EARTH SMOKING-PIPES FROM SOUTH AFRICA AND CENTRAL ASIA.
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ORIGINAL ARTICLES.

With Plate E.

Africa, South and Asia, Central.

Earth Smoking-Pipes from South Africa and Central Asia. Balfour.

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While searching for early types of South African stone implements on the banks of the Zambesi River and elsewhere, in 1905, 1907 and 1910, I occasionally happened upon other objects of interest of a totally different character. Among these are two of the objects figured on Plate E, Figs. 1 and 2. These are examples of the improvised earth-pipes which are widely used in South Africa for smoking either tobacco or hemp, when portable pipes are lacking, or when hemp-smoking has to be practised surreptitiously. The employment of these earth-pipes is, of course, well known, not only in Southern Africa, but also in the mountainous districts of North India and other adjacent Central Asiatic regions. There are, however, certain points connected with this smoking practice which are worth enlarging upon.

Firstly, as regards South Africa—There are two principal types of earth-pipes employed in this region: (a) pipes built up on the ground-surface, and (b) excavated pipes, i.e., formed below the surface. Of the former type the specimen shown in Fig. 1 is a good sample. I found it on the bare ground about 100 yards from the left bank of the Zambesi, and half a mile above the Victoria Falls, in September, 1910. It consists of a little mound of red earth, moistened with water (or, as frequently happens, with urine) and scraped together into a heap, like a child’s “mud-pie,” from the sandy surface-soil. It is about 3 inches by 2½ inches in area and 1 inch high. The under surface is flat, having been attached to the ground; the upper surface is convex. While the little earth-mound was still moist, a pit was sunk in the upper surface to form the “bowl,” and a duct was formed by withdrawing a grass-stem, or similar object, which had been purposely imbedded in the mass. This duct runs horizontally from the bottom of the “bowl” to the hinder end of the mound, where it emerges in a slight semicircular recess formed by pushing a stick down the moist earth near the periphery (Fig. 1A). When suitably shaped, the mass was allowed to dry in the sun—a quick process in the dry season—and the improvised sun-baked mud-pipe was ready for use. It was probably made by one of the MaKalanga natives imported into the district as labourers. Tobacco, not hemp, was smoked in this example. The mode of smoking such a pipe, built up on the ground, is well illustrated by T. Baines (“Explor. in S.-W. Africa,” 1864, p. 204). His figure of a Bechuana native smoking is reproduced in Fig. 7. A very similar figure is given in Rev. J. G. Wood’s “Nat. Hist. of Man,” 1874, I., p. 180. The latter’s description suggests a pipe with a duct of considerable calibre, as, in forming this, the earth was piled up over a spear-shaft, which was then withdrawn to form the duct. Dr. L. Schultze (“Aus Namaland und Kalahari,” 1907, p. 627) describes the making of such ground-pipes by Bechuana natives of the Southern Kalahari, who smoke hemp in them. The clay is moulded in the form of a small loaf. At one end a pipe-bowl is hollowed out, and from the bottom of the bowl a horizontal duct extends, into which a straw is inserted, serving as a mouthpiece. When the pipe is charged with hemp, the smoker fills his mouth with water, kneels down and draws in the fumes with long pulls, thus improvising a rudimentary water-pipe or hubble-bubble. The foregoing pipes all remain attached to the ground while in use.

Fig. 2 shows a very rough, crudely-shaped pipe, also made from mud (blackish) in the manner described; but it differs from the previous example (Fig. 1) in having been detached from the ground after drying in the sun, for use as a portable pipe. [ 65 ]
It has been used, no doubt surreptitiously, for smoking *dakka* (hemp), some of the partly-carbonised seeds of which still remain in the "bowl." It is about 4½ inches long and is very thick. The mud of which it is made contains bits of grass and husks. The duct has been clumsily formed by withdrawing some object which had been imbedded in the mud mass. The orifice is seen in the end view (Fig. 2A).

I found this pipe on a rock-ledge in the railway-cutting close to the Victoria Falls bridge, on the left bank of the Zambesi. It represents a second developmental stage, in which the rude mud-pipe, built up on the ground, has been subsequently detached, so as no longer to necessitate the smoker's lying flat upon the ground.

Fig. 3 illustrates a further development of the portable-pipe from the ground-pipe. This specimen was collected in the Ladysmith division of Cape Colony and was given to the Pitt Rivers Museum by the Rev. Dr. Watson. Unlike the preceding examples, it was not built up on the ground, though clearly modelled upon the earth-pipe and derived from it. It is made of clay, moulded by hand into a massive, sausage-shaped form, 4½ inches long, 1½ inches wide and 2½ inches high at the centre. A large depression at one end forms the "bowl," the upper surface of the clay rising somewhat to the hinder margin of the "bowl," as seen in the profile view (Fig. 3A). The horizontal duct from the bottom of the "bowl" opens at the opposite end of the mass and is more neatly formed than in the rough ground-pipes. The under surface is rounded instead of being flat, as in the pipes made upon the ground. After having been shaped the mass was coated with a "slip" of dark-brown clay, which has mostly weathered away, except around the mouth-piece and in patches elsewhere. The pipe was then baked and not merely sun-dried. There are some unconsumed remains of hemp in the "bowl," showing that the pipe was used for *dakka*-smoking. Although this pipe is definitely made to carry about, it cannot be held in the mouth, since it is far too heavy (15 oz.) and there is no stem which can be gripped by the teeth. In smoking, the lips were applied to the hinder end, covering the duct-orifice. The method of smoking is, in fact, the same as in the case of the prototypes of this portable form, but it is no longer necessary to crouch down to the pipe.

The second principal type of earth-pipe in South Africa is one formed by excavation below the surface of the ground. A simple form of underground pipe is described by Dr. F. Fulleborn* as used in the Ungoni region of South Nyassaland. A little pit is made in the ground to serve as "bowl," or tobacco-holder, and a duct is formed by forcing a stick into the ground so as to reach the "bowl." The smoker, of course, must lie down flat in order to apply his lips to the smaller orifice. Men, women and children all use this method. As the WaNgoni were migrants from the south, an offshoot from the Zulus, it is possible that this laborious smoking method was introduced by them. At any rate, this method is widely-spread to the south of the Zambesi. Dr. Moszcik,† describing how *dakka* is smoked by the southern natives, says that a prevalent method is as follows. Two pits, about 8 cm. deep, are excavated in the ground, the bottoms of which are united by a groove of about a span's length, formed by removing the earth between the pits. Some moistened straws or rushes are laid along the groove, their ends projecting from both pits. The earth is then replaced in the groove and firmly pressed down and, after a short time, the straws are withdrawn, a duct being thus formed. A hollow tube is stuck into one of the pits to act as mouthpiece and prevent particles of earth entering the smoker's mouth. Hemp is then placed in the "bowl" and kindled. A little water is poured into the duct and the native lies flat or kneels down and inhales the smoke through the water. Dr. Moszcik reproduces a photograph, but the details are not clearly shown.

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A slightly elaborated variant upon this subterranean pipe is described in the Illustrated London News of 30th September, 1911, p. 525, and forms the subject of a clever illustration by R. Caton Woodville of Kaffirs smoking opium through an improvised ground-pipe. A hole is sunk in the ground and into this is inserted a bottle from which the neck and bottom have been broken away. The upper part of the bottle projects slightly above ground. In the pit, below the lower end of the broken bottle, are placed glowing embers, and upon these the opium. A duct runs horizontally from the pit, or "bowl," and reaches the surface some two yards away. A short tubular mouthpiece is inserted in the duct-orifice. The smokers in turn bend down and inhale the smoke through the mouthpiece. I understand that hemp is similarly smoked by the Kaffirs. The sectional diagram, Fig. 9, is based upon the above description.

Now, turning to Central Asia, we find that closely similar smoking practices obtain in the mountainous districts of North India and in adjacent regions to the north and west.

A type of earth-pipe used by natives of Kashmir, and identical in construction with the South African type of which Fig. 1 is an example, was figured and described by Mr. E. Lovett in the Illustrated Archaeologist, September, 1894, p. 100. One of the specimens, carefully detached from the ground and sent to him by a friend, was forwarded to me by Mr. Lovett and is shown in Fig. 4. When the natives were camping near a stream they "built up with their hands, of the red, loamy material forming the kind of delta banks, in places where the streams ran more level, little elongated mounds, which they smoked. These little mounds were from 5 to 6 inches long, about 2 inches wide at the base and about 1½ inches high and, forming as they did a mere elevation of the clay bank, were really pipes of which the whole world may be said to form a part." A bowl was sunk at one end and a stick, straw or reed was pushed up from the other end to form the duct. As is shown in one of Mr. Lovett's illustrations the smoker kneels down and, bending over, applies his lips to the orifice at the small end of the mound. Apparently, hemp is not used, but leaves of trees mixed with dried camel dung furnish the smoking mixture. Mr. Lovett adds: "Should there be a number of bearers together, and should they be especially sociable, they construct a large common pipe in the same manner, but in the form of a crater and cone, around which they all sit, each with a hollow reed inserted through the side of the 'crater,' which is filled with the aforesaid 'mixture.'"

Referring to some of his Astori coolies, from Astoria, Baltistan, Mr. E. F. Knight* says: "they had no hookah with them, so contrived to make a pipe after the most primitive fashion known to smokers, and which prevails in wild parts of America, as well as in Asia. A little mound of earth was piled up, and then well patted down with the hands to make it firm. Into this mound a stick was then thrust horizontally for 6 inches or so. A hole was next bored with a finger through the earth, just above the innermost end of the stick, and this hole formed the bowl of the pipe, and was filled with tobacco. Lastly, the stick was gently withdrawn, leaving behind a little tunnel that served as pipe-tube. Each coolie in turn applied his lips to the earthy mouth of this tube, and inhaled the grateful fumes."

Among the Tekke Turkomans of Merv, Turkestan, a similar procedure is followed when they are on expeditions and deprived of their kalian (water-pipes). According to G. Dobson,† the Tekkes under these circumstances construct what they call the yer-chilin, literally, "earth-pipe." "They scratch up a long ridge of earth or clay,

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† "Russia's Railway Advance into Central Asia," 1890, p. 308.
"make a groove along the top with their fingers, then lay a string or strap in the "groove and fill it up with earth, pressed very hard. The cord or strap is then "drawn out so as to leave a tube, and a funnel is moulded at one end to contain "the tobacco from their pouches. The Tekke then drops on all fours, or lies down "flat, and applying his lips to the orifice at the other end of this original smoking "apparatus, he draws away until his eyes grow dim, and sometimes converts himself "into a kalian by holding water in his mouth."

These Asiatic instances afford an exact parallel to the built-up earth-pipes of South Africa.

Excavated earth-pipes also occur frequently in the Central Asiatic region. In his account of the travelling-pipe of the Turkomans, at the south-east end of the Caspian Sea, Lieut. A. Conolly writes:* "They wet the ground to the consistency "of clay, and cut a small trench, in which they lay a string: then, beating down "earth upon this, they draw it gently out, and a channel is left, on one end of which "they put a pinch of tobacco, and to the other their mouths, and inhale what my "friends described as 'a draught cool as the breath of Paradise.'" At an earlier date S. G. Gmelin† figures and describes an underground pipe extemporised by the Turkomans of the Island of Cheleken, eastern Caspian Sea. His illustration is here reproduced in Fig. 10. According to him, a clean, sandy but moist ground is chosen. In this they scoop out with their hands a long groove, in which they lay a piece of rag twisted up to the thickness of a quill. The groove is then filled in and the earth pressed down. Next, the rag is drawn out, leaving a subterranean channel opening on the surface at both ends. One opening is enlarged to form a round "bowl" for the tobacco, on which live embers are placed. The smoker lies down and sucks the smoke through the smaller orifice.

In Sir W. Martin Conway's book, "Climbing in the Karakoram Himalayas," p. 87, an illustration (copied in Fig. 8) of a coolie smoking from an excavated pipe suggests a very simple (and shorter) Himalayan form of the Turkoman pipe described by Conolly and Gmelin.

A slight modification of this type is described by O. Olufsen‡ as used in Bokhara by both men and women as a substitute for the regular water-pipe. He says: "Poor "people often smoke dried apricot leaves, and if they have not got any pipe, they "dig a hole in the earth for the leaves, and, after sticking a straw slantingly into "the hole, they lie down flat on the ground sucking at the straw."

The resemblance of these Asiatic excavated pipes to those of South Africa is noteworthy, especially when correlated with the similarity existing between the built-up earth-pipes in the two regions.

A parallel to the South African portable derivative from the earth-pipe (Fig. 3) is furnished by a smoking method practised by Sikh soldiers when campaigning. In a French illustrated paper of several years ago (I have not the exact reference) the following passage occurs: "Ces hommes se refusent à toucher aux cigarettes et "aux cigarettes qui se distribuent dans les tranchées, car elles ont, au point de "vue religieux, cette tare d'avoir été confectionnées par les mains de chrétiens. "Mais ils n'en satisfont pas moins leur besoin de fumer. Dans une petite masse "argileuse pétrie entre ses doigts, le Sikh se modèlent un fourneau de pipe qui n'a, "comme élégance de forme, qu'un lointain rapport avec ceux qu'on tourne chez "nous en plaine pâte crémeuse de l'écumé de mer. Puis, dans le fourneau durci "au feu, il introduit une paille qui servira de tuyau. Encore n'est-ce pas directe-"ment par ce tuyau qu'il doit aspirer la fumée, mais bien par l'orifice laissé libre

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* "Journey to the North of India," 1834, I., p. 74.
† "Reise durch Russland," 1784, Pt. IV., p. 66, and Plate VIII.
The most important fact that a side result of the observations has been to throw much light on movements of visited in Cardigan, Merioneth, South Wales, Crewe, Malvern and Liverpool; and and 232 up to the present remeasurements have been.

The parallelism between these various smoking methods in South Africa and Central Asia may be carried still further if we compare in the two regions a very simple type of clay or mud pipe which has also, probably, an origin traceable to the built-up earth-pipe. Fig. 5 represents a very rudimentary pipe such as is made by Kaffir convicts in Natal for illicit smoking. It is merely a tapering tube of baked clay, about 4 inches long, open at both ends. The wider end serves as "bowl," the narrower as mouthpiece. There is no demarkation between "bowl" and mouthpiece, the bore tapering gradually from one end to the other. This pipe was obtained by Dr. H. D. Kingston. Fig. 6 shows an almost identical form of pipe obtained by Mr. W. Crooke at Nasirabad in Rajputana; made of sun-dried mud (or, possibly, camel dung) very full of grass fragments. Its form differs from that of the Kaffir example only in size and in the "bowl" being demarked from the stem by a sudden narrowing of the bore about half way down the pipe.

These hurried notes do not pretend to exhaust the subject, but aim merely at emphasising how very closely the varieties of earth-pipes and their derivatives correspond in the two regions dealt with. The resemblances are sufficiently striking and numerous to suggest that they must be explained by the assumption of a culture-link between the two widely-separated areas.

The actual specimens figured (Figs. 1 to 6) are now all in the Pitt Rivers Museum at Oxford, and are reproduced on the scale of one half linear measurement.

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Physical Anthropology.

Sex and Growth Features in Racial Analysis: an abstract of a communication read before the Royal Anthropological Institute on February 28th, 1922. By Miss R. M. Fleming.

A few years ago, as a student in the department of geography and anthropology at Aberystwyth University, I began a study of women and children which I hoped would be a supplement to Professor Fleure's survey of the adult male Welsh population, and would show how far sex and growth, as well as race type, influence physical characters. A good foundation of data to work upon is now available, as I have measured some thousands of women and children and, in order to gain a practical experimental understanding of sex differences, some hundreds of men. The difficult and necessarily slow process of analysis of these data is by no means complete and it must, of course, be some years before sufficient remeasurements of the same children at different periods of their growth can be taken to ensure definite certainty of results. A few salient points have, however, emerged.

I. As regards Children.

First measurements have been taken on two to three thousand children, but up to the present remeasurements have only been analysed in 419 cases, 187 ♂ and 232 ♀ remeasured at intervals of from one to two years. The work is still going on, and I hope in time to secure much more complete series. Schools were visited in Cardigan, Merioneth, South Wales, Crewe, Malvern and Liverpool, and a side result of the observations has been to throw much light on movements of the population. The most important fact that emerges is the difference in rate of