 30—These represent some of the devices cut upon the turf on the Kamilaroi Bora ground at Gundabloui, near Moonie river, parish of Gundabloui, county of Finch, New South Wales. There were about 40 of these designs cut in the ground in various places and at irregular intervals along the track connecting the two circles. They consisted chiefly of straight, wavy, and zigzag lines, forming imperfect rectangles, ovals, and different indefinite patterns, no two of which are alike, although there is a general similarity in their construction. Three of these carvings in the soil are shown in figures 6, 7, 8, plate XXI, of my paper on "The Bora or Initiation Ceremonies of the Kamilaroi Tribe."*

Figures 31 to 35—These designs were cut in the soil on the Wiradthuri Bûrbûng ground referred to in describing figure 20, and have a general resemblance to figures 24 to 30 just described. There were a considerable number of these devices cut upon the ground in all the clear spaces between the trees and saplings throughout a distance of about 140 yards. Designs such as these, whether cut upon the ground or upon trees, are called *yammun-yamun* by the natives of the Kamilaroi and Wiradthuri tribes.

Figure 36—This drawing, which occurs on the Bûrbûng ground previously mentioned, represents a legendary monster called *Wahwee* by the natives of the Castlereagh, Macquarie, and Barwan rivers. It is supposed to have its abode in very deep water holes and devours human beings. The figure here shown measures 59 feet in length and a foot across the body at the widest part; it is formed by a nick or groove about three inches wide and two inches deep cut in the turf along its outline; it has a head and neck like a large snake, and it is here delineated with its tail coiled round the butt of a belar sapling. This is probably the mythical animal Mr Wyndham calls *warway* and which was

composed of earth and logs in the case mentioned by him. (See my quotation at page 35 of this paper.)

Drawings on Trees

The specimens of native art found upon trees are executed in various ways. (1) The mode of drawing most generally adopted is to outline the object by a nick cut with the tomahawk into the bark of the tree as in figure 11. (2) In other cases the whole of the bark within the outline of the figure is removed (figures 3, 6, and 16). (3) In some cases a portion of the bark is first removed from the tree and the designs are then cut into the wood as in the case mentioned by Mr Oxley. (4) Some of these native drawings are merely scratched upon the bark of the tree, as in the instances observed by Sir George Grey, quoted in this paper. (5) Others again are painted on the tree with ocher or charcoal.

In 1817 Mr John Oxley, surveyor general, found the grave of a native on Lachlan river, New South Wales. It consisted of a semicircular mound of earth with three rows of seats formed of the soil, which was trenched up from between them. Two trees which stood near had the bark removed from the side facing the tomb, and curious characters were cut upon them.*

On Macquarie river, below the junction of Taylors creek, New South Wales, Captain Sturt in 1828 noticed a grave which consisted of an oblong mound with three semicircular seats. A walk encompassed the whole, from which three others branched off for a few yards only into the forest. Several trees overhanging the grave were fancifully carved on the inner side, and on one the shape of a heart (or shield?) was deeply engraved.†

Lieutenant W. H. Breton describes some marked trees which he saw in the Wollombi district, New South Wales, between the years 1830-'33. "At a battle between two native tribes four men and two women of the Comleroy [Kamilaroi] tribe were slain. The men were buried together, and at the burial place the trees for some distance around to the height of 15 to 20 feet were carved over with grotesque figures meant to represent kangaroos, emus, opossums, snakes, etc., with rude representations also of the weapons they use." In another place, in referring to a Bora

* Two Expeds. Interior N. S. Wales, pp. 138-141.

† Ibid., I, p. 14.

ground of the Port Macquarie tribe, he says "the bark of any trees that are near is carved into rude representations of different animals."*

Mr J. Henderson in 1832, in describing a place where the native ceremonies of initiation had been performed, says: "The devices on the trees represented snakes, the opossum, the emu, the kangaroo, the cockchafer, etc., while others were stated to indicate the forked lightning, warlike implements and falling meteors." Farther on, in describing the burial of a native, he says: "A symbol is afterwards carved upon the nearest tree, which seems to indicate the particular tribe to which the individual may have belonged."†

Mr James Backhouse, a missionary, while staying at the mission station near Wellington, New South Wales, in 1835, says: "We went to see the grave of a native black, over which a mound of earth was raised up. On one side of this mound and extending a third part of the way round it there was a trench formed of two low banks of earth. On the same side some undulating lines and others forming imperfect ovals were inscribed on the trunks of adjacent trees."‡

Sir George Grey mentions some trees which he saw near Prince Regents river, Western Australia, in 1837, on which were cut "several successive rows of notches." He also "often found rude drawings scratched upon the trees, but none of these sketches indicated anything but a very ordinary degree of talent; some were so imperfect that it was impossible to tell what they were intended to represent."§

Captain Wickham|| says: "In the southern parts of New Holland a well cleared and secluded spot is chosen as a burial ground. Frequently a circular mound is raised over the body, around which several narrow circles are described. These places are held sacred and kept exceedingly neat and free from shrubs. Frequently the trunks of the surrounding trees are carved over with various devices."

In the district around the gulf of Carpentaria, Queensland,

* Excursions in N. S. W., W. A., and V. D. L., 1830-1833, 3d ed., pp. 179-180 and 203-205.

† Obs. Col. N. S. W. and V. D. L., 1832, pp. 147-149.

‡ Narrative of a visit to the Australian Colonies, p. 322.

§ Two Expeds. N. W. and W. Australia, I, pp. 112, 113.

|| Journ. Roy. Geog. Soc., 1842, xii, p. 83.

Leichhardt saw a gum tree, in 1846, "on which a native had carved a representation of the foot of an emu, and he had performed it with all the exactness of a good observer."

Some marked trees are mentioned by J. M. Stuart as having been seen by him in 1861 at Marchant Springs, on Finke river, South Australia. He says: "The natives had made a drawing on the bark of two trees—two figures in the shape of hearts—intended, I suppose, to represent shields. There was a bar down the center, on either side of which were marks like broad arrows. On the outside were also a number of arrows and other small marks."

Mr E. Giles, in speaking of the natives of the Lower Murrumbidgee river and adjacent country, says: "In their cemeteries they usually fence off elliptical spaces with logs and brush and make marks on the surrounding trees which other natives can read and interpret." He also says he has known natives to leave marks on the ground, so that the other natives could say or know where to go and find them.*

Mr R. Brough Smyth says: "The natives of the Murray and Darling rivers and adjacent country carved on the trees near the tombs of deceased warriors strange figures, having meanings no doubt intelligible to all the tribes in the vast area watered by these rivers."†

Mr E. M. Curr gives an illustration showing a tree on the Diamantina river, Queensland, marked by the Breeaba tribe to commemorate one of their fights, which took place in the locality.‡

The same author says in another place, in speaking of the tribe at the mouth of the Leichhardt river, Queensland: "The ceremony of initiation is carried on in camps marked in a peculiar way, and at these Mr Armit has seen painted on a conspicuous tree with red ocher or blood the figure of a hand. . . . To mark a clean surface with a dirty, greasy, or painted hand is a common practice of our blacks, and I have seen them do it on several places long distances apart." In another place he says: "I have often myself seen the blacks imprinting their hands, stained with red ocher, on suitable surfaces in this way."§

* Explorations in Central Australia.

† Aborigines of Victoria, I, p. 286.

‡ The Australian Race, II, p. 433 and plate.

§ Loc. cit., II, p. 301; III, p. 679.

In my paper on "The Bora or Initiation Ceremonies of the Kamilaroi Tribe"* I showed (plate *xxi*, figures 9 to 13) a number of trees which were marked on that occasion. Figure 12 of that plate shows an iguana 3 feet long outlined by a cut in the bark of the tree; figure 11 represents two small human figures cut on a tree in a similar manner; figures 9, 10, and 13 show three trees marked with the ordinary nondescript designs observable on Bora grounds generally. About a dozen trees were marked on that Bora ground, but I selected five of the most representative of them for illustration in plate *xxi* of the journal quoted.

The drawings cut upon trees, which are shown in figures 1 to 17 herewith, I will now describe in regular order and in detail. The figures which are shaded on the plate denote those which have the whole of the bark cut away within their outlines; the others are in outline only.

Figure 1—These marks cut upon a belar tree on the Búrbűng ground, previously mentioned as being situated on Bulgeraga creek, are intended to represent the marks left by lightning. The longitudinal strips indicate the course of the electric fluid down the tree, while the zigzag lines represent the forked lightning itself.

Figure 2—These drawings, which also are on a belar tree, represent two fish and some irregular lines cut through the bark on either side of them. One of the fish is two feet ten inches long and a foot wide and is represented with its head upward; the other fish is 1 foot 8 inches long and 9 inches wide and has its head pointing downward. The whole of the bark within the outline of both fish has been removed and the surface of the wood painted blue. My aboriginal guide told me the blue color here used was obtained from white people, and is that used in washing clothes.

Figure 3—The upper object evidently represents the new moon, but whether the other figure is intended for a full moon or for the sun I was unable to definitely determine. In both figures the whole of the bark within their outline had been removed. In this tree, which is a belar, there is a very good representation of an eagle-hawk's nest built in a fork of the tree about 22 feet from the ground.

* *Journ. Anthropol. Inst.*, *xxiv*, pp. 411-427.

Figure 4—This piece of *yammunjamun* is formed by means of lines cut with a tomahawk out of the bark of a belar tree. In the small space between the two oval designs the whole of the bark has been removed.

Figure 5—The figure here depicted is intended for a mud-turtle and is cut upon a belar tree. The body is 16 inches long by 11 inches wide and its legs are about 4 inches long; the head and neck are 19 inches long, from which the whole of the bark has been removed, while the remainder of the figure is outlined by a nick in the bark.

Figure 6—This drawing represents an iguana 6 feet long and 9 inches across the body, climbing a belar tree. On the hind legs claws are depicted, but these are omitted on the front legs. The whole of the bark within the outline of this animal has been removed. Figures 1 to 6 here described are all situated on the same Būrbūng ground and are scattered at intervals along a space of about a hundred yards. I counted 59 marked trees at this spot, but the six here reproduced are some of the most interesting.

Figure 7—These marks are cut upon a box tree at the Bora ground, on Gnoura Gnoura creek. The lower object resembles the head of a fish and is a foot long by 8 inches wide. There are three V-shaped devices formed by double nicks of the tomahawk. There is an imitation of an eagle-hawk's nest in this tree, with steps leading up to it, two of which are visible in the plate.

Figure 8—The design here depicted is cut upon a large box tree and consists of pairs of parallel lines cut into the bark in this way. The design covers a space about 4 feet long by about 3 feet wide.

Figure 9—This drawing is evidently intended to represent the moon, which is 12 inches across the horns and 5 inches at the widest part. It is cut upon a box tree, and the whole of the bark within the outline has been removed.

Figure 10—The spiral lines cut with a tomahawk around this tree is intended to represent the track left by lightning. There are two representations of fish close together, each about 18 inches in length and 8 inches in breadth. One of these fish has its head upward, the other downward, being in a somewhat similar position to the two fish shown in figure 2. Near the butt

of the tree is the figure of what appears to be a mud-turtle, 18 inches long and 12 inches across the body, formed by a nick cut through the bark along its outline. All the bark within the outline of both the fishes has been cut away.

Figure 11—This is another representation of an iguana chopped out in outline on a box tree. It is 6 feet long and 1 foot wide across the body. No claws are shown upon the feet.

Figure 12—On this tree, which is a forked box, there is the figure of a man 2 feet 6 inches long and a foot across the body, outlined by a nick cut with the tomahawk. Within the outline of the body of the man is a small figure executed in the same way, which may have been intended for a shield, or was perhaps drawn there merely for the sake of ornament. A little way below the man is a circular figure, perhaps intended for the sun, with cross-markings within its outline. Below and around this design are a large number of notches chopped with a tomahawk.

Figure 13—These markings are cut with a tomahawk on a box tree. There are two fish, each about 14 inches long and 4 inches wide, with their heads in the same direction, both pointing upward. All the bark within their outline has been removed. Below the fish is a design in the form of a parallelogram, about 18 inches each way, formed by double lines cut into the bark of the tree. The remainder of the lines appearing on this tree are cut with a tomahawk in a similar manner.

Figure 14—This is a sandalwood tree having three branches, two of which are ornamented by *yammunyamun* nicked through the bark in the usual way. The crosses may have been intended to represent stars.

Figure 15—The drawing upon this tree represents the moon when about four days old. It is 15 inches across the horns and four inches wide in the middle. It is cut upon a box tree, and all the bark within its outline has been removed.

Figure 16—This fairly good representation of a snake is cut with a tomahawk upon a box tree by removing the bark within its outline. Its length is 4 feet 6 inches and its greatest width about 3 inches.

The figures above described between numbers 7 and 16, inclusive, are made upon trees on a Bora ground of the Kamilaroi tribes on Gnoura Gnoura creek, parish of Boonanga, county of Benarba. There are a number of other marked trees on this

Bora ground, but those I have selected are among the best executed and most important.

Figure 17—At a native cemetery on Bulgeraga creek, parish of Wullangambone, county of Gregory, New South Wales, I found four marked trees, of which the one illustrated is an example. This is a box and has five spiral lines cut around it. Two other box trees and a sandalwood tree are marked in a similar manner, but with fewer spiral lines. The marks consist of a continuous nick cut through the bark of the trees with a tomahawk.

General Remarks

For the purpose of showing the wide geographic distribution of aboriginal pictures of the character here treated I have selected and arranged in chronologic sequence a few examples from each of the colonies, New South Wales, Queensland, Victoria, South Australia, and Western Australia, with references to the works from which they are quoted. Following these quotations I have described a large and varied collection of drawings on the ground and on trees, the result of my own investigations, which are now published for the first time. Figures 1 to 36, accompanying this paper, have been prepared from careful sketches and measurements made by myself. Their position on the government maps is also stated in the descriptions, so that they can easily be found by any person desirous of visiting them.

Earthen figures formed in high relief or engraven upon the turf, representing human beings, different animals, and the curious designs called *yammunyamun* are found chiefly at those places where the young men of the tribe are admitted into the ranks of manhood. Where they have been observed in other localities the circumstances would lead us to suppose that they were connected with some tribal myth or superstition. In support of this view the attention of the reader is invited to the animal called the *warway* mentioned by Mr Wyndham, the huge snake referred to by Mr Curr, and the swan-like creature described to me by Mr McKay, mentioned in preceding previous pages.

The drawings on trees consist of representations of men, animals, weapons, the different heavenly bodies, lightning, and other devices. Among the Kamilaroi, Wiradthuri, and other

tribes with which I am acquainted marked trees of the character indicated are found at those camps where the initiation ceremonies are performed. The graves of the natives, the scenes of some of their fights, and remarkable events in their daily life are likewise commemorated by curious symbols marked on the trees standing around the spot.

Although the purpose of this paper is to deal only with drawings on the ground and on trees, yet as the carving or painting of devices on wooden implements of the chase and on other objects, as well as on the bodies of the natives themselves, is so intimately connected with the subject I have in hand, I have deemed it desirable to make a short reference to that kind of aboriginal drawing.

The lines carved on native weapons and utensils are generally in the form of the chevron, herring-bone, saltier, or oval, but occasionally the figure of a human being or an animal is found. The instruments used in carving wood consist of pieces of broken stone or shell, sharpened pieces of bone, or the teeth of animals. Sometimes their shields, etc., are painted in red and white lines.*

The natives marked their bodies by scars, ordinarily in a very rude manner, but occasionally men have been seen whose bodies bore cicatrices in regular lines, making a sort of pattern.† These scars are made with instruments similar to those used in wood carving.

I have heard from old residents of the back country that the natives of Diamantina and Georgina rivers, Queensland, when dancing corroborees, ornament their bodies with figures of men and animals, outlined in ochers of various colors.

Mr L. Schulze, in describing the *tjurunga* festivals of the natives of Finke river, South Australia, says: "According to the nature of the *tjurunga* is the ornamentation of the body; thus, for a fish festival the body is painted with fish-like figures, although the fishes may be the same for several persons. . . . The messengers who are sent to the neighboring tribes inviting them to attend the *tjurunga* are painted on the back with a sort of red

* For specimens of carvings on wood see W. H. Breton's "Excursions in N. S. W., W. A., and V. D. L.," 1830-'33, 2d ed., plate facing p. 206, Figs. 1, 6, and 12; also to the drawings on weapons and implements shown in the plates given in R. B. Smyth's "Aborigines of Victoria," 1, pp. 283-341; and in E. M. Curr's "Australian Races," 1, pp. 143-151.

† A remarkable instance of this kind of drawing on the body of a native of Queensland is illustrated in Smyth's "Aborigines of Victoria," 1, p. 11, Fig. 6.

disk formed of concentric rings, with four half-round disks, also consisting of concentric curves."*

Mr S. Gason states that at the Mindarie dance or peace festival "the men are artistically decorated with down and feathers, with all kinds of designs—crosses, diamonds, circles, and parallel lines. The down and feathers are stuck on their bodies with blood freshly taken from their penis. They are also nicely painted with various colors, and tufts of boughs tied on their ankles to make a noise while dancing."†

Closely allied to the marking of trees, and still more nearly connected with rock painting, is the native practice of stripping pieces of bark from adjacent trees and ornamenting their inner sides with various designs, after which they are either hung on trees or laid with their ends on the ground, the back of the bark resting against a tree or sapling. When surveying pastoral runs on Barwan river, New South Wales, in 1871, I saw at native camps pieces of bark on which were drawn rude figures of men, fish, and other objects. They were outlined in pipe-clay, red ocher, or charcoal, and in some instances there was a combination of two or more of these colors in the same drawing. I have heard of paintings on sheets of bark among the natives of some of the other colonies.

A few remarks on images cut out of wood and bark of trees, as indicating native notions of sculpture, will not be out of place before concluding this paper. In my paper on "The Bora or Initiation Ceremonies of the Kamilaroi Tribe"‡ I described two male figures cut out of bark and fixed up against trees. One of these had his head ornaments, with emu feathers, and the other held in his hand a *hielaman* or native shield. I also described the figure of an iguana about 3 feet long, a figure of the sun 2 feet in diameter, and one of the full moon 18 inches in diameter, all cut out of bark and fastened to trees.

The contents of this paper, taken in connection with previous memoirs on "Rock Paintings and Carvings"§ contributed by the writer to other journals, will be found to contain in condensed form the entire subject of Australian aboriginal draw-

* Trans. Roy. Soc. South Australia, xiv, pp. 231 and 213.

† Journ. Anthrop. Inst., xxiv, p. 173.

‡ Journ. Anthrop. Inst., xxiv, p. 417.

§ See list of works quoted in the foot-note to the first page of this paper.

ing. Much more yet remains to be done in this direction, and I sincerely hope that these efforts will have the effect of inducing a student here and there to continue the work which I have begun.

The dawn of art among a primitive people has left its traces in the form of paintings in many a smoke-blackened cavern and in carvings on the smooth rocks of the hilltops ; in the figures raised or graven on the surface of the ground and in the rude devices cut or painted upon trees ; in the carvings upon wooden implements and in the images cut out of wood and bark. In many respects these examples of the development of the native intellect in various parts of Australia are among the most interesting and valuable which can engage the attention of anthropologists.

THE QUESTION OF HEREDITY.—M. Milne-Edwards has reviewed a communication from M. Remy Saint-Loup relative to the modifications of the species and the heredity of acquired character. M. Remy Saint-Loup has obtained the gradual formation of a supplementary claw to the foot of the guinea-pig and the reproduction of the new form. This supplementary claw, after three generations, is perfectly conformed to the other parts of the foot and is in every respect like the primitive claws. Instead of producing a modification injurious to the race, like that made in the interesting experiments of MM. Gley and Charrin, to which we have before referred, the changes of form obtained by M. Remy Saint-Loup are not prejudicial to the survival or biological perfection of the descendants. The hypotheses of the theories of transformism appear in these experiments to have a clear demonstration and a certain confirmation.—*Les Temps*.

A NEW DYNAMOMETER.—M. Sarrau presented in the name of Charles Henry a new dynamometer, especially applicable to physiology and medicine, which gives the value, in fractions of horse power, of the strength of the muscles and the power of living motors in general. This new method, the only one which is exact from a mechanical point of view, shows, for instance, that a woman whose strength, measured by the old dynamometer, is about one-half that of a man, is capable of only one-fourth of his work.—*Académie des Sciences, Les Temps*.